Managing external dependence: a study on the effects of external factors on firm behaviour and performance

PhD Dissertation

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1. SUMMARY

Management scholars involved in explaining or forecasting firm behaviour have concentrated on a variety of internal and external factors to the firm. Between the internal and the external factors, the less studied are the latters. Even if a growing number of academics have been investigating different aspects of how firms deal with, shape, and are shaped by their external environment, there are still missing evidences on the relations with firm behaviour and firm performance.

The external environment of a firm – e.g., government laws, liberalization, business policies, regulation, institutional quality, financial instability, etc. – includes a variety of elements whose existence have an impact on firm behaviour and performance. According to prior studies, the external environment is considered as the "time giver of an organization" and, as such, influences firms resource allocation, and consequently performance. The influence of external elements can be direct (for example, the actions directed to provide helps to firms) or indirect (for example, the influence of the business environment on firm resource allocation). All direct and indirect elements are able to strongly influence firm behaviour, and consequently firm performance. The evolution of business requires that firms continuously adapt to external changes. As a result, understanding deeply the effects on firms, in terms of behaviour and performance, is of relevant importance due to the continuous external changes that interests the firms. Through this dissertation I analyse the effect of different external elements on firm behaviour and performance.

The first paper, titled "*Enjoy today because nothing is sure about tomorrow: unintended consequences of eligibility for debt suspension*", analyses the effect of a temporal debt suspension program, designed to help specific firms to postpone financial payments, on firm resource allocation. I found that these programs – and their temporal effects in term of short-term positive benefits – may induce a short-term orientation, and so may negatively

impact eligible firms. I test the hypotheses by exploiting a quasi-natural experiment provided by a financial debt suspension program implemented in Italy after 2009 (*moratoria*) and applying a difference-in-differences design with coarsened exact matching to a unique database with 382,690 firm-year observations between 2006-2015. The results show that eligibility for debt suspension programs changes eligible firms' temporal orientation in resources allocation with respect to non-eligible firms. Overall, the findings suggest that temporal debt suspension programs, albeit designed to help eligible firms overcome temporary financial constraints, could actually induce firms' short-term orientation.

The second paper, titled "*What determines firm investments? An empirical investigation on the role of local institutional quality, industry regulation and state ownership*", examines the influence of local institutional quality (e.g. government effectiveness, local corruption, regulatory quality, etc.) on firms' investments, since literature underlines that the national institutional quality is one of the key driver of firms' resource allocation. To this purpose, I collected data about a large sample of limited companies in Italy, a country characterized by significant variation of institutional quality within it. The results show that higher local institutional quality positively influences firms' total investments. Moreover, the results highlight that regulated industry and state-ownership moderate this relationship. In particular, I find that, when local institutional quality decreases, regulated and state-owned firms invest more than non-regulated and non-state-owned firms; the opposite is true when local institutional quality increases. These findings underline the importance of local institutional quality and the heterogeneous reaction of regulated and state-owned firms to changes in the institutional environment.

Finally, the third paper, titled "*Working more or working less? The impact of shop opening hours deregulation on firm performance*", analyses the effect of a specific kind of liberalization issued by the government (deregulation of shops opening hours), on firm

performance. In fact, despite there is a growing consensus among scholars that the liberalization of shops opening hours increases revenues and creates jobs, there are missing evidences on the consequences of this kind of liberalization on firm performance. Although theory establishes a direct link between increasing of shop opening hours with revenues and employment, is challenging to rule out how firms react to this and if there are effects on firm performance. Although several studies on firms' strategic choices on opening hours have recently been released, no empirical studies provide evidence on firms' performance following a change in regulation of shop opening hours. I explore the effects of extended shopping hours on performance faced by firms operating in the retail industry. To this purpose, I collected data about a large sample of limited companies in Italy, where a reform was issued in 2012 to boost the economy even through a liberalization of shops opening hours. Using data of Italian firms operating in the retail industries, I find that reducing restriction on shopping hour's increases revenues and personnel costs. Interestingly, the model predicts that the deregulation of shopping hours involves firms' lower performance.

Overall, this dissertation extends the literature on the effects of the external environment, by investigating how different external factors are able to strongly influence firm behavior and performance. The results confirm what prior studies explain about the relevant effect of the external environment on firms from several points of view.

2. PAPER 1

Enjoy Today Because Nothing Is Sure About Tomorrow: Unintended Consequences Of Eligibility For Debt Suspension

ABSTRACT

This study explores whether an exogenous regulatory shock—a debt suspension program aimed at alleviating firms' financial constraints—may have favored beneficiaries' change in temporal orientation. In particular, we exploit a quasi-natural experiment by collecting firm-level data on firms eligible for a financial debt suspension program implemented in Italy after 2009. We test our hypotheses applying a difference-in-differences design with coarsened exact matching to a unique database with 382,690 firm-year observations during the period 2006–2015. Our results show that eligibility for debt suspension programs changes eligible firms' temporal orientation in resources allocation with respect to non-eligible firms. Overall, our findings suggest that temporal debt suspension programs, albeit designed to help eligible firms overcome temporary financial constraints, could actually induce firms' short-term orientation.

INTRODUCTION

Temporal orientation is a central concept of a firm's strategic orientation (Mosakowski and Earley 2000, Souder and Bromiley 2012). The time horizon of strategic decisions, like capital investments (Nadkarni, Chen, and Chen, 2016), may produce (positive or negative) consequences for firm-level and country-level performance (Hayes and Abernathy 1980).

Management studies have examined temporal orientation with the primary objective to

understand its impact on firms' resource allocation and consequent outcomes (Reilly, Souder, and Ranucci, 2016). From a temporal orientation perspective, the most critical management choices are intertemporal decisions, or those decisions in which "the course of action that is best in the short term is not the same course of action that is best over the long run" (Laverty 1996: 828). The analysis of these choices is key to exploring whether individuals or companies are affected by "temporal myopia," or the tendency to overstate either the long term or the short term (Levinthal and March 1993).

Literature argues that individuals and firms have different temporal orientations: while some are inclined to design strategic decisions for a distant future, others do it for a near future (Flammer and Bansal, 2017). In this regard, the empirical evidence underlines that an orientation toward short-termism—a tendency to emphasize near results at the expense of more distant ones (Laverty, 1996; Marginson and McAulay, 2008)—is more common than an inclination to long-termism (Flammer and Bansal, 2017). Moreover, the literature emphasizes that short-termism may imply negative consequences for firms and for society as a whole, as it may compromise projects with high potential returns in the long run (Laverty, 1996).

Previous studies have explored the determinants of short-termism mainly at the individual level and, to a lesser extent, at the firm level (Flammer and Bansal 2017, Laverty 1996). In this respect, the former have analyzed managers' characteristics (Bertrand and Mullainathan 2003, Das 1987, Flammer and Bansal 2017), showing that individuals prefer lower, short-term rewards to higher, long-term ones (Das 1987, Frederick *et al*. 2002). The latter have, instead, highlighted that short-term orientation at the firm level is emphasized by some circumstances (Flammer and Bansal, 2017; Reilly *et al.*, 2016; Souder and Bromiley, 2012), for example when firms face cash constraints (Souder and Shaver, 2010) or are new ventures (Wang and Bansal, 2012).

Following calls to explore the determinants of short-termism at the organization level

(Flammer and Bansal 2017), and building on the idea that temporal orientation is a dynamic attribute sensitive to changing firm and environmental conditions (Souder and Bromiley 2012), this study explores whether a new regulation in place (i.e., a debt suspension program) may impact eligible firms' emphasis on the short term at the expense of the long term. In particular, we argue that debt suspension programs, although designed to support eligible firms during the financial crisis, could have also impacted their temporal orientation by inducing a "relative cognitive dominance of the near versus distant future" (Das 1987: 203). Our core prediction is that these programs may have actually induced eligible firms to exploit third parties' financial resources and form the expectation that similar concessions will be repeated in the future (Kanz, 2016). As a result, eligible firms "enjoy the quiet life" (Bertrand and Mullainathan, 2003) and underinvest for the long-term horizon (Bebchuk and Stole, 1993).

To overcome the obstacles implicit in the empirical examination of temporal orientation (Flammer and Bansal, 2017, Laverty 1996, Reilly *et al*. 2016), we exploit a quasi-natural experiment provided by an environmental exogenous change in the regulation: the issue of a financial debt suspension program in Italy beginning in 2009 (the so-called moratoria). For this purpose, we collected data on all Italian limited companies with revenues higher than 5 million euros. Our final database is a yearly panel of 38,269 non-financial firms during a 10-year period (2006–2015). To test our hypotheses, we use a difference-in-differences (DID) design with a coarsened exact matching—with the treatment group composed of firms eligible for the debt suspension program and the control group composed of non-eligible firms. Our results support the hypothesized effects, indicating that the debt suspension program changes firms' temporal orientation and induces short-termism. In the period following the debt suspension, we observe that eligible firms change their resource allocation with respect to non-eligible firms—that is, they decrease more long-term

investments and increase more dividend distributions and financial leverage—with negative consequences for their bankruptcy risk. In sum, our findings suggest that debt suspension programs may induce eligible firms to a short-termism orientation, which can harm both the lenders granting these benefits (Musumeci and Sinkey 1990, Philippatos and Viswanathan 1991) and the beneficiaries themselves.

Our study contributes to literature on firms' temporal orientation, time-based agency problems, and the effect of debt renegotiations. First, we answer the recent call advanced by Reilly *et al*. (2016: 1186) to provide "theory-driven predictions about the consequences of differing horizons" and to further explore the unexpected temporal effects in management studies (Souder and Bromiley 2012). In particular, our analysis of the consequences of the issue of debt suspension programs shows that external regulatory changes providing temporal benefits may affect firms' temporal orientation and induce a short-term resource allocation. Second, by investigating the consequences of debt suspension programs for resource allocation and bankruptcy risk, we advance our knowledge of time-based agency problems and the effects of temporal orientation on stakeholders (Flammer and Bansal 2017, Reilly *et al*. 2016). In this respect, our results suggest that the issue of these programs may induce a short-term resource allocation that benefits shareholders (higher dividend payout) at the expense of other stakeholders, like employees (less long-term investments) and debt-holders (higher leverage), and the firm itself (higher bankruptcy risk). Third, our study analyzes the temporal consequences of policies promoted by national governments to provide financial resources and thus to promote firms' survival during the recent financial crisis. Our results contribute to the debate on the effects of debt renegotiations (Isagawa *et al*. 2010, Musumeci and Sinkey 1990, Philippatos and Viswanathan 1991) by showing that debt suspension programs may induce an intended firm's short-term orientation that negatively impacts the bankruptcy risk.

THEORETICAL BACKGROUND AND HYPOTHESES

The Impact of Environmental Change on Resources Allocation

The external environment is the "time giver of an organization" (Nadkarni *et al.* 2016: 1137) and, as such, influences firms' resource allocation (Rumelt, 1995). The relevance of the environment—and particularly of its changes—on resource allocation has been supported by several studies (Cheng and Kesner, 1997; Harris, Kriebel, and Raviv, 1982; Meyer, 1982). For instance, Meyer (1982) underlines that significant negative environmental changes (e.g., crises, disasters, threats) influence organizational behavior, as they stimulate firm responses.

Several types of environmental changes—such as government laws, taxation, regulation, business policies, country economic growth, credit crunch, and financial instability—may affect firms' resources allocation. Firms respond to external environmental changes when they notice the variation and interpret it either as a threat or as an opportunity (Nadkarni and Barr 2008). In other words, firms try first to understand what the event signifies, and then they develop a specific response (Nadkarni and Barr, 2008). In short, changes in the external environment generate stimuli that guide the focus of firms' attention (Ocasio, 1997), moving firms to change their behavior.

The recent financial crisis represents an ideal research setting to explore the impact of an external regulatory change on firms' temporal orientation and resource allocation. First, the financial crisis developed into a banking crisis that caused a sudden shortage of financial funds in most national economies (Cornett *et al.*, 2011). Second, national governments and policymakers promoted debt suspension programs, providing eligible firms with short-term financial relief, to attenuate the negative consequences of the credit crunch. Because these programs determine firms' eligibility ex-ante, in other words, they specify the criteria that identify which firms can access the financial benefits (Tanayama, 2007), they represent an ideal quasi-experiment to explore how environmental changes—providing short-term

financial benefits—may influence firms' temporal orientation in resources allocation.

Debt Renegotiation and Temporal Orientation of Resources Allocation

Debt renegotiations are a type of "debt moratorium" usually used by debt issuers to reduce the negative consequences of financial or economic crises (Calomiris, Klingebiel, and Laeven, 2012). These mechanisms can involve one or both of the following options: (i) write off the entire or part of the debt; and (ii) postpone payments on existing debt (typically referred to as debt rescheduling or debt suspension). Thus, these programs provide temporal short-term benefits to firms, by reducing the financial cash outflows previously scheduled with their lenders.

The phenomenon of debt renegotiation has been explored from the lender perspective. Previous studies show that it is not easy for borrowers to renegotiate their debt (James, 1995), as financial institutions infrequently make concessions to firms with public debt outstanding (Asquith *et al*. 1994). This happens because the lenders assume that debt renegotiations may push the borrowers to exploit them. In other words, the expectation of a future debt relief may induce the borrowers to perceive a weak execution of the financial contract (Kanz, 2016) and thus to act opportunistically.

Several studies show that debt renegotiation announcements penalize the lenders, and determine negative consequences for their share price (Musumeci and Sinkey 1990, Philippatos and Viswanathan 1991) or their health measured through the bad loan ratio (Isagawa, Yamaguchi, and Yamashita, 2010). However, while the effects of debt renegotiations on the lenders have been largely investigated, scholars have not devoted the same attention to exploring the effects of debt renegotiation announcements on the borrower and, in particular, on its temporal orientation.

In this study, building on the theoretical work by Cho *et al*. (1997)—who show that debt renegotiations may induce the borrower to change its resource allocation—we analyze

one type of debt renegotiation—"debt suspension"—and explore its implications for borrowers' resource allocation. In particular, we argue that debt suspensions, albeit designed to reduce the likelihood that firms become financially distressed, can actually induce an unintended and undesirable negative behavior in the beneficiaries. Building on Cho *et al.* (1997), we claim that the temporal provision of resources, whose cost is (partially) supported by third parties, will change firms' temporal orientation in the resource allocation. In particular, debt suspensions will impact key variables expressing firms' temporal orientation on resource allocation (i.e., a different temporal distribution of benefits and costs)—that is, long-term investments, dividend payout, and financial debt leverage (Desyllas and Hughes, 2010; Reilly *et al.*, 2016)—with negative consequences for firms' bankruptcy risk.

Hypotheses Development

Debt suspension programs and long-term investments

Firms inclined to plan strategies with a long-term perspective are considered to be "long-term oriented firms" (Neubaum and Zahra, 2006; Sheard, 1995), as the targets of their investments will be realized in the distant future. Long-term investments are pursued with the aim of reaching desirable long-term outcomes at the expense of short-term outcomes (Reilly *et al.*, 2016). Typical long-term investments are, for example, expenditures for durable assets and R&D projects (Le Breton–Miller and Miller, 2006). Consistent with this view, previous studies support the idea that a long-term temporal orientation favors firms' commitment to higher long-term investments. For example, they show that firms having a higher proportion of shareholders with a long-term perspective are more prone to invest (Aghion, Van Reenen, and Zingales, 2013), or that firms providing managers with long-term compensation have higher investments intensity (Lerner and Wulf, 2007).

Despite the documented positive effects of a long-term orientation, firms may overemphasize positive returns in the near future with the risk of compromising long-term

outcomes (Holmström 1999, Laverty 1996 and 2004). More specifically, a short temporal orientation will push firms to reduce the resources allocated to long-term investments (Chrisman and Patel, 2012; Desyllas and Hughes, 2010), whose outcomes take a long time to materialize (Flammer and Bansal 2017, Hall *et al*. 2005, Laverty 1996). This behavior represents a form of myopia (Holmström, 1999; Levinthal and March, 1993), as it moves firms to underinvest in opportunities that show results over the long term.

The problems of temporal myopia will likely be exacerbated if—during a financial crisis—firms are eligible for debt suspension and can access short-term resources provided at the expense of third parties. These extra resources are short-term benefits, since they provide a temporal positive effect on debt burdens, reducing the pressure on debt repayments. The alleviation of the debt burdens may induce firms to change their investment behavior (Sachs, 1990), since they have more freedom to decide their resource allocation and to "enjoy the quiet life" (Bertrand and Mullainathan, 2003). In other words, resources provided with a short-term perspective during a period of shortage of financial funds might induce eligible firms to become more short-term oriented, thereby reducing their long-term investments. The provision of short-term benefits may, instead, induce the beneficiary firms to use the extra resources with a short-term perspective.

In sum, we argue that firms eligible to obtain short-term benefits will be more short-termist, and so they will reduce their long-term investments more than non-eligible firms will. Stated formally:

HYPOTHESIS 1. *Firms eligible for debt suspension programs decrease long-term investments more than non-eligible firms do.*

Debt suspension programs and dividend payout

The time orientation of a firm may likely affect also the decision to either distribute profits to the shareholders or reinvest them in the firm to promote long-term investments (Lazonick,

2014). Money distributed to shareholders "disappears" from the firm and does not benefit its long-term future perspective (Kaplan, 2018). The distribution of financial resources is guided by the willingness to gratify shareholders through high dividend payouts in the short term (Davies *et al.*, 2014), at the expense of investing in future growth opportunities (Brauer, 2013). This behavior could represent a form of shortsightedness (Holmström, 1999; Levinthal and March, 1993), since firms use financial resources to satisfy short-term shareholders' interests instead of investing in high-value opportunities that show their effects only in a long-term horizon.

The external environment (Reilly *et al.*, 2016) can induce firms to reduce capital or R&D expenditures in order to increase the level of short-term profits and dividends (Dickerson *et al.* 1995). The main external cause of short-termism is the capital markets' pressure on short-term targets, but also other environmental factors (like market price competition) may induce firms to have a short-term orientation in strategic decisions (Graafland, 2016). These findings suggest that external factors may push firms to change their time horizon in resource allocation. In particular, environmental changes may push firms to change temporal orientation and behaviors in terms of financial and operational actions, increasing the dividends payout (Liljeblom and Vaihekoski, 2009). Because of a myopic view, decision-makers frequently prefer a "smaller and sooner" dividend over a "larger and later" return (Davies *et al.* 2014, Frederick *et al.* 2002).

The problems of temporal myopia may be intensified when – during a financial crisis - firms access short-term benefits because these benefits reduce the pressure of debt obligations and induce firms to manage resources with higher autonomy (Sachs, 1990). The increased "freedom" can bring eligible firms to allocate resources in a more relaxed way (Bertrand and Mullainathan, 2003) and increase their tendency to pay dividends, instead of retaining their profits within the firm to finance long-term investments.

Hence, we argue that firms eligible for debt suspension programs will become more short-term-oriented and thus, everything else being equal, they will increase their dividend payouts more than non-eligible firms. Stated formally:

HYPOTHESIS 2. *Firms eligible for debt suspension programs increase dividends payouts more than non-eligible firms do.*

Debt suspension programs and financial debt

Studies exploring the relationship between resource allocation preferences and temporal orientation (O'Brien 2003) suggest that firms' temporal orientation is likely to impact not only how firms use their resources but also the amount of (financial) resources they are likely to borrow (Scherr and Hulburt, 2001). In particular, firm short-termism may induce firms to increase leverage (Berg and Gottschalg, 2005) and obtain more resources to operate the firm.

An increase in leverage could happen for two reasons. First, short-term-oriented firms are less concerned about risks connected to higher debts and so tend to increase financial debt, assuming higher risks (Dowd, 2009). Second, short-term-oriented firms are likely to increase leverage in order to have more extra resources for short-term purposes. So short-term-oriented managers who like to "enjoy the quiet life" (Gray and Cannella Jr, 1997; Bertrand and Mullainathan, 2003) will increase their leverage to obtain more resources to spend in the present at the expense of the future (Bebchuk and Stole, 1993).

The tendency of short-term-oriented firms to increase financial leverage is likely to be exacerbated when – during a financial crisis - firms have access to short-term benefits due to a debt suspension program. By alleviating the weight or the urgency of an obligation to third parties, the debt suspension program will induce eligible firms to increase financial debt, given that they expect to access the debt suspension program in case of financial problems. Therefore, eligible firms will likely borrow more resources.

In sum, we argue that the short-term benefits of a debt suspension program will

determine eligible firms' temporal myopia and will produce the unintended effects of increasing the firms' financial leverage in comparison to non-eligible firms. Stated formally:

HYPOTHESIS 3. *Firms eligible for debt suspension programs increase financial leverage more than non-eligible firms do.*

Debt suspension program and bankruptcy risk

Temporal orientation influences firms' resources allocation, and thus also firms' economic and financial outcomes (Souder and Bromiley, 2012). As a result, temporal orientation could influence firms' bankruptcy risk, or the risk of not generating enough cash to reimburse financial and operating obligations (Nakano and Nguyen, 2012).

The influence of short-term orientation on bankruptcy risk is exacerbated when – during a financial crisis - firms become aware of their eligibility for a debt suspension program. This happens because these programs may reduce the amount of resources necessary to serve the debt, and so may increase the amount of financial resources used by the firm in the short run. Short-term-oriented firms will use these resources to reach near-term objectives, since firms accentuate short-run response to short-run reaction, at the expense of long-run outcomes (Cyert and March, 1963).

Firms that are eligible for a debt suspension program have the opportunity to postpone their financial obligations, which means they are eligible for a kind of "temporal protection" from the bankruptcy risk (since they will reduce their cash outflows for a limited time) in case of financial problems. Eligible firms have fewer incentives to take actions that may reduce their bankruptcy risk, as they have access to short-term financial benefits (Cho, Linn, and Nakibullah, 1997). If the likelihood of short-term-benefits provision is predictable and the cost of these resources is (partially) supported by third parties, firms will likely increase their risks, increasing the chance of bankruptcy (Legros and Mitchell, 1995).

In sum, we argue that firms eligible for debt suspension programs increase their

bankruptcy risk more than non-eligible firms. Stated formally:

HYPOTHESIS 4. *Debt suspension programs increase the bankruptcy risk of eligible firms more than for non-eligible firms.*

RESEARCH METHOD

Empirical Setting

The study of the impact of firms' eligibility on firms' temporal orientation in resource allocation is difficult to address empirically since "temporal orientation is inherently unobservable … and is likely endogenous" (Flammer and Bansal 2017: 1828). For instance, finding a positive relationship between eligibility and short-term orientation may be spurious if this relationship is driven by unobserved time-variant firm characteristics that enhance a firm's propensity to become eligible and, at the same time, make the firm short-term oriented. Moreover, the relationship between eligibility for debt suspension and a short-term orientation is subject to reverse-causality concerns. For example, a positive correlation between short-term benefits and eligibility may indicate not a causal relationship but that short-termist firms are more likely to become eligible for debt suspension program. In short, while empirically challenging, using a research design that provides a clean causal estimate is central to understanding the impact of eligibility on firms' temporal orientation. Therefore, to rule out these and other potential confounders, it is necessary to use a research design that provides exogenous shifts to eligibility.

The specific source of such exogenous variation in the level of short-term benefits in our study is a debt *moratoria* implemented in Italy after 2009. In that year, the Italian Banking Association (ABI) and the Association of Italian Corporations (Confindustria) signed an agreement introducing a particular moratoria program, contemplating the suspension for 12 months of the principal of mortgage and leasing payments for micro, small, and medium enterprises (MSMEs). The eligible firms for the moratoria were MSMEs,

defined by the EU recommendation 2003/361 (Title 1, Article 2) as "enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million." Potential beneficiaries can request the application of the debt suspension in case of financial problems. The *moratoria* represents a kind of debt suspension that increases debt maturity (i.e., the proportion of long-term debt of eligible firms), decreasing cash outflows in the short term. This reduction of cash outflows is obtained at the expense of financial institutions, which accept a payment's postponement without increasing the interest rates. According to ABI (updated April 10, 2018), the *moratoria* has been granted by almost all Italian banks. Moreover, from 2009 to 2018, more than 450,000 firms benefited from the debt suspension program promoted with the 2009 agreement (ABI press release of May 5, 2018). These statistics indicate that the moratoria involved a significant number of eligible firms.

Several factors make the setting of the Italian debt moratoria suitable for the present study. First, the moratoria occurred every year between 2009 and 2015 (the last year observed in our database), therefore allowing us to identify a sufficiently long period to observe the impact of the debt moratoria on eligible firms. Second, the Italian moratoria maintained the same characteristics over the 2009–2015 period. By contrast, other countries have offered various instances of amnesties with dissimilar characteristics between the different programs (Shevlin *et al*. 2017). Third, focusing on one country allows us to reduce the omitted-variable problem characterizing multi-country studies that cannot account for all the time-variant country characteristics affecting firm behaviors (De Jong, Kabir, and Nguyen, 2008). Fourth, Italian firms generally make significant use of financial debt and are therefore likely to use the debt suspension program in case of necessity. In more detail, the Italian firms leverage is about 10% higher than the leverage of firms in other European countries (De Socio, 2010).

Sample

We collected data on Italian limited companies through AIDA, a database owned by Bureau van Dijk. The database contains accounting information on all 64,009 non-financial limited companies with revenues higher than five million euros for at least one year during the 10-year period 2006–2015. Our sample allows us to have three years of observations before (2006–2008) and six years after the introduction of the moratoria (2010–2015). The firm panel contains detailed accounting data for the period under analysis.

Variables Description

Independent variable

Debt suspension. The *debt suspension* program, which occurred every year since 2009, identified MSMEs as the eligible firms. Our independent variable identifies the effects of the program on two different kinds of firms: *eligible* and *non-eligible*. Debt suspension takes a value of one for firms that are eligible to access the benefits of the *moratoria*, and 0 otherwise.

Dependent variables

To capture the company's change in temporal orientation for resource allocation, and its consequences, we use firm-year data for long-term investments, dividend payout, financial leverage, and bankruptcy risk. To reduce the impact of outliers, we drop in our main specifications all observations with a dependent variable below the 2nd and above the 98th percentiles of their distribution. Results are robust to the inclusion of outliers (as shown in the robustness checks).

Long-term investments. To measure long-term investments, we use tangible and intangible assets expenditures, which capture the amount of resources whose potential value is likely to be realized over the long term. According to prior studies (Brauer, 2013), tangible

and intangible assets expenditures are computed as the ratio of the sum of tangible and intangible assets expenditures divided by total assets (investments/assets). Investments over assets is a proxy that is usually used to measure the propensity of firms to prioritize long-range projects whose impact is likely to come to fruition only in the long run (Lumpkin, Brigham, and Moss, 2010). Therefore, this proxy has been used to identify whether a firm behaved in a short-termist way or not (Marginson and McAulay, 2008).

Dividends payout. To measure dividend payout, we use the dividend disbursement, which has been used by Davies *et al*. (2014) as an important indicator of a short-term orientation. In fact, short-termism may encourage firms to distribute dividends to meet the shareholders' demands for short-term income streams, at the expense of retaining resources to finance long-term investments (Davies *et al.*, 2014). Dividend payout is computed as the natural logarithm of the dividend disbursement. This proxy has been used to identify whether firm behavior is short-term-oriented (Brauer, 2013).

Financial leverage. Many studies dedicated to capital structure derive from analyses of the determinants of firm debt ratios and analyses of issuing firms' debt versus equity financing option (Hovakimian, Hovakimian, and Tehranian, 2004). Therefore, to measure financial leverage, we use the debt-equity ratio (Ma and Khanna 2016), calculated as the ratio of net financial position to equity.

Bankruptcy risk. To capture a firm's bankruptcy risk, we use the Altman score, a proxy generally used by scholars to measure the distance to bankruptcy (Altman, 1968; Laeven and Levine, 2009). The Altman's score for private firms is calculated as follows: (0.717 * working capital divided by total assets) + (0.847 * retained earnings divided by total assets) + (3.107 * income before interest expense and taxes divided by total assets) + (0.420 * market value of equity divided by total liability) + (0.998 * sales divided by total assets) (Altman, 2000). A higher Altman score indicates a longer distance to bankruptcy, and a lower

value a closer distance to bankruptcy.

Control variables

One of the most important advantages of the difference-in-differences (DID) method is that fixed variances in the treatment and control observations do not influence the treatment valuation (Blackwell *et al.*, 2009). Since variances are fixed, through the DID method pre-existing differences between eligible and non-eligible groups are removed by the treatment estimation. Moreover, we estimate our models including firms' fixed effects, which control for any firm time-invariant characteristic, including where the firm operates and its ownership (e.g., privately, publicly, or foreign-owned). We also include year fixed effects, which control for yearly aggregate shock.

The inclusion of firm and year fixed effects in the DID model does not account for time-variant differences at the firm level. To capture time-variant effects, we include a set of time-variant control variables that are likely to simultaneously influence eligibility for the program and our dependent variables; their omission would represent an omitted-variable problem and cause an endogeneity problem. First*,* to account for size, we control for *revenues* and the number of *employees*. We control for firm size since it can "be considered as a proxy for the amount of slack resources available to a firm" (Fuentelsaz *et al*. 2002: 249). Moreover, we include this control because smaller firms might have access to a lower quantity of resources and might underperform bigger firms (Waddock and Graves, 1997). We control for firm *EBITDA* (i.e., Earnings Before Interest, Taxes, Depreciation, and Amortization), which captures the quality of firms' operations. Finally, when the dependent variable is bankruptcy risk, we control for financial leverage, using the *Debt/Equity ratio* and the *Debt/EBITDA ratio*, and for *total assets*.

Summary statistics

The whole database contains accounting information on 64,009 non-financial firms during the 10-year period 2006–2015. To clearly identify eligible and non-eligible firms, we drop observations of firms that did not continuously maintain the same characteristics to benefit from the moratoria during the post-treatment period (as shown in the robustness checks, results are robust to the inclusion of these observations). Moreover, we drop observations with missing values. As a result, the final sample consists of a yearly panel of 38,269 non-financial firms from 2006 to 2015. Descriptive statistics for the variables and their pairwise correlations are reported, respectively, in Table 1 and Table 2. All data are computed at the end of each fiscal year.

Insert Tables 1 and 2 about here

Analytical Method

To estimate the impact of the debt suspension program on firm behavior—in terms of resource allocation—we use a DID design model. Adopting this model, we can estimate the effects of the program by comparing the variations in results over time among eligible firms (firms eligible for the debt suspension program) and non-eligible firms (firms non-eligible for the debt suspension program). The method evaluates the differential effect of the variation caused by the program through two different groups (Cerqueiro, Ongena, and Roszbach, 2016). Through this approach, we want to alleviate concerns that confounding factors during the analysis period drive the results (Altamuro and Beatty, 2010). This approach is generally used to observe the consequences of an identified regulation for two different groups: an "eligible" group composed of firms affected by the treatment, and a "non-eligible" group composed of firms not affected by the treatment. Through this method, eligible firms are matched to non-eligible firms in a control sample to reduce the influence of unobserved effects (Shevlin, Thornock, and Williams, 2017). The DID model eliminates fixed differences

between eligible and non-eligible groups, and considers post-treatment variations for the non-eligible firms as a counterfactual for what would have occurred if eligible firms had not been eligible for the *moratoria* (Gubler, Larkin, and Pierce, 2017).

The unit of analysis is the firm. Our methodology follows very closely that of Cuñat *et al*. (2012), who study the effect of governance proposals on firm value. Precisely, we estimate the following regression:

$Y_{it} = \alpha + \beta * \text{Debt\_Suspension}_{it} + \delta X_{it} + \gamma_i + c_i + \varepsilon_{it}$ (1)

where Y is our dependent variable at time *t* for firm *i*; *Debt_Suspension* is the "treatment dummy"—that is, a dummy variable equal to one if firm *i* is eligible for the program in year *t*. X_{it} is the vector of control variables, which includes revenues, number of employees, and EBITDA. γ_i represents year fixed effects, c_i represents firm fixed effects, and ε_{it} is the error term. The coefficient of interest is β, which measures the differential effect of the program implementation for eligible versus non-eligible firms. For example, H3 predicts that β should be positive and significant when Y_{it} is financial leverage, meaning that the program implementation increases--in the post-treatment with respect to the pre-treatment period--the financial leverage of firms eligible for the *moratoria*, more than the increase--in the post-treatment with respect to the pre-treatment period--observed in non-eligible firms.

Our identification strategy can be illustrated by an example. Suppose that our aim is to measure the consequence of the program implementation of 2009 on firm financial debt leverage. Additional events might have occurred around 2009, exercising a possible impact on firms' financial debt leverage. To consider such contemporaneous impacts, we use a control group (also called the "non-eligible group") that has been subject to the same contemporaneous shocks that impacted the treatment group. In this case, we will include in the control group firms non-eligible for the program implementation and calculate the difference in firm financial debt leverage before and after 2009 for the eligible firms

compared with the average change before and after 2009 for the control group. By calculating the delta between these two differences, we can then estimate the impact of the debt suspension program of 2009 on financial debt leverage, accounting for concomitant changes in financial debt leverage that are common to both groups.

To compare firms in the eligible and control groups that are not significantly different from one another in the pre-treatment period, we complement the use of the DID model with a coarsened exact matching (CEM) that improves "the estimation of causal effects by reducing imbalance in covariates between eligible and control groups" (Blackwell *et al.* 2009: 524). The use of a matching strategy in conjunction with a DID has the benefit of removing unobserved differences between comparable (due to matching) eligible and non-eligible firms (due to DID). Moreover, the inclusion of firm fixed effects and of the robust clustering of errors at the firm level allows us to account for heteroscedasticity, clustering of errors, and time-invariant firm differences that may simultaneously impact our independent and dependent variables. In a robustness check, we also adopt a more restrictive form of matching—called "exact matching"—finding similar results.

RESULTS

Regression Analysis

Table 3 shows the regression estimates of the impact of the debt suspension program on eligible firms, with respect to non-eligible firms, using a CEM based on revenues, employees, and total assets level.

Insert Table 3 about here

Results show that eligibility for the debt suspension program has a significant effect on long-term investments (column 1 of Table 3), since the effect is negative and statistically significant, with a decrease of long-term investments equal to around four percent in relative

terms. This result supports H1, and is consistent with a short-term orientation, given that eligibility for a short-term-benefits program changes firms' resources allocation, reducing their long-term investments. As predicted by H2, we find that eligibility for a debt suspension program increases the dividend payout among eligible firms compared with non-eligible firms. As shown in column 2 of Table 3, the effect is positive and statistically significant, with an increase of dividend payout equal to around three percent. Consistent with H2, eligibility for the short-term-benefits provision changed firms' resources allocation, moving eligible firms to increase their dividend distribution.

As predicted by H3, we find that eligibility for debt suspension program increases the financial leverage among eligible firms compared with non-eligible firms. As shown in column 3 of Table 3, the effect is positive and statistically significant, with an increase of financial leverage equal to around five percent in relative terms. Consistent with H3, the short-term-benefits provision changed firms' allocation resources, making eligible firms use more financial leverage.

Column 4 of Table 3 shows that eligibility for a debt suspension program increases bankruptcy risk among eligible firms compared with non-eligible firms, as the Altman score has a decrease equal to four percent in relative terms. Consistent with H4, eligibility for debt suspension changed the behavior of firms, increasing their bankruptcy risk.

To analyze the robustness of our results, we rerun our analyses using a CEM based not only on revenues, employees, and total assets (as done in Table 3) but also on performance and financial leverage (see Table 4).

Insert Table 4 about here

This more conservative matching allows us to remove unobserved pre-treatment differences between eligible and non-eligible firms due to performance and leverage. Thus,

we take even more similar eligible and non-eligible firms. Results are robust to this different specification of the matching method.

Empirical Design Validity

To assess the validity of our empirical design, we show the intended effects of the debt suspension program. The program has been designed to increase debt maturity (i.e., the proportion of long-term over short-term debt of eligible firms), decreasing cash outflows in the short term and postponing the obligations to the future. By doing this, firms postpone their cash outflows and reduce their financial constrains in the short term, increasing their capacity to fulfill short-term obligations.

In sum, the debt suspension program was introduced to lengthen the debt maturity of eligible firms. To verify that the debt suspension program had the desired effects, we verify whether eligible firms' financial debt maturity increased after the introduction of the debt suspension program, as this was the intended effect of the *moratoria*. As a measure of firms' financial debt maturity, we used two different indicators—short-term financial debt ratio and long-term financial debt ratio—which are expressed as the ratio on total financial debts. These measures are commonly used by academics to account for debt-maturity choices (Barclay and Smith Jr, 1995; Flannery, 1986).

Table 5 reports the results of a firm-year-level regression where the dependent variables are short-term and long-term financial debt respectively. The results indicate that firms eligible for the debt suspension program increase debt maturity (increasing their long-term financial debt ratio and decreasing their short-term financial debt ratio). This result suggests that the intended effects of the debt suspension program to increase firms' financial debt maturity are corroborated by our empirical design, assessing its own validity.

Insert Table 5 about here

Robustness Checks

In this section, we present different robustness checks and extensions of our baseline analysis. Overall, these additional checks provide evidence that our findings are robust to different specifications.

Pre-trend in the difference-in-differences. The results of the DID models can be biased if there is a pre-trend. To this end, we graphically inspect whether there is any evidence of a pre-trend in the data. Figures S1 through S4 in Appendix B plot the differences in means of the principal dependent variable between the eligible and the non-eligible firms. The horizontal axis indicates the time distance (in years) from the treatment, where 0 is the treatment year. When estimating this regression with year dummies, we exclude the year dummy for 0; therefore, all the other dummies plotted in the graph should be interpreted as an increase or a decrease with respect to time 0 (our reference point). The vertical axis indicates the difference in means of the dependent variable.

Insert Figures S1, S2, S3, and S4 about here

Figure S1 plots the differences in means of the long-term investments between the eligible and the non-eligible firms. The difference in means of the long-term investments is not significant in the pre-program period (indicating that there was no pre-trend) and decreases after the program. This suggests that the eligibility for short-term benefits provided by the debt suspension program leads eligible firms to decrease long-term investments in the post-treatment period.

Figure S2 plots the differences in means of the dividend distribution between the eligible and the non-eligible firms. The difference in means of the dividend distribution is not significant in the pre-program period and increases significantly after the program. This suggests that the eligibility for short-term benefits provided by the debt suspension program

leads eligible firms to increase dividend distribution in the post-treatment period.

Figure S3 plots the differences in means of the financial leverage between the eligible and the non-eligible firms. The difference in means of the financial leverage is not significant in the pre-program period and increases constantly in the following four years, before plateauing in year 5. This suggests that the eligibility for short-term benefits provided by the debt suspension program leads eligible firms to increase financial leverage for at least four years following the implementation of the debt suspension program.

Finally, Figure S4 plots the differences in means of the bankruptcy risk between the eligible and the non-eligible firms. The difference in means of the bankruptcy risk is substantially flat before the program, whereas it decreases after the program, suggesting that the program brings a change to the trend. This suggests that the debt suspension program led eligible firms to become more subject to bankruptcy risks.

Different censoring. As a further robustness check, we restricted the sample considering different percentages of censoring. Tables S1 through S3 in Appendix A show the estimated effect of the program implementation on firm behavior considering a change in the sample size due to a censoring of one percent, three percent, and four percent. Considering the different specifications, the effect with different size of censoring remains statistically and economically significant.

Insert Tables S1, S2, and S3 about here

CEM with exact matching. To check the sensitivity of our results to different specifications of the matching strategy, we perform the analysis adopting a *k-to-k* match (Blackwell *et al.*, 2009). This solution permits us to avoid some inconvenience. Generally, CEM uses all observations, developing strata that can incorporate different numbers of eligible and non-eligible observations. Within these strata, there might still be some

differences between eligible and non-eligible firms. To resolve this issue, we implement a very restrictive matching strategy whereby each eligible firm is matched only to the most similar non-eligible firm. Although this strategy reduces the amount of useful information used in the estimation model, it has the advantage of using only "perfectly" comparable observations (Table S4 in Appendix A). The results support H2, H3, and H4. H1 is not confirmed, as the sign of the coefficient is negative but not significant.

———————————————————
Insert Table S4 about here
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Inclusion of further control variables. Results might be affected by an omitted-variable problem if important controls simultaneously affecting the dependent and independent variables are not included in the model. To analyze the sensitivity of our results to the inclusion of other important controls, we specified an alternative model including additional potentially important control variables. Using different control variables, we obtain similar results (Table S5 in Appendix A).

———————————————————
Insert Table S5 about here
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Regression discontinuity design analysis. A possible alternative empirical strategy to analyze the impact of the debt suspension program is a regression discontinuity (RD) design that compares the dependent variable of eligible and non-eligible firms close to the treatment threshold. Whereas a growing number of empirical studies use the RD design to identify a causal relationship (Angrist and Lavy, 1999; Van der Klaauw, 2002), this strategy is not easily implementable in this study. In fact, to correctly apply this model, it is necessary to clearly define the threshold point at which the discontinuity needs to be estimated. However, in our specific case, firms eligible for the program must have fewer than 250 persons and an

annual turnover not exceeding 50 million euros, and/or an annual balance sheet total not exceeding 43 million euros. This implies that firms are eligible depending on two thresholds, each defined by two different criteria; as a consequence, we cannot clearly identify a unique threshold point. To circumvent this problem, we estimate a second-order polynomial model:

$$Y_{it} = \alpha + \beta * T_{it} + (1 - T_{it}) \sum_{p=1}^{2} \gamma_p * (S_{it})^p + T_{it} \sum_{p=1}^{2} \gamma_p' * (S_{it})^p + \delta X_{it} + \gamma_i + c_i + \varepsilon_{it} \qquad (2)$$

where $T_{it} = 1$ if firm i is eligible for the program and $T_{it} = 0$ otherwise; S_{it} = Score$_{it}$ − threshold; the parameters of the score function (γ_p and γ_p') are allowed to be different on the opposite side of the threshold to allow for heterogeneity of the function across the threshold. Given that contrary to classical RD design we do not have a unique threshold, we construct the following index that is aimed at capturing how far a firm is in percentage points from the two thresholds (the first based on employees and assets, and the second based on employees and revenues):

$$S_{it} = \left(\frac{Employees_{it} - 250}{250} + \frac{Assets_{it} - 43.000.000}{43.000.000}\right) + \left(\frac{Employees_{it} - 250}{250} + \frac{Revenues_{it} - 50.000.000}{50.000.000}\right)$$

(3)

By constructing this threshold, we can then implement the RD design applied by Bronzini and Iachini (2014). The model lets the dependent variable be a function of the threshold; the average treatment effect of the debt suspension program is calculated through the estimated value of the discontinuity at the threshold (Bronzini and Iachini, 2014). We compare the effect at the threshold after-program period with respect to the pre-program period. The analysis (available upon request) suggests that using a second-order polynomial the results are robust to the use of a RD design.

DISCUSSION

Following calls to develop a better understanding of short-termism at the organization level (Flammer and Bansal 2017, Laverty 1996) and to investigate the influence of environmental

changes on firms' temporal orientation in resource allocation (Souder and Bromiley 2012), this study explores whether a new regulation in place (i.e., a debt suspension program providing short-term benefits) may influence eligible firms' temporal orientation. In particular, we argue that eligibility for debt suspension programs could have unintended negative consequences by inducing eligible firms' short-term orientation. Our results support this view, by showing that the eligible firm's resource allocation is more short-term with respect to non-eligible firms—that is, they invest less for the long term, distribute higher dividends, and increase their financial leverage—with a negative impact on bankruptcy risk.

As such, our findings contribute to literature on the time horizon of resource allocation, time-based agency problems, and the effect of debt renegotiations. First, our results enrich our knowledge of the determinants of firm-level temporal orientation (Flammer and Bansal 2017) by showing that short-term benefits may induce eligible firms to reduce their time horizon in resource allocation. In this way, our study helps address the lack of empirical findings explaining the determinants of both firms' temporal orientation and the consequent choices of resource allocation (Reilly *et al*. 2016).

Moreover, our findings contribute to prior research by analyzing an unexplored macro-level determinant of temporal orientation. Previous studies have analyzed the potential influence of relatively static national variables, like culture (Hofstede, 1993), capital markets pressures (Lees and Malone, 2011), takeover protection schemes (Kacperczyk, 2009), and market dynamism (Nadkarni and Chen, 2014). In this study, we extend this literature by investigating whether a regulatory change providing short-term benefits may alter the temporal orientation of eligible firms. Our results show that eligible firms become more short-term-oriented than non-eligible firms, thus suggesting that they adapt their resource allocation time-horizon to the new regulation in place time-horizon. In this way, they support both that temporal orientation is "a dynamic variable sensitive to changing conditions internal and

external to the firm" (Souder and Bromiley 2012: 552) and that regulation is "the key driver for resource allocation in various environmental management domains" (Buysse and Verbeke 2003: 460).

Second, we contribute to corporate governance literature by investigating whether debt suspension programs may promote a different time-horizon resource allocation that favors some stakeholders at the expense of others (Flammer and Bansal 2017, Reilly *et al*. 2016). In this respect, our results suggest that the induced short-term resource allocation that characterizes eligible firms tends to benefit shareholders (higher dividend payout) at the expense of other stakeholders, like employees (less long-term investments) and debt-holders (higher leverage), and the firm itself (higher bankruptcy risk).

In this way our findings emphasize the importance of better understanding the effects of time-based agency problems (Flammer and Bansal 2017). In this respect, debt suspension programs, by inducing eligible firms to allocate resources with a short-term horizon, have different consequences for firms' stakeholders (Reilly *et al*. 2016). Shareholders are satisfied, as they promote a higher payout ratio, while firms' growth (and so also employees' careers and compensation) are penalized by the lower investments in the long run (Lazonick 2014). In addition, these programs favor a higher financial leverage and bankruptcy risk, thereby undermining debt-holders' interests and increasing firms' financial risk (Jindal and McAlister, 2015; Klingebiel and Rammer, 2014; Powell, Lovallo, and Fox, 2011).

Third, our study contributes to the debate on the effects of debt renegotiations (Isagawa *et al*. 2010, Musumeci and Sinkey 1990, Philippatos and Viswanathan 1991) by analyzing their temporal consequences for eligible firms' resource allocation. Interestingly, while debt suspension policies are promoted by national governments to support firms during a credit crunch period, our results show that they may imply some unintended consequences. Debt suspension programs may induce eligible firms' short-term orientation, which may

negatively impact both resource allocation and bankruptcy risk. Thus, our results echo previous studies showing that the announcement of debt forgiveness or a debt moratorium will negatively affect banks' share price (Isagawa *et al*. 2010, Musumeci and Sinkey 1990).

The change in temporal orientation, and thus the short-termism, happens either because the eligible firms align with the time orientation of the benefits, or because they form the expectation that similar positive concessions will be repeated in the future (Cho *et al.*, 1997) or because firms are becoming more short-term oriented (Sampson and Shi 2019). This form of myopia (Holmström, 1999; Levinthal and March, 1993) may bring eligible firms to mature a "short sighted vision" of the positive long-term opportunities (Laverty, 2004), that will induce them to cut long-term investments and increase dividends payout and financial leverage. All these actions will have the negative effect of increasing bankruptcy risk, whereas the regulation was exactly designed to promote firms' survival in a period of financial crisis (Jindal and McAlister, 2015; Klingebiel and Rammer, 2014; Powell *et al.*, 2011).

Practical Implications

These findings could be of interest for managers and policymakers. The principal implication is that policies aimed at helping beneficiaries may actually have unplanned negative effects. More broadly, our findings show that programs designed for "good" reasons could paradoxically have negative consequences, worsening the conditions of the beneficiaries. Therefore, future debt suspension programs should be carefully designed to maximize the long-term benefits and to minimize the negative short-term consequences.

For example, such programs may be designed to force beneficiaries to use the short-term benefits in a determined way. Since debt suspension programs are concessions provided by third parties, the latter may identify ex-ante how firms can use the short-term benefits, bringing them to allocate resources efficiently. In fact, programs issuers have access to

beneficiaries' financial information, and therefore can monitor how firms allocate the financial resources provided by the short-term benefits. If the resources obtained through the debt suspension programs are misallocated, programs issuers can suspend the benefits or impede beneficiaries from obtaining new benefits in the future. Alternatively, the program may grant both short-term and long-term benefits, and establish that firms can access the long-term benefits only if they meet specific criteria in the use of the short-term benefits.

Limitations and Future Research

Like any study, our work presents limitations that stimulate future research. First, our analysis fosters interrogations regarding the temporal orientation of firm behavior in specific contexts. In particular, we analyze certain outcomes that show negative consequences of a firm's eligibility for short-term benefits, but we did not analyze other outcomes that can prove positive consequences. Although our conclusions suggest that eligibility for short-term benefits can harm firms favoring a short-term perspective, they do not imply that there are no value-enhancing consequences of debt suspension programs. The moratoria could have produced some short-term benefits (Cuñat, Gine, and Guadalupe, 2012; Flammer and Bansal, 2017) that may have favored firms' short-term survival during the financial crisis. Evaluating whether the benefits of such mechanisms—in terms of capacity to help firms survive a financial crisis—compensate for their costs—in terms of a higher short-term orientation—is a relevant topic.

Second, we were unable to directly observe firms' temporal orientation. In other words, we inferred firm temporal orientation in resource allocation using changes in accounting measures, as we lacked detailed primary data on firms' decision-making (Souder and Bromiley 2012). Therefore, future studies may collect rich qualitative data on a small sample of eligible firms to deeply explore the micro-mechanisms that determine short-term behavior at the firm level.

Third, this study is focused on a single country setting. Whereas the focus on a single country reduces several empirical problems (e.g., omitted variable at the country level, unobserved firms' differences across countries), it is unclear whether firms in other countries or regions would react similarly, for instance due to different cultural elements and social capital. Future studies may explore whether differences across regions or countries could influence firms' reaction to debt suspension programs due to the presence of different national institutions (Shao, Kwok, and Zhang, 2013).

Fourth, we perform the analysis during the recent financial crisis, when there was a diffusion of temporal debt suspension programs. While this represents an important contribution—given the amount of resources that financial institutions (mostly banks) have allocated to these programs—our study cannot be easily generalized to periods of financial stability, during which firms might react differently to these programs. Comparing the effects of debt suspension programs during periods of financial instability and stability is a significant question that deserves further attention by scholars and policymakers.

Fifth, we measure the announcement effect of debt suspension programs on eligible firm behaviors, as we lack access to data on firms that effectively benefited from the program. Therefore, to substantiate the implications drawn from our research, future works may try to collect data on the effects of this program on firms that concretely benefited from it.

Last, in this study we focused on the consequences of debt suspension programs on resource allocation and bankruptcy risk. Future studies may examine the impact of these programs on other relevant outcome variables like stakeholder orientation, organizational change, or geographic expansions. Moreover, future studies could explore whether firms' reaction to debt suspension programs is moderated by firm characteristics, such as ownership structure, corporate governance, or top management team's characteristics.

Conclusions

This study explores firms' behavior in response to exploitable short-term benefits provided by third parties. Our results show that eligibility for debt suspension programs may induce eligible firms to be more short-term-oriented than non-eligible firms—by decreasing long-term investments, and increasing dividend payout as well as financial leverage—with negative implications for bankruptcy risk. These important, and somehow unexpected, findings contribute to developing a multi-temporal approach to strategy by showing how an external regulatory change influences the short-term temporal orientation of eligible firms. At the same time, they provide empirical evidence that may help policymakers improve the design of these programs and thus better help eligible firms overcome their temporary financial problems.

REFERENCES

Aghion P, Van Reenen J, Zingales L. 2013. Innovation and institutional ownership. *American economic review* 103 1: 277–304.

Altamuro J, Beatty A. 2010. How does internal control regulation affect financial reporting? *Journal of accounting and Economics*. Elsevier 49 1–2: 58–74.

Altman, EI. 1968. Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The journal of finance*. Wiley Online Library 23 4: 589–609.

Altman, EI. 2000. Predicting financial distress of companies: revisiting the Z-score and ZETA models. *Stern School of Business, New York University*. Citeseer : 9–12.

Angrist JD, Lavy V. 1999. Using Maimonides' rule to estimate the effect of class size on scholastic achievement. *The Quarterly Journal of Economics*. MIT Press 114 2: 533–575.

Barclay MJ, Smith Jr CW. 1995. The maturity structure of corporate debt. *the Journal of Finance*. Wiley Online Library 50 2: 609–631.

Bebchuk LA, Stole LA. 1993. Do short-term objectives lead to under-or overinvestment in long-term projects? *The Journal of Finance*. Wiley Online Library 48 2: 719–729.

Berg A, Gottschalg OF. 2005. Understanding Value Generation in Buyouts. *Journal of Restructuring Finance* 02 01: 9–37.

Bertrand M, Mullainathan S. 2003. Enjoying the Quiet Life? Corporate Governance and Managerial Preferences. *Journal of Political Economy* 111 5: 1043–1075.

Blackwell M, Iacus S, King G, Porro G. 2009. cem: Coarsened exact matching in Stata. *The Stata Journal*. SAGE Publications Sage CA: Los Angeles, CA 9 4: 524–546.

Brauer MF. 2013. The effects of short-term and long-term oriented managerial behavior on medium-term financial performance: longitudinal evidence from Europe. *Journal of Business Economics and Management*. Taylor & Francis 14 2: 386–402.

Le Breton–Miller I, Miller D. 2006. Why Do Some Family Businesses Out–Compete? Governance, Long–Term Orientations, and Sustainable Capability. *Entrepreneurship theory and practice*. SAGE Publications Sage CA: Los Angeles, CA 30 6: 731–746.

Bronzini R, Iachini E. 2014. Are incentives for R&D effective? Evidence from a regression discontinuity approach. *American Economic Journal: Economic Policy* 6 4: 100–134.

Buysse K, Verbeke A. 2003. Proactive environmental strategies: A stakeholder management perspective. *Strategic management journal*. Wiley Online Library 24(5): 453–470.

Calomiris CW, Klingebiel D, Laeven L. 2012. Seven Ways to Deal with a Financial Crisis: Cross-Country Experience and Policy Implications 1. *Journal of Applied Corporate Finance*. Wiley Online Library 24 4: 8–22.

Cerqueiro G, Ongena S, Roszbach K. 2016. Collateralization, bank loan rates, and monitoring. *The Journal of Finance*. Wiley Online Library 71(3): 1295–1322.

Cheng JLC, Kesner IF. 1997. Organizational slack and response to environmental shifts: The impact of resource allocation patterns. *Journal of management*. Sage Publications Sage CA: Thousand Oaks, CA 23 1: 1–18.

Cho J, Linn SC, Nakibullah A. 1997. Implications of debt renegotiation for optimal bank policy and firm behavior. *Review of Quantitative Finance and Accounting*. Springer 8 2: 163–179.

Chrisman JJ, Patel PC. 2012. Variations in R&D investments of family and nonfamily firms: Behavioral agency and myopic loss aversion perspectives. *Academy of management Journal*. Academy of Management Briarcliff Manor, NY 55 4: 976–997.

Cornett MM, McNutt JJ, Strahan PE, Tehranian H. 2011. Liquidity risk management and credit supply in the financial crisis. *Journal of Financial Economics*. Elsevier 101 2: 297–312.

Cuñat V, Gine M, Guadalupe M. 2012. The vote is cast: The effect of corporate governance on shareholder value. *The journal of finance*. Wiley Online Library 67 5: 1943–1977.

Cyert RM, March JG. 1963. *A Behavioral Theory of the Firm*. Prentice Hall, Englewood Cliffs: New York, NY.

Das, TK. 1987. Strategic planning and individual temporal orientation. *Strategic management journal*. Wiley Online Library 8 2: 203–209.

Davies R, Haldane AG, Nielsen M, Pezzini S. 2014. Measuring the costs of short-termism. *Journal of Financial Stability*. Elsevier 12: 16–25.

Desyllas P, Hughes A. 2010. Do high technology acquirers become more innovative? *Research Policy*. Elsevier 39 8: 1105–1121.

Dickerson AP, Gibson HD, Tsakalotos E. 1995. Short-termism and underinvestment: The influence of financial systems. *The Manchester School of Economic & Social Studies*. University of Manchester 63 4: 351–367.

Dowd, K. 2009. Moral hazard and the financial crisis. *Cato J*. HeinOnline 29: 141.

Flammer C, Bansal P. 2017. Does a long-term orientation create value? Evidence from a regression discontinuity. *Strategic Management Journal*. Wiley Online Library 38 9: 1827–1847.

Flannery, MJ. 1986. Asymmetric information and risky debt maturity choice. *The Journal of Finance*. Wiley Online Library 41 1: 19–37.

Frederick S, Loewenstein G, O'donoghue T. 2002. Time discounting and time preference: A critical review. *Journal of economic literature* 40 2: 351–401.

Fuentelsaz L, Gomez J, Polo Y. 2002. Followers' entry timing: evidence from the Spanish banking sector after deregulation. *Strategic Management Journal*. Wiley Online Library 23 3: 245–264.

Graafland, JJ. 2016. Price competition, short-termism and environmental performance. *Journal of cleaner production*. Elsevier 116: 125–134.

Gray SR, Cannella Jr AA. 1997. The role of risk in executive compensation. *Journal of Management*. Elsevier 23 4: 517–540.

Gubler T, Larkin I, Pierce L. 2017. Doing well by making well: The impact of corporate wellness programs on employee productivity. *Management Science*. INFORMS.

Hall BH, Jaffe A, Trajtenberg M. 2005. Market value and patent citations. *RAND Journal of Economics* : 16–38.

Harris M, Kriebel CH, Raviv A. 1982. Asymmetric information, incentives and intrafirm resource allocation. *Management science*. INFORMS 28 6: 604–620.

Harris M, Townsend RM. 1981. Resource allocation under asymmetric information. *Econometrica: Journal of the Econometric Society*. JSTOR : 33–64.

Head TC, Larsen HH, Nielsen PL, Sorensen Jr PF. 1993. The Impact of National Culture on Organizational Change: A Danish Case Study. *International Journal of Public Administration* 16 11: 1793.

Hofstede, G. 1993. Cultural constraints in management theories. *Academy of Management Perspectives*. Academy of Management Briarcliff Manor, NY 10510 7 1: 81–94.

Holmström B. 1999. Managerial incentive problems: A dynamic perspective. *The review of Economic studies*. Wiley-Blackwell 66 1: 169–182.

Hovakimian A, Hovakimian G, Tehranian H. 2004. Determinants of target capital structure: The case of dual debt and equity issues. *Journal of financial economics*. Elsevier 71 3: 517–540.

Isagawa N, Yamaguchi S, Yamashita T. 2010. Debt forgiveness and stock price reaction of lending banks: Theory and evidence from Japan. *Journal of Financial Research*. Wiley Online Library 33 3: 267–287.

James, C. 1995. When do banks take equity in debt restructurings? *The Review of Financial Studies*. Oxford University Press 8 4: 1209–1234.

Jensen, MC. 1986. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review* 76 2: 323–329.

Jindal N, McAlister L. 2015. The impacts of advertising assets and R&D assets on reducing bankruptcy risk. *Marketing Science*. INFORMS 34 4: 555–572.

De Jong A, Kabir R, Nguyen TT. 2008. Capital structure around the world: The roles of firm- and country-specific determinants. *Journal of Banking & Finance*. Elsevier 32 9: 1954–1969.

Kacperczyk, A. 2009. With greater power comes greater responsibility? Takeover protection and corporate attention to stakeholders. *Strategic Management Journal*. Wiley Online Library 30 3: 261–285.

Kanz, M. 2016. What Does Debt Relief Do for Development? Evidence from India's Bailout for Rural Households. *American Economic Journal: Applied Economics* 8 4: 66–99.

Kaplan, SN. 2018. Are US companies too short-term oriented? Some thoughts. *Innovation Policy and the Economy*. University of Chicago Press Chicago, IL 18 1: 107–124.

Klaauw van Der, W. 2002. Estimating the effect of financial aid offers on college enrollment: A regression–discontinuity approach. *International Economic Review*. Wiley Online Library 43 4: 1249–1287.

Klingebiel R, Rammer C. 2014. Resource allocation strategy for innovation portfolio management. *Strategic Management Journal*. Wiley Online Library 35 2: 246–268.

Laeven L, Levine R. 2009. Bank governance, regulation and risk taking. *Journal of financial economics*. Elsevier 93 2: 259–275.

Laverty, KJ. 1996. Economic "short-termism": The debate, the unresolved issues, and the implications for management practice and research. *Academy of Management Review*. Academy of Management Briarcliff Manor, NY 10510 21 3: 825–860.

Laverty, KJ. 2004. Managerial myopia or systemic short-termism? The importance of

managerial systems in valuing the long term. *Management Decision*. Emerald Group Publishing Limited 42 8: 949–962.

Lazonick, W. 2014. Profits without prosperity. *Harvard Business Review*. Harvard Business School Publishing 92 9: 46–55.

Lees G, Malone R. 2011. *Building World-class Business for the Long Term: Challenges and Opportunities*. CIMA.

Legros P, Mitchell J. 1995. Bankruptcy as a control device in economies in transition. *Journal of comparative economics*. Elsevier 20 3: 265–301.

Lerner J, Wulf J. 2007. Innovation and incentives: Evidence from corporate R&D. *the Review of Economics and Statistics*. MIT Press 89 4: 634–644.

Levinthal DA, March JG. 1993. The Myopia of Learning. *Strategic Management Journal* 14 8: 95.

Liljeblom E, Vaihekoski M. 2009. Corporate ownership and managerial short-termism: Results from a Finnish study of management perceptions. *International Journal of Production Economics*. Elsevier 117 2: 427–438.

Lumpkin GT, Brigham KH, Moss TW. 2010. Long-term orientation: Implications for the entrepreneurial orientation and performance of family businesses. *Entrepreneurship & Regional Development*. Routledge 22 3–4: 241–264.

Ma J, Khanna T. 2016. Independent directors' dissent on boards: Evidence from listed companies in China. *Strategic Management Journal*. Wiley Online Library 37 8: 1547–1557.

Marginson D, McAulay L. 2008. Exploring the debate on short–termism: a theoretical and empirical analysis. *Strategic Management Journal*. Wiley Online Library 29 3: 273–292.

Meyer, AD. 1982. Adapting to Environmental Jolts. *Administrative Science Quarterly* 27 4: 515.

Mosakowski E, Earley PC. 2000. A selective review of time assumptions in strategy research. *Academy of management review*. Academy of Management Briarcliff Manor, NY 10510 25 4: 796–812.

Musumeci JJ, Sinkey JF. 1990. The international debt crisis, investor contagion, and bank security returns in 1987: The Brazilian experience. *Journal of Money, Credit and Banking*. JSTOR 22 2: 209–220.

Nadkarni S, Barr PS. 2008. Environmental context, managerial cognition, and strategic action: An integrated view. *Strategic management journal*. Wiley Online Library 29 13: 1395–1427.

Nadkarni S, Chen J. 2014. Bridging yesterday, today, and tomorrow: CEO temporal focus, environmental dynamism, and rate of new product introduction. *Academy of Management Journal*. Academy of Management Briarcliff Manor, NY 57(6): 1810–1833.

Nadkarni S, Chen T, Chen J. 2016. The clock is ticking! Executive temporal depth, industry velocity, and competitive aggressiveness. *Strategic Management Journal*. Wiley Online Library 37 6: 1132–1153.

Nakano M, Nguyen P. 2012. Board Size and Corporate Risk Taking: Further Evidence from Japan. *Corporate Governance: An International Review*. Wiley Online Library 20 4: 369–387.

Neubaum DO, Zahra SA. 2006. Institutional ownership and corporate social performance: The moderating effects of investment horizon, activism, and coordination. *Journal of Management*. Sage Publications Sage CA: Thousand Oaks, CA 32 1: 108–131.

O'brien, JP. 2003. The capital structure implications of pursuing a strategy of innovation. *Strategic Management Journal*. Wiley Online Library 24 5: 415–431.

O'Donoghue T, Rabin M. 1999. Doing it now or later. *American Economic Review* 89 1:

103–124.

Ocasio, W. 1997. Towards and attention-based view of the firm. *Strategic Management Journal* 18 (Summer Special Issue): 187–206.

Philippatos GC, Viswanathan KG. 1991. Brazilian debt crisis and financial markets: an analysis of major economic events leading to the Brazilian debt moratorium. *Applied Financial Economics*. Taylor & Francis 1 4: 223–234.

Powell TC, Lovallo D, Fox CR. 2011. Behavioral strategy. *Strategic Management Journal*. Wiley Online Library 32 13: 1369–1386.

Reilly G, Souder D, Ranucci R. 2016. Time horizon of investments in the resource allocation process: Review and framework for next steps. *Journal of Management*. Sage Publications Sage CA: Los Angeles, CA 42 5: 1169–1194.

Rumelt, RP. 1995. Inertia and transformation. In *Resource-Based and Evolutionary Theories of the Firm: Towards a Synthesis*, Montgomery CA (ed). Kluwer Academic Publishers: Norwell, MA and Dordrecht.

Sachs, JD. 1990. A strategy for efficient debt reduction. *Journal of Economic perspectives* 4 1: 19–29.

Scherr FC, Hulburt HM. 2001. The debt maturity structure of small firms. *Financial management*. JSTOR : 85–111.

Shao L, Kwok CCY, Zhang R. 2013. National culture and corporate investment. *Journal of International Business Studies*. Springer 44 7: 745–763.

Sheard, P. 1995. Long-termism and the Japanese firm. In *The Structure of the Japanese Economy*. Springer: 25–52.

Shevlin T, Thornock J, Williams B. 2017. An examination of firms' responses to tax forgiveness. *Review of Accounting Studies*. Springer 22 2: 577–607.

Smirlock M, Kaufold H. 1987. Bank foreign lending, mandatory disclosure rules, and the reaction of bank stock prices to the Mexican debt crisis. *Journal of Business*. JSTOR : 347–364.

De Socio, A. 2010. *La situazione economico-finanziaria delle imprese italiane nel confronto internazionale*. Banca d'Italia.

Souder D, Bromiley P. 2012. Explaining temporal orientation: Evidence from the durability of firms' capital investments. *Strategic Management Journal* 33 5: 550–569.

Souder D, Shaver JM. 2010. Constraints and incentives for making long horizon corporate investments. *Strategic Management Journal*. Wiley Online Library 31 12: 1316–1336.

Tanayama, T. 2007. Eligibility, awareness and the application decision: An empirical study of firm participation in an R&D subsidy program. Helsinki Center of Economic Research.

Venkatraman, N. 1989. The concept of fit in strategy research: Toward verbal and statistical correspondence. *Academy of Management Review* 14 3: 423–444.

Waddock SA, Graves SB. 1997. The corporate social performance–financial performance link. *Strategic management journal*. Wiley Online Library 18 4: 303–319.

Wang T, Bansal P. 2012. Social responsibility in new ventures: profiting from a long‐term orientation. *Strategic Management Journal*. Wiley Online Library 33 10: 1135–1153.

Wen Y, Rwegasira K, Bilderbeek J. 2002. Corporate governance and capital structure decisions of the Chinese listed firms. *Corporate Governance: An International Review*. Wiley Online Library 10 2: 75–83.

Table 1

Descriptive Statistics

Variable	Count	Mean	SD	Min	Max
1. Revenues	307,392	15.888	21.682	0.221	239.212
2. N. Employees	307,392	45.832	64.413	1.000	506.000
3. EBITDA	307,392	1.087	1.575	-0.922	10.611
4. Short-term financial debt ratio	307,330	0.854	0.193	0.000	1.000
5. Long-term financial debt ratio	307,262	0.145	0.193	0.000	1.000
6. Long-term investments	304,821	0.258	0.222	-0.142	0.999
7. Dividends (ln)	201,426	4.959	1.798	0.000	14.234
8. Financial leverage	281,597	1.599	2.517	0.000	17.640
9. Bankruptcy risk	326,640	1.795	0.967	0.028	5.484

"Revenues" and "EBITDA" amounts are in millions of euros. "Revenues", "Financial leverage" and "N. Employees" data are winsorized at 2%.

Table 2

Correlations

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Revenues	1.00								
2. N. Employees	0.48	1.00							
3. EBITDA	0.54	0.48	1.00						
4. Short-term financial debt ratio	0.05	-0.03	-0.11	1.00					
5. Long-term financial debt ratio	-0.05	0.03	0.11	-1.00	1.00				
6. Long-term investments	-0.01	-0.15	0.21	-0.50	0.50	1.00			
7. Dividends (ln)	0.30	-0.26	0.51	-0.01	0.01	0.09	1.00		
8. Financial leverage	-0.01	-0.02	-0.03	-0.05	0.05	-0.01	-0.08	1.00	
9. Bankruptcy risk	-0.08	0.11	-0.07	0.21	-0.21	-0.28	-0.03	-0.03	1.00

Table 3

Impact of Eligibility for Debt Suspension Matching for Revenues, Employees, and Total Assets

Variables	(1) Long-Term investments	(2) Dividend payout	(3) Financial leverage	(4) Bankruptcy risk
Debt suspension	-0.0120***	0.194***	0.0620***	-0.0702***
	[0.00257]	[0.0338]	[0.0148]	[0.0145]
EBITDA	-0.000452	0.180***	-0.0420***	0.166***
	[0.000383]	[0.00529]	[0.00173]	[0.00240]
Revenues	-0.00145***	0.00784***	0.00318***	0.0307***
	[5.60e-05]	[0.000697]	[0.000271]	[0.000531]
Employees	1.76e-05	0.00127***	0.000743***	-0.000140*
	[1.91e-05]	[0.000220]	[9.73e-05]	[8.24e-05]
Assets				-0.0416***
				[0.000789]
Debt/EBITDA ratio				-0.0103***
				[0.000355]
Debt/Equity ratio				-0.0416***
				[0.000973]
Observations	293,989	191,403	235,531	250,404
R-squared	0.863	0.676	0.745	0.871
Year FEs	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes

Notes: The regressions are estimated using the DID specification. Standard errors are reported in parentheses. We restricted the sample considering a percentage of censoring for the dependent variables at 2%, and considering a percentage of censoring for the independent variables at 2%. Coarsened exact matching (CEM) performed at revenues, employees, and total assets level. After matching, the sample is composed by firms with revenues lower than 239 million euros and with less than 506 employees.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$

Table 4

Impact of Eligibility for Debt Suspension Matching for Revenues, Employees, Total Assets, Performance, and Financial Leverage

Variables	(1) Long-Term investments	(2) Dividend payout	(3) Financial leverage	(4) Bankruptcy risk
Debt suspension	-0.00743***	0.142***	0.0648***	-0.0897***
	[0.00242]	[0.0297]	[0.0131]	[0.0118]
EBITDA	-6.88e-05	0.154***	-0.0303***	0.120***
	[0.000370]	[0.00492]	[0.00166]	[0.00228]
Revenues	-0.00114***	0.00520***	0.00246***	0.0233***
	[5.50e-05]	[0.000629]	[0.000254]	[0.000518]
Employees	1.75e-05	0.000675***	0.000537***	-0.000131
	[1.82e-05]	[0.000208]	[9.25e-05]	[7.97e-05]
Assets				-0.0318***
				[0.000701]
Debt/EBITDA ratio				-0.0136***
				[0.000452]
Debt/Equity ratio				-0.0563***
				[0.00156]
Observations	207,036	137,843	174,822	178,747
R-squared	0.871	0.689	0.761	0.875
Year FEs	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes

Notes: The regressions are estimated using the DID specification. Standard errors are reported in parentheses. We restricted the sample considering a percentage of censoring for the dependent variables at 2%, and considering a percentage of censoring for the independent variables at 2%. Coarsened exact matching (CEM) performed at revenues, employees, total assets, performance, and financial leverage level. *** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.1$

Table 5

Impact of Eligibility for Debt Suspension on Debt Maturity Matching For Revenues, Employees, and Total Assets

Variables	(1) Short-Term Debt	(2) Long-term debt
Debt suspension	-0.0132***	0.133***
	[0.00269]	[0.00269]
Time	28,332	4,816
	[4.306e+07]	[4.127e+07]
Total assets	-7.92e-08***	7.91e-08***
	[1.78e-08]	[1.81e-08]
EBITDA	-2.39e-08	2.23e-08***
	[6.06e-08]	[6.06e-08]
Revenues	4.75e-08***	-4.71e-08***
	[8.32e-09]	[8.33e-09]
N. Employees	-2.79e-06	2.92e-06
	[2.53e-06]	[2.54e-06]
Observations	332,841	332,355
R-squared	0.685	0.683
Year FEs	Yes	Yes
Firm FEs	Yes	Yes
Censoring	98%	98%

Notes: The regressions are estimated using the DID specification. Standard errors are reported in parentheses. We restricted the sample considering a percentage of censoring for the dependent variables at 2%, and considering a percentage of censoring for the independent variables at 2%. Coarsened exact matching (CEM) performed at revenues, employees, and total assets level. *** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.1$

APPENDIX A

Robustness checks: Supplemental analyses

Table S1

Impact of Eligibility for Debt Suspension with Censoring at 1%—Robustness Check

Variables	(1) Long-Term investments	(2) Dividend payout	(3) Financial leverage	(4) Bankruptcy risk
Debt suspension	-0.00765***	0.184***	0.0786***	-0.0489***
	[0.00212]	[0.0256]	[0.0110]	[0.0108]
EBITDA	-0.000101	0.103***	-0.0220***	0.108***
	[0.000295]	[0.00375]	[0.00116]	[0.00192]
Revenues	-0.000897***	0.00388***	0.00204***	0.0188***
	[4.73e-05]	[0.000481]	[0.000180]	[0.000464]
Employees	-9.22e-06	0.000891***	0.000601***	-0.000230***
	[1.45e-05]	[0.000158]	[6.33e-05]	[7.19e-05]
Assets				-0.0213***
				[0.000537]
Debt/EBITDA ratio				-0.00447***
				[0.000204]
Debt/Equity ratio				-0.0302***
				[0.000735]
Observations	319,559	205,770	250,358	285,491
R-squared	0.862	0.696	0.739	0.851
Year FEs	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes

Notes: The regressions are estimated using the DID specification. Standard errors are reported in parentheses. We restricted the sample considering a percentage of censoring for the dependent variables at 1%, and considering a percentage of censoring for the independent variables at 2%. *** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.1$

Table S2

Impact of Eligibility for Debt Suspension with Censoring at 3%—Robustness Check

Variables	(1) Long-Term investments	(2) Dividend payout	(3) Financial leverage	(4) Bankruptcy risk
Debt suspension	-0.0128***	0.136***	0.0597***	-0.0738***
	[0.00331]	[0.0458]	[0.0214]	[0.0216]
EBITDA	0.000127	0.239***	-0.0574***	0.197***
	[0.000483]	[0.00667]	[0.00223]	[0.00284]
Revenues	-0.00185***	0.0107***	0.00406***	0.0396***
	[6.59e-05]	[0.000816]	[0.000353]	[0.000554]
Employees	7.76e-05***	0.000911***	0.000998***	-4.25e-05
	[2.23e-05]	[0.000258]	[0.000123]	[8.99e-05]
Assets				-0.0590***
				[0.000867]
Debt/EBITDA ratio				-0.0182***
				[0.000464]
Debt/Equity ratio				-0.0417***
				[0.00109]
Observations	272,861	178,495	222,905	220,711
R-squared	0.858	0.660	0.749	0.885
Year FEs	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes

Notes: The regressions are estimated using the DID specification. Standard errors are reported in parentheses. We restricted the sample considering a percentage of censoring for the dependent variables at 3%, and considering a percentage of censoring for the independent variables at 2%. *** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.1$

Table S3

Impact of Eligibility for Debt Suspension with Censoring at 4%—Robustness Check

Variables	(1) Long-Term investments	(2) Dividend payout	(3) Financial leverage	(4) Bankruptcy risk
Debt suspension	-0.0247***	0.145**	0.0769**	-0.0949**
	[0.00544]	[0.0694]	[0.0391]	[0.0479]
EBITDA	0.000893	0.293***	-0.0897***	0.229***
	[0.000568]	[0.00781]	[0.00331]	[0.00313]
Revenues	-0.00206***	0.0119***	0.00598***	0.0477***
	[7.34e-05]	[0.000861]	[0.000486]	[0.000573]
Employees	0.000144***	0.000920***	0.00122***	0.000134
	[2.45e-05]	[0.000283]	[0.000170]	[9.30e-05]
Assets				-0.0772***
				[0.000889]
Debt/EBITDA ratio				-0.0186***
				[0.000506]
Debt/Equity ratio				-0.0444***
				[0.00120]
Observations	252,955	166,383	224,342	196,919
R-squared	0.852	0.645	0.754	0.893
Year FEs	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes

Notes: The regressions are estimated using the DID specification. Standard errors are reported in parentheses. We restricted the sample considering a percentage of censoring for the dependent variables at 4%, and considering a percentage of censoring for the independent variables at 2%.*** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.1$

Table S4

Impact of Eligibility for Debt Suspension with CEM k2k

Variables	(1) Long-Term investments	(2) Dividend payout	(3) Financial leverage	(4) Bankruptcy risk
Debt suspension	-0.00133	0.0677**	0.0350***	-0.0746***
	[0.00241]	[0.0273]	[0.00957]	[0.00920]
EBITDA	-5.30e-05	0.0371***	-0.00597***	0.0336***
	[0.000210]	[0.00276]	[0.000631]	[0.00114]
Revenues	-0.000204***	0.000267	0.000425***	0.00552***
	[2.89e-05]	[0.000311]	[0.000108]	[0.000224]
Employees	3.89e-06	0.000404***	0.000193***	4.21e-05
	[9.40e-06]	[0.000113]	[3.81e-05]	[3.82e-05]
Assets				-0.00839***
				[0.000320]
Debt/EBITDA ratio				-0.0140***
				[0.000709]
Debt/Equity ratio				-0.0404***
				[0.00215]
Observations	70,861	44,665	52,888	61,258
R-squared	0.871	0.775	0.750	0.853
Year FEs	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes

Notes: The regressions are estimated using the DID specification. Standard errors are reported in parentheses. We restricted the sample considering a percentage of censoring for the dependent variables at 2% and considering a percentage of censoring for the independent variables at 2%. We perform the analysis adopting a *k-to-k* match (Blackwell et al., 2009). *** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.1$

Table S5

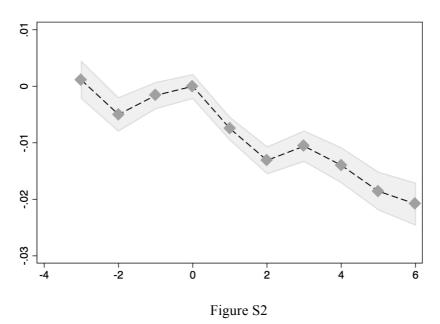Impact of Eligibility for Debt Suspension Adding/Dropping Further Control Variables

Variables	(1) Long-Term investments	(2) Dividend payout	(3) Financial leverage	(4) Bankruptcy risk
Debt suspension	-0.0133***	0.165***	0.0545***	-0.00432
	[0.00256]	[0.0347]	[0.0154]	[0.0120]
EBITDA	0.0118***	0.0761***	0.0172***	0.00652***
	[0.000528]	[0.00695]	[0.00235]	[0.00245]
Revenues	-0.00163***	0.00826***	0.00336***	0.0291***
	[6.13e-05]	[0.000770]	[0.000313]	[0.000535]
Employees	-7.22e-05***	0.00150***	0.000256**	0.000420***
	[2.02e-05]	[0.000251]	[0.000107]	
Debt/EBITDA ratio	1.56e-05**	-0.000422***		
	[6.53e-06]	[0.000163]		[0.000672]
Debt/Equity ratio	-9.89e-07	-2.04e-06		-0.0292***
	[1.36e-05]	[0.000294]		[0.000884]
ROI	-0.00188***	0.0144***	-0.00983***	0.0204***
	[4.43e-05]	[0.000640]	[0.000254]	[0.000216]
Assets				[7.19e-05]
				-0.0315***
Observations	237,829	151,353	194,566	214,894
R-squared	0.881	0.675	0.776	0.901
Year FEs	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes

Notes: The regressions are estimated using the DID specification. Standard errors are reported in parentheses. We restricted the sample considering a percentage of censoring for the dependent variables at 2%, and considering a percentage of censoring for the independent variables at 2%. We added new control variables. *** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<0.1$

APPENDIX B

Robustness checks: Pre-trend in the difference-in-differences

Figure S1

Effect of Eligibility for Short-Term Benefits on Long-Term Investments

Figure S2

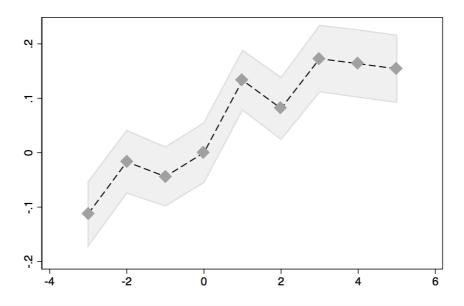Effect of Eligibility for Short-Term Benefits on Dividends Payout

Figure S3

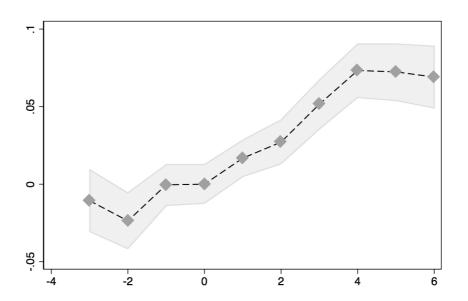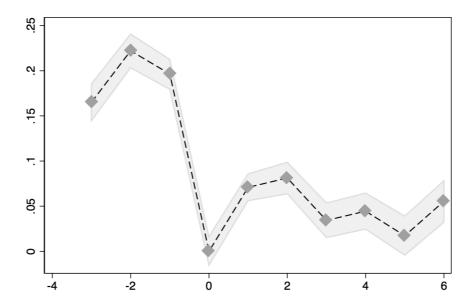Effect of Eligibility for Short-Term Benefits on Financial Leverage

Figure S4

Effect of Eligibility for Short-Term Benefits on Altman score

3.   PAPER 2

What determines firm investments? An empirical investigation on the role of local institutional quality, industry regulation and state ownership

ABSTRACT

The influence of the environment on firms' investments has been largely investigated. Literature underlines that the national institutional quality is one of the key driver of firms' investment strategies. It is instead, relatively unexplored, if local institutional quality may affect firms investments, that is if difference in institutional quality within the same country may influence firm investments. To this purpose, we collected data about a large sample of limited companies in Italy, a country characterized by significant variation of institutional quality within it. Our results show that higher local institutional quality positively influences firms' total investments. Moreover, our results highlight that regulated industry and state-ownership moderate this relationship. In particular, we find that, when local institutional quality decreases, regulated and state-owned firms invest more than non-regulated and non-state-owned firms; the opposite is true when local institutional quality increases. These findings underline the importance of local institutional quality and the heterogeneous reaction of regulated and state-owned firms to changes in the institutional environment.

INTRODUCTION

Scholars have devoted considerable attention to examine the effects of the external institutional environment on strategies, investments and performance (Barbosa & Faria, 2011; Helliwell & Putnam, 1995). Literature indicates that firms strategies are influenced by the characteristics of the environment in which they operate (Nadkarni & Barr, 2008). Elements like industry structure, regulation, ownership and environmental shifts influence the timing and the effectiveness of firms' strategy (Cheng & Kesner, 1997; Ocasio, 1997; Porter, 1985).

One dimension of the external institutional environment that has received particular attention is the institutional quality (Chuang, Lin, & Wu, 2015; Nifo & Vecchione, 2014), defined as the set of social factors, beliefs, values and rules of a specific geographical area (Chuang et al., 2015). Previous studies show that institutional quality is one of the determinants of firm performance, investments, and innovation activities (Birhanu, Gambardella, & Valentini, 2016; Helliwell & Putnam, 1995). Overall, research on institutional theory suggests that firms operating in countries with more efficient institutions invest more, grow faster and have better performance (LiPuma et al., 2013).

Despite particular attention has been devoted to study the consequences of institutional quality on firms, most works have concentrated on country-level analyses (Guiso, Sapienza, & Zingales, 2009). Fewer studies have investigated the impact of local—i.e., regional or provincial—institutional quality. However, institutional quality can significantly differ not only among countries, but also among regions and provinces within the same country. Country's provinces may be considered as proxies for communities, with similar social norms and social cohesion (Boytsun, Deloof, & Matthyssens, 2011).

Moreover, the literature has mainly focused on the study of how single elements of the national institutional quality—e.g., corruption or administrative institutions—impact firms' behaviour (e.g., Mauro, 1995; Djankov et al., 2002). Yet, firms are likely to be influenced by

the overall external environment and so it may be reasonable to consider together the various factors of the institutional quality (Khanna, 2002; Rumelt, 1984). Whereas different factors of the same local institutional environment are likely to be positively correlated, previous studies suggest that there may be also significant differences among them (Egger & Winner, 2005; Galang, 2012; Méon & Sekkat, 2005).

In this paper, we study the impact of local institutional quality at the provincial level. We argue that while provinces within a country share the same formal institutions (e.g., laws and regulations), they could have different informal institutions (e.g., social capital and social cohesion). Country's provinces may be, in fact, used as proxies for communities, with similar social norms and social cohesion (Boytsun et al., 2011). In sum, we argue that local institutional quality may influence firms' investments.

In this study, we propose that a higher local institutional quality positively influence firms' investments. Then, we argue that this relationship is likely to be moderated by some industry or firms' characteristics that may impact firms investments decisions. In particular, we explore the influence of industry regulation and state-ownership as previous studies indicated they may affect firm investment behaviour (e.g., Amato & Amato, 2007; Amighini, Rabellotti, & Sanfilippo, 2013; Nadkarni & Barr, 2008). First, we propose that the effect of the local institutional quality on firms' investments is moderated by industry regulation (García Canal & Guillén, 2008; Henriques & Sadorsky, 1996), as this has been found to influence firms investment decisions (Chunlai, 1997; Klassen & Shackelford, 1998; Tran, Huong, Doan, & Tran, 2016). Second, building on literature emphasizing a different investment behaviour between state-owned and private companies (Amighini et al., 2013; Child & Rodrigues, 2005; Dewenter & Malatesta, 2001), we argue that the effect of the local institutional quality on firms investments is moderated by state-ownership.

To empirically assess our theoretical framework, we exploit the within-country heterogeneity at provincial-level by analysing how the local institutional quality of each Italian province impact firms' investments. To this purpose, we built a dataset containing data at both firm-level and institutional provincial-level. In particular, we created a panel dataset with information on 47,801 non-financial Italian limited companies with revenues higher than euro 5 million during the period 2006-2012. We also collected fine-grained measures of local institutional quality for all 107 Italian provinces. We rely on an aggregate index recently developed by Nifo & Vecchione (2014) and Kaufmann et al. (2010) to capture the overall local institutional quality (i.e., voice and accountability, government effectiveness, regulatory quality, rule of law, corruption).

Our results show that a higher local institutional quality promotes firms investments. Interestingly, we find that as the local institutional quality increases, regulated firms reduce their investments in investments as well as state-owned firms. These findings suggest that regulated and state-owned firms are less concerned, in comparison to private-owned firms, to local institutional factors in allocating resources for investments, since they generally have more robust connections with the local governments (Belloc, 2014; Hillman, 2005). In fact, as prior literature shows (Megginson & Netter, 2001), regulated and state-owned firms are more willing to take risks, and therefore are not strongly influenced by the local institutional quality.

Overall, our study makes multiple contributions. First, by drawing on insights from institutional theory (North, 1990), we expand works on country institutional quality, by showing that the local institutional quality, e.g., the provincial level within a country, may also affect firms investment strategy. Second, we extend research on institutions and firm strategy by looking at an overall index considering different elements of the institutional environment. This suggests that firms make their investment decisions by looking at the

overall institutional quality level, rather than by simply looking at each dimension of the institutional environment. Finally, our results show that state-owned and regulated firms invest less when the quality of the local institutional environment increases. This could suggest that state-owned and regulated firms are induced to increase investments in local environments with lower institutional quality because of the unavailability of private-owned firms to invest in those areas. The mechanisms explaining this phenomenon certainly deserve major attention in future research.

THEORETICAL BACKGROUND

Institutional quality and firms' investments: a country-level perspective

Extent research has extensively studied how country-level institutional quality impact a number of outputs, like economic growth, new firms entry, and total factors productivity (Acemoglu & Robinson, 2010; Kaufmann, Kraay, & Mastruzzi, 2003; Kurtz & Schrank, 2007; Quibria, 2006).

Only recently, scholars have begun to focus on firm-level analysis (Asiedu & Freeman, 2009; LiPuma et al., 2013) by studying the effect of elements linked to the institutional quality—like corruption and government effectiveness—on firm growth or investments. For example, Asiedu and Freeman (2009) find that corruption—measured at the firm and country levels—has a negative and significant effect on investment growth for firms in transition countries.

Scholars have developed a more limited attention to the understanding of how institutional quality at the local level impacts firms' investments. However, this represents an important issue since the heterogeneity in terms of institutional quality within a country is likely to be high (Lasagni, Nifo, & Vecchione, 2015). In fact, while countries differ among them for both informal and formal institutions, provinces within the same country share the

same formal institutions (e.g., laws and regulations), but have different informal institutions (e.g., social capital and social cohesion). Therefore, it may be interesting to analyse the effects of local institutional quality on firm investments.

Moreover, prior studies have been principally concerned with measuring the impact of single measures of institutional quality—like corruption and government effectiveness. In this study, we depart from this approach to consider the influence of the overall local institutional quality—as measured by a number of different and interrelated factors—on firms investments (Birhanu et al., 2016).

Local institutional quality

The local institutional quality is a portion of the external environment able to strongly influence firms' investments (Birhanu et al., 2016; Helliwell & Putnam, 1995; LiPuma et al., 2013). In fact, local institutional quality contributes to set the rules of the game in the society that influence firm strategy (Rodrik, Subramanian, & Trebbi, 2004). Configurations of local institutional quality may, in fact, shape the interactions in the market, thus varying the consequences of firm strategic decisions and firm temporal orientation in each local area (Barbosa & Faria, 2011; Du, Lu, & Tao, 2012).

Local institutional quality captures the social capital endowment (Putnam, 1993) and institutional virtuousness (Woolcock, 1998) that is likely to have a strong impact on the type of interactions within firms and among firms. These ideas refer to a mixture of aspects that involve the existence of righteous local institutions capable to generate a set of principles that create trust, increase common knowledge and reinforce local economic activity. In other words, local institutional quality contributes to explain "prevalent methods of doing things in contexts where actions and interactions of several parties determine what is achieved" (Nelson 2008: 2).

High-quality institutions are law governed, proficient, uncorrupted, trusted by the community and effective in their performance (Wig & Tollefsen, 2016). In high local institutional quality environment there is respect for the institutions that manage the economic and social interactions among the people (Kaufmann et al., 2003). The strength and stability of local institutions limit environmental uncertainty and increases environmental predictability (North, 1990; Scott, 2008). Firms use this stability and predictability to optimize their strategies around the stable and strong institutional environment (Peng, 2003). Therefore, the quality of local institutions is likely to have a strong influence on firms strategy (Rodrik et al., 2004; Wig & Tollefsen, 2016).

Country-level analyses showed that institutional quality positively influences country economic growth because firms allocate resources with a more long-term focus (Barbosa & Faria, 2011; Buchanan, Le, & Rishi, 2012; Dollar & Kraay, 2003). Prior literature have shown that institutional quality affects the attractiveness of foreign direct investments, because efficient local institutions increase the propensity of foreign investors to invest in the country because of the greater certainty about the future provided by those institutions in terms of general stability (Arregle, Miller, Hitt, & Beamish, 2013). In fact, country-level studies show that institutional quality can stimulate long-term investments.

Since the causes that induce firms to increase investments are the same at a local (e.g. province, regions) and at a country level (greater certainty, higher stability, low corruption, etc.), we expect that the strength and stability of both local and national institutions increase environmental predictability (North, 1990; Scott, 2008). However, considering the local institutional quality at a deeper level (e.g. province instead of country) permits to account for a wider range of variance across the different local areas, also related to informal local peculiarities, which have a in important influence on firm investments (Holmes Jr, Miller, Hitt, & Salmador, 2013). Therefore, high local institutional quality, similarly to country

institutional quality (Bhaumik & Dimova, 2013; Glaeser, La Porta, Lopez-de-Silanes, & Shleifer, 2004), is supposed to have a positive impact on economic growth. We expect that even at a local level—similarly to what happens to the country level—there is an influence of local institutional quality on firm investments. Specifically, we argue that a higher local institutional quality promotes firms investments. In formal terms:

> **Hypothesis 1:** *The higher the local institutional quality, the higher the firms' investments.*

Institutional quality and regulated industries

Among the different variables able to impact firm behaviour, the industry in which the firms operate is one of the most important (Amato & Amato, 2007; Nadkarni & Barr, 2008). Industries vary among them, and their regulation may significantly influence firm strategy (García Canal & Guillén, 2008; Henriques & Sadorsky, 1996). In fact, is widely acknowledged by strategy academics that companies in such industries (e.g. regulated) necessitate specific theoretical and empirical investigation (García Canal & Guillén, 2008; Mahon & Murray Jr, 1981). Those regulatory regimes are relevant in determining of firm behaviour (Belderbos & Carree, 2002; Klassen & Shackelford, 1998; Tzelepis & Skuras, 2004). In fact, regulated companies operate in a context with some peculiarities, since they benefit from an evident amount of price stability due to the settled rates, and take advantage from fewer competition in comparison to the non-regulated industries (Mahon & Murray Jr, 1981). In particular, the literature suggests that those industries that are overseen by industry-specific regulatory agencies tend to significantly differ from those that are not regulated (Mahon & Murray Jr, 1981). Specifically, the evidence suggests that firms operating in regulated industries are more prone to allocate resources to investments because of less uncertainty (Mahon & Murray Jr, 1981). On the opposite side there are studies explaining that

various measures of regulation are negatively related to investments, because higher regulation leads to an increase of the mark-up of the regulated companies, and therefore less needs for investments (Alesina, Ardagna, Nicoletti, & Schiantarelli, 2005). Moreover, analyses show that firms operating in regulated industries are subject to an extraordinary level of interference and policy risk (García-Canal & Guillén, 2008), due to the local governments influence on firms and their investments (Henisz & Zelner, 2001). Prior researchers examined firms active in regulated industries with ad-hoc studies, showing a general different strategy of those firms (Alesina, Ardagna, Nicoletti, & Schiantarelli, 2005; García-Canal & Guillén, 2008), due to the fact that firms operating in regulated industries are generally more touched by public policies then those in less regulated industries (Lang & Lockhart, 1990), and that there is consequently more dependency from third parties. Those third parties are regulatory organizations that act protecting the firms from market forces (Mahon & Murray Jr, 1981).

As explained for the first hypothesis, an environmental variable able to impact firm investments is the local institutional quality, which generally is positively correlated to firm propensity to allocate resources for investments (Barbosa & Faria, 2011; Buchanan et al., 2012).

However, despite scholars have recognized the relevance of the firm industry regulation and of the local institutional quality, there is a paucity of research explaining how they affect one another when investments are considered (Asiedu & Freeman, 2009; Galang, 2012; Mendoza, Lim, & Lopez, 2015). Starting from this consideration, since the core of many approaches to firm strategy involves analyses of the firm and its environment (Mahon & Murray Jr, 1981), it is useful to analyse jointly how firms characteristics—like industry regulation—and external environment—like institutional quality—interact one another to influence firm strategy. In fact, some industries rely on institutional quality more than others, since the dependence on institutions – enforcement of contracts and property rights – for

specific industries is higher (Levchenko, 2007). In parallel, the strength and stability of local institutions limit environmental uncertainty and increases environmental predictability (North, 1990; Scott, 2008), spurring firms to invest with a long-term orientation. However, a negative local environment provides uncertainty and therefore firms reduce long-term investments (Alesina et al., 2005; Rivoli & Salorio, 1996), since they prefer to invest in areas where the institutions are realistically devoted to a set of policies and rules, where there is a reduction of the risk of investing (Henisz & Zelner, 2005). The combined effect of low institutional quality and of the higher uncertainty due to the lower protection of less regulated industries, brings firms operating in those industries unavailable to make new investments.

As has been observed a substitution effect in terms of investments in specific contexts (Zúñiga Vicente, Alonso Borrego, Forcadell, & Galán, 2014), in a context of low institutional quality we expect a substitution effect on investments made by firms operating in regulated industries instead of firms operating in not regulated industries, also according to the fact that firms operating in regulated industries are generally obliged to invest (Aghion, Harris, Howitt, & Vickers, 2001).

Hence, we argue that, in contexts of low institutional quality, firms operating in regulated industries tend to replace the investments that firms operating in not regulated industries are not available to do because of higher uncertainty.

Hypothesis 2: *The higher (lower) the local institutional quality, firms in regulated industries will decrease (increase) their investments more than not regulated firms.*

Institutional quality and state-owned firms

Among the different elements able to influence firm behaviour, the ownership is one of the most important (Ramaswamy, Li, & Veliyath, 2002). In the specific, state-owned firms have some peculiarities able to affect investments. The investment decisions of state-owned

firms reflect purposes that are not always consistent with the profit-maximizing strategies of private firms (Amighini et al., 2013; Dewenter & Malatesta, 2001). This implies that the resource allocation in terms of investments may be different from those of private firms (Child & Rodrigues, 2005). In fact, private firms are driven by market motives (Lu, Liu, & Wang, 2011), while state-owned firms are moved mainly by political and social objectives. Another peculiarity of state-owned firms is that are influenced by local administrators which key purpose is to accomplish social and political targets that are generally different from performance optimization. Consequently, local administrators use state-owned firms to replace maximum profit targets with social and political objectives, such as wealth redistribution (Dewenter & Malatesta, 2001), so investing with the intent to achieve social and political targets. Moreover, government administrators influence state-owned firms with the intent to increase their popularity. In fact, state-owned firms offer a potential instrument for government administrators to distribute resources that are invisible because are not directly under their direct control (Aharoni, 1986).

As already noticed, local institutional quality sets the rules of the game in the environment and, in turn, these rules influence firm strategy (Rodrik et al., 2004). In fact, studies suggest that a high local institutional quality may represent a competitive advantage (Quer, Claver, & Rienda, 2012), due to the financial or non-financial help provided by the local institutions and the existence of a number of formal and informal rules and attitudes that permit firms to complete transactions with lower costs (North, 1993).

Whereas studies concur in identifying the advantage provided by local institutional quality on firms, private-owned and state-owned firms likely react differently to the specificities of the local environment (Boardman & Vining, 1989). In fact, as explained by the literature, there are several factors of the local institutional quality that could impact on state-owned firms and private-owned firms. The specific reaction to the different local institutional

quality can be affected by the dissimilar characteristics of the two kinds of firms, which have different objectives and involvement in the environment.

Private-owned firms and state-owned firms are moved by different objectives. In fact, due to their profit-maximizing strategies (Amighini et al., 2013(Dewenter & Malatesta, 2001)), private-owned firms are more affected by the environmental uncertainty resulting from lower institutional quality (North, 1990; Scott, 2008); therefore, private-owned firms are not completely available to invest in areas with higher risks. In local areas with good institutional quality, the stability of local institutions decreases environmental uncertainty and increases environmental predictability (North, 1990; Scott, 2008), spurring private-owned firms to increase investments. On the contrary, state-owned firms have the task to carry out the investments not done by private-owned firms and that, however, are necessary to benefit the local community. In fact, state-owned firms primary target is not to invest in areas where the institutions are realistically devoted to a set of policies and rules, and where the private-owned firms generally invest (Henisz & Zelner, 2005), but in local areas where there is a social need for investments that the private-owned firms are not willing to undertake because of high uncertainty. Therefore, in this context, state-owned firms contribute to bridge the gap between the desired level of investments in a local area and the resources provided by private-owned firms.

Moreover, state-owned firms are more entrenched in the local environment since have stronger connections with government administrators (Belloc, 2014) than private-owned firms. In fact, the connections of state-owned firms help to reduce the risks that these firms face in their institutional environment. Prior analyses show that state-owned firms are interested to make foreign direct investments in countries with risky political environments (Ramasamy, Yeung, & Laforet, 2012), because of the risk-reduction effect of good political relations (Amighini et al., 2013) and because of the state-owned firms role in pursuing social

and political objectives as wealth redistribution (Dewenter & Malatesta, 2001). Therefore, the fact that state-owned firms are subject to an extraordinary level of interference (García-Canal & Guillén, 2008)—due to the local governments influence on firms (Henisz & Zelner, 2001)—induces those firms to disregard institutional quality in the investments choice, in comparison to private-owned firms. In fact, studies find that private-owned firms are naturally pushed to invest in areas where they can reduce or avoid the unfavourable local environment (Luo & Tung, 2007). A negative local environment provides uncertainty that consequently reduce investments (Alesina et al., 2005; Rivoli & Salorio, 1996); in fact, private-owned firms, due to their profitability targets, prefer to invest in areas where the institutions are realistically devoted to a set of policies and rules (Henisz & Zelner, 2005). Consequently, private-owned firms are more prone to invest in less risky countries in order to benefit from stability and certainty, where investments outcomes are less risky (García Canal & Guillén, 2008). Since state-owned firms are more capable than private-owned firms to deal with uncertainty due to their higher involvement in the environment, they are more available than private-owned firms to invest when the local institutional quality decreases (Belloc, 2014).

Therefore, the combined effect of low institutional quality, and of the higher political connection and the social role as wealth redistribution of state-owned firms (Dewenter & Malatesta, 2001), brings state-owned firms available to make the investments that the private-owned firms are not willing to do. Consequently, in an environment with low institutional quality we expect a substitution effect on investments made by state-owned firms instead of private-owned firms.

Hence, we argue that, in contexts of low (high) institutional quality, state-owned firms tend to increase (decrease) their investments.

Hypothesis 3: *The higher (lower) the local institutional quality, state-owned firms will decrease (increase) their investments more than private-owned firms.*

RESEARCH METHOD

Sample and empirical setting

The ideal setting to test our theory would allow us to observe firm's investments in contexts where the local institutional quality significantly varies among geographical areas within a country. While identifying an ideal context might be challenging, several factors make the Italian setting appropriate for the present study. First, Italy is characterized by strong geographical and social differences, not only among regions but also among provinces within regions (Putnam, 1992; Woolcock & Narayan, 2000). Second, a recent study (Nifo & Vecchione, 2014) has built and validated a measure of the institutional quality at the provincial level in Italy. Third, Italian firms are obliged by law to disclose their financials to the Italian Chamber of Commerce. Therefore, the sample of firms used in this study is likely not affected by a sample selection bias (a common problem in studies that use only state-owned firms or the data provided by firms voluntarily). Fourth, the focus on one country reduces the risk of an omitted-variable problem characterizing multi-country studies where it is difficult to control for all the time-variant country characteristics simultaneously affecting the dependent and the independent variables (De Jong, Kabir, & Nguyen, 2008).

In order to perform our analysis, we built a dataset with firm-level and province-level data. Firms' data come from AIDA, a Bureau van Dijk database containing accounting data on all Italian limited companies with revenues over 5 million euro. Our sample of firm-level data contains a dataset of 56,752 Italian limited companies with revenues higher than euro 5 million for at least one year in the period 2006-2012. Our dataset contains a total of 336,122 firm-year observations. Province-level data measures local institutional quality for all 107 Italian provinces.

After excluding financial firms and eliminating observations with missing values among dependent, independent and control variables, our analyses will be based on a total of 258,504 firm-year observations. Descriptive statistics for the variables and their pairwise correlations are reported, respectively, in Table 1a and Table 1b. All data are computed at the end of each fiscal year.

Insert Tables 1a and 1b about here

Variables description

Independent variable

Institutional Quality Index (IQI). The institutional quality is likely to vary among geographical areas—like countries, regions, provinces (LiPuma et al., 2013). The literature has traditionally measured single dimensions of the institutional quality—like corruption or government effectiveness. However, recently Kaufmann et al. (2010) developed a methodology to capture the overall institutional quality at the country-level, through the use of multiple indexes related to the institutional quality (i.e., voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption). Leveraging the methodology developed by Kaufmann et al. (2010) at the country-level, Nifo & Vecchione (2014) developed an index capturing the overall institutional quality at the provincial-level. In particular, they developed an index measuring the overall institutional quality of the 107 Italian provinces over a long period of time.

Our independent variable identifies the province institutional quality through the IQI. IQI indicator ranges between 1 (highest institutional quality) and 0 (lowest institutional quality). IQI is an index that originates from the combination of the following 5 indexes: voice and accountability, government effectiveness, regulatory quality, rule of law, control of

corruption (Agovino, Garofalo, & Cerciello, 2019; Nifo & Vecchione, 2014). Each index is built through the collection of several sub-indexes, each capturing different dimensions of institutional quality.

The *Voice and accountability* sub-index takes into account at the provincial level the diffusion of associations and social cooperatives, the participation in political elections, and cultural dynamism measured in terms of books purchased. The *government effectiveness* sub-index captures the provision of social structures in provinces and the local governmental aptitude of local administrators regarding programs related to health deficit, waste collection and the urban environment. The *regulatory quality* sub-index takes into account the economy openness level, resulting from the computation of exports and imports for each Italian province. The *regulatory quality* sub-index considers the local administrators capability to support and defend provincial business activity. The *rule of law* captures data on crimes, justice efficiency, tribunal productivity, tax evasion level and on the shadow economy. The *corruption* sub-index captures information regarding crimes committed against local government, administrative misrule, Mafia infiltration, and the Golden–Picci corruption measure. This last measure captures corruption level considering "the difference between the amounts of physically existing public infrastructure [...] and the amounts of money cumulatively allocated by government to create these public works" (Golden & Picci, 2005, p. 37).

Table 2 reports the details of the sub-indexes that constitute the IQI. Figure 1 maps the IQI levels in 2012, the last year of observation (Agovino et al., 2019).

Insert Table 2 and Figure 1 about here

In order to create the IQI, the sub-indexes were aggregated after data normalization and a weights attribution. The normalization consists in a reformulation of each sub-index in the range $0 - 1$, in order to measure the distance from the ideal point. The ideal point for the sub-indexes is 1; therefore, a higher value means better local institutional quality, while a lower value means worse local institutional quality. The weights attribution consists in using the analytic hierarchy process (AHP) as elaborated by Saaty (1980, 1992), a widely used technique in a multi-criteria decision environment (Malczewski, 1999).

Regulated industry. Similarly to prior studies, we consider that a firm operates in a regulated industry if it operates in one of the following industries: banking, insurance, energy, communications, transportation, utilities, mining, agriculture, construction, oil and sanitary services (Burris, 1987; Hadani & Schuler, 2013).

State-owned firms. According to previous literature and definitions, we consider state-owned firms those legal entities wholly or partially owned by national state or local government (Ralston, Terpstra-Tong, Terpstra, Wang, & Egri, 2006).

Dependent variables

The key dependent variable is firm's investments, measured as the natural logarithm of the sum of tangible and intangible fixed assets. This measure captures the amount of resources whose potential value is likely to be realized in the long-term horizon. Prior studies (Brauer, 2013; Campello & Giambona, 2013; Lumpkin, Brigham, & Moss, 2010) used total investments as a proxy to measure the propensity of firms to prioritize long-term projects whose impact is likely to come to fruition only in the long-run.

Control variables

In order to control for individual firm heterogeneity, we estimate our models including firms' fixed effects, which control for any firm time-invariant characteristic, including where the firm operates. We also include year fixed effects, which control for yearly aggregate shock. The inclusion of firms' fixed effects and of the robust clustering of errors at the firm level allows us to account for heteroscedasticity, clustering of errors and time-invariant firms differences that may simultaneously impact our independent and dependent variables.

The inclusion of firm and year fixed effects in the model does not account for time-variant differences at a firm level that could influence the propensity of firms in deciding to invest with a long-term horizon. For this reason, we include several time-variant control variables at the firm level; their omission would represent an omitted variable problem and cause an endogeneity problem.

First, to account for size, we control for *revenues* and the number of *employees*. We control for firm size since it can "be considered as a proxy for the amount of slack resources available to a firm" (Fuentelsaz, Gomez, & Polo, 2002: 249). Moreover, we include this control because smaller firms might have access to a lower quantity of resources and might underperform bigger firms (Waddock & Graves, 1997). We control for firm *EBITDA* (i.e., Earnings Before Interest, Taxes, Depreciation, and Amortization) and *ROA* (i.e., Return on Assets), which capture the quality of firms' operations. Since previous literature showed that financial leverage can have a negative impact on firm's investment decision (Aivazian, Ge, & Qiu, 2005), we also include a variable to control for financial debt level. Many studies dedicated to capital structure derive from analyses of the determinants of firm debt ratios and analyses of issuing firms' debt versus equity financing option (Hovakimian, Hovakimian, & Tehranian, 2004). Therefore, to control for financial leverage, we use the *debt-equity ratio* (Ma & Khanna, 2016), calculated as the ratio between net financial position and equity. This

measure has been widely used to capture the financial riskiness of a firm (Waddock & Graves, 1997).

Analytical method

The aim of the paper is to explain how local institutional quality impact a firm's investments, and if industry and ownership characteristics can play a role in the relationship between provincial institutional quality and firms' investments. The specification is extended to a panel setting, and is estimated, as baseline specification, with the following regression:

$$Y_{it} = \alpha + \beta * IQI_t + \delta X_{it} + \gamma_i + c_i + \varepsilon_{it} \qquad (1)$$

where Y is our dependent variable at time *t* for firm *i*; *IQI* is the local institutional quality variable of the province where firm *i* is headquartered – i.e., a value close to 1 if the local institutional quality is high and close to 0 otherwise, in year *t*. X_{it} is the vector of control variables, which includes revenues, number of employees, EBITDA, ROA and Debt/Equity ratio. γ_i represents year fixed effects, c_i represents firm fixed effects, and ε_{it} is the error term. The coefficient of interest is β, which measures the effect of the local institutional quality on on a firm's investments. For example, H1 predicts that β should be positive and significant, meaning that as IQI increases, firm's investments should increase.

In order to show under what conditions this hypothesized relationship is stronger or weaker, we identify other two mechanisms – regulation and public ownership – that could affect this relationship.

To study the effect of IQI considering jointly the industry regulations magnitude on firms' long-term investments, we estimate the following model:

$$Y_{it} = \alpha + \theta * IQI_t * regulated\_industry_i + \delta X_{it} + \gamma_i + c_i + \varepsilon_{it} \qquad (2)$$

where regulated industry is a dummy variable equals to 1 if the firm *i* operates in a highly regulated industry, and 0 otherwise. The coefficient of interest is β, which measures the

combined effect of the local institutional quality and of industry regulation on firms' long-term investments. For example, H2 predicts that θ should be negative and significant, meaning that as IQI increases, firms in regulated industry will reduce investments more than non-regulated firms. Similarly, we estimate H3 with the same model proposed in equation 2 but substituting the regulated industry dummy with a state-ownership dummy. H3 predicts that the interaction should be negative and significant, meaning that as IQI increases, firms with a state-ownership will reduce investments more than non-regulated firms.

RESULTS

Regression analysis

Table 3 reports the results for hypotheses 1, 2, and 3. Column 1 of table 3 show the estimates of equation (1) and show that the IQI level has an influence on investments, since the effect is positive and statistically significant. This result supports H1 and is consistent with a long-term orientation in a context where IQI is high, given that a better local institutional quality induces firms to increase their long-term investments.

Insert Table 3 about here

Column 2 of table 3 shows the estimates of equation (2) testing the interaction of industry regulation and local institutional quality on firm investments. The interactive term is negative and statistically significant, supporting H2 that, as the local institutional quality increases, regulated firms tend to reduce their investments. Column 3 of table 3 shows the estimates for the interaction between state-ownership and local institutional quality on firm investments. The interactive term is negative and significant. This finding supports H3 that, as the local institutional quality increases, also state-owned firms tend to reduce their investments.

Robustness checks

To corroborate our findings, we performed different robustness checks and extensions of our baseline analysis. The additional checks provide evidence that our findings are robust to different specifications.

Different censoring. As first robustness check, we reduced the sample considering different percentages of censoring. Table 5 shows the estimated effect of local institutional quality on investments considering a change in the sample size due to a censoring of 1%, 2%, 5% applied to the dependent variable. Considering the different specifications, the effect with different size of censoring remains statistically and economically significant.

Insert Tables 4 & 5 about here

Change of dependent variable. We perform the analysis considering another dependent variable that measure investments. Firms might change not only the amount of total investments, but also the ratio of resources used for investments of the total assets. To this end, we compute a measure that captures the ratio of the sum of tangible and intangible assets divided by total assets. By definition, this variable assumes values between 0 and 1. Results reported in table 6 suggest that similar findings are obtained when considering the ratio of investments.

Insert Table 6 about here

Inclusion of further control variables. Results might be influenced by an omitted variable problem if relevant controls concurrently affecting the dependent and independent variables are not included in the analysis. Therefore, we report the results considering the

sensitivity to the inclusion of other relevant controls, performing a different model that consider supplementary potentially relevant control variables. The results of the analysis based on the inclusion of further control variables are very similar to those of the baseline findings.

Insert Tables 7 & 8 about here

Small versus big firms. Our core argument is that regulated and state-owned firms increase more their investments (compared to non-regulated and private firms) when IQI decreases because these firms are more subject to the pressure of regulators and the public sectors. Due to the proposed substitution effect played by regulated and state-owned firms, they might be pushed to invest more when other firms reduce their investments. If this explanation of our findings is true, then we should find that bigger regulated and state-owned firms—by having more financial resources—will be those increasing their investments when IQI decreases. Indeed. The pressure of regulators and the public sector will be stronger on these firms that have more resources to compensate for the loss of investments by other firms. To this end, we split our sample in firms above the median and below the median in term of revenues. Results in table 9 suggest that the proposed effect is stronger in the sub-sample of bigger firms.

Insert Table 9 about here

Ruling out Alternative Explanations

In additional analyses, we provide further empirical evidence for the mechanisms underlying our theory and try to rule out alternative explanations that are consistent with our findings.

Firm's choice or external pressures. We suggest that, compared to private firms,

regulated and state-owned firms increase their investments when IQI is low because they are subject to the pressures of local actors, whose institutional quality might be higher or lower. However, an alternative explanation of our findings could be that firms invest more when IQI is low because this is when firms can better appropriate the value of their investments and, therefore, increase their performance. In additional analyses reported in Table 10, we have different results that seem to exclude this possibility. First, neither IQI nor total investments have a direct impact on firms' performance (columns 1, 2, and 3). Second, the impact of investments on performance does not depend on the IQI level (column 4). Third, the impact of investments for regulated and state-owned firms does not depend on the level of IQI (columns 5 and 6). Taken together, these findings do not offer support for the alternative explanation of our findings that regulated and state-owned firms increase their investments when IQI is low to increase their performance.

Insert Table 10 about here

Competition. Another alternative explanation of our finding could be that regulated and state-owned firms invest more when IQI is low because of a reduction of competition. This would imply that as IQI decreases, the number of firms operating in a local area decreases. Whereas we do not have detailed data on the number of firms in a province, we could use our data to compute: the number of firms operating in a region; the number of firms in the four-digits SIC code; the number of state-owned firms; the number of regulated firms. Results in table 11 show that the IQI level do not influence any of these dependent variables. Therefore, our results are unlikely driven by a change in the competition.

Insert Table 11 about here

CONCLUSION

In this paper, we investigate the influence of the local institutional quality on firm-level temporal orientation decisions. This specific subject has been mostly underdeveloped in the management literature to date, as dominant theories have concentrated on country-level analyses and without considering the effect of industry regulation.

In the specific, we test three hypotheses. Firstly, we theorize that local areas with higher institutional quality drive firms to invest with a long-term orientation. Secondly, we show that the effect of local institutional quality on firm long-term orientation is influenced by industry regulation. Third, we demonstrate that the combined effect of low institutional quality, and of state-ownership, brings state-owned firms available to make the investments that the private-owned firms are not willing to do. We choose a cross-provincial single-country study to isolate the effect of informal rules; an approach did not used in prior management literature related to firm temporal orientation. Specifically, Italy is an ideal laboratory for this kind of study due to the diverse culture and history of the different provinces.

Before testing the hypotheses, we develop our measure of local institutional quality by aggregating different dimensions concerned with some of the most widely used quality characteristics proxies of an institution (voice and accountability, government effectiveness, regulatory quality, rule of law, control and corruption) therefore increasing analysis validity. The fact that prior works already used this measure confirms that our proxy is highly reliable. Results provide strong and robust support for our hypotheses, controlling for firm size, leverage and profitability. In the specific, local areas with high institutional quality explain higher firm propensity to invest with a long-term orientation. Our interpretation is that high local institutional quality offers higher informal protection to firms, and therefore they are more prone to invest with a long-term orientation since they have greater certainty regarding

the future. In other terms, the costs of low local institutional quality is detrimental for the firm and for the environment, since a weak informal protection discourage investments and therefore long-term growth.

This result supports prior studies focused on country-level analyses, where has been explained that the determinants of investment intensity across countries is largely explained by differences in local institutional quality (Barbosa & Faria, 2011).

Furthermore, we find strong evidence that the hypothesized effect of local institutional quality on firm investment decisions is partly influenced by the industry regulation intensity and by firm-state ownership.

In fact, we show that firms operating in regulated industries in provinces with low institutional quality are more prone to invest, instead of firms operating in less regulated industries. This firm behaviour is due to a kind of substitution effect, where in provinces with low local institutional quality firms operating in highly regulated industries are obliged to invest due to their role in the society, while firms operating in less regulated industries, which have more freedom to allocate resources, have less incentives to invest in those provinces since the negative environment discourages long-term investments. This is consistent with prior studies that show that firms of highly regulated industries invest more since have greater certainty about the future, due to the higher connection with the local authorities (Hillman, 2005).

Regarding the state-ownership effect, we find that since state-owned firms constitute a potential tool for local government administrators to allocate resources (Aharoni, 1986), and because an undesirable local environment offers uncertainty for private-owned firms that consequently reduce investments (Alesina et al., 2005; Rivoli & Salorio, 1996), state-owned firms have the task to support the investments not carried out by private-owned firms and that are required for the benefit of the society, and therefore state-owned firms increase

investments in contexts of low institutional quality, consistently with prior studies which show that local connections with local authorities push firm investments (Hillman, 2005).

Our contribution is three-fold. Firstly, previous management research has paid little attention to the role of institutional quality on firm temporal orientation in terms of resource allocation. To our knowledge, we are the first to empirically show the links between local institutional quality, industry regulation, state-ownership and firm temporal orientation. To this extent, we explain that local institutional quality, industry regulation and state-ownership matter. Secondly, adopting a single-country research design permitted us to eliminate the effects of formal institutions that in our case are constant, while we isolate the effect of informal institutions that are part of the local institutional quality. Third, we are the first to perform a firm-level study instead of a country-level analysis that allows examining the effects of local institutional quality directly on firms.

Obviously, our study has some limitations. First of all, even if our single-country analysis has several methodological advantages (Boytsun et al., 2011), variation in local institutional quality within a country is probable to be minor than across countries (Lubatkin, Lane, Collin, & Very, 2005). From the other side, this opens to new opportunities for additional cross-country studies on the effect of local institutional quality on firm investments considering the influence of industry regulation and state-ownership. Moreover, we have certain awareness on what local institutional quality matters for influencing firm temporal orientation, but we only have partial knowledge of how this happens. Finally, this provides an outstanding chance for case-study investigation that can show evidences of real cases of the mechanisms by which local institutional quality may influence firm temporal orientation.

REFERENCES

Acemoglu, D., & Robinson, J. 2010. The role of institutions in growth and development. *Leadership and Growth*, 135.

Aghion, P., Harris, C., Howitt, P., & Vickers, J. 2001. Competition, imitation and growth with step-by-step innovation. *The Review of Economic Studies*, 68(3): 467–492.

Agovino, M., Ferrara, M., & Garofalo, A. 2017. The driving factors of separate waste collection in Italy: a multidimensional analysis at provincial level. *Environment, Development and Sustainability*, 19(6): 2297–2316.

Agovino, M., Garofalo, A., & Cerciello, M. 2019. Do local institutions affect labour market participation? The Italian Case. *The BE Journal of Economic Analysis & Policy*, 19(2).

Aharoni, Y. 1986. *The evolution and management of state owned enterprises*. Ballinger Publishing Company.

Aivazian, V. A., Ge, Y., & Qiu, J. 2005. The impact of leverage on firm investment: Canadian evidence. *Journal of Corporate Finance*, 11(1–2): 277–291.

Alesina, A., Ardagna, S., Nicoletti, G., & Schiantarelli, F. 2005. Regulation and investment. *Journal of the European Economic Association*, 3(4): 791–825.

Amato, L. H., & Amato, C. H. 2007. The effects of firm size and industry on corporate giving. *Journal of Business Ethics*, 72(3): 229–241.

Amighini, A. A., Rabellotti, R., & Sanfilippo, M. 2013. Do Chinese state-owned and private enterprises differ in their internationalization strategies? *China Economic Review*, 27: 312–325.

Arregle, J., Miller, T. L., Hitt, M. A., & Beamish, P. W. 2013. Do regions matter? An integrated institutional and semiglobalization perspective on the internationalization of MNEs. *Strategic Management Journal*, 34(8): 910–934.

Asiedu, E., & Freeman, J. 2009. The effect of corruption on investment growth: Evidence from firms in Latin America, Sub-Saharan Africa, and transition countries. *Review of Development Economics*, 13(2): 200–214.

Barbosa, N., & Faria, A. P. 2011. Innovation across Europe: How important are institutional differences? *Research Policy*, 40(9): 1157–1169.

Belderbos, R., & Carree, M. 2002. The location of Japanese investments in China: Agglomeration effects, keiretsu, and firm heterogeneity. *Journal of the Japanese and International Economies*, 16(2): 194–211.

Belloc, F. 2014. Innovation in state-owned enterprises: Reconsidering the conventional wisdom. *Journal of Economic Issues*, 48(3): 821–848.

Bhaumik, S. K., & Dimova, R. 2013. Good and bad institutions: is the debate over? Cross-country firm-level evidence from the textile industry. *Cambridge Journal of Economics*, 38(1): 109–126.

Birhanu, A. G., Gambardella, A., & Valentini, G. 2016. Bribery and investment: Firm-level evidence from A frica and L atin A merica. *Strategic Management Journal*, 37(9): 1865–1877.

Boardman, A. E., & Vining, A. R. 1989. Ownership and performance in competitive environments: A comparison of the performance of private, mixed, and state-owned enterprises. *The Journal of Law and Economics*, 32(1): 1–33.

Boytsun, A., Deloof, M., & Matthyssens, P. 2011. Social norms, social cohesion, and corporate governance. *Corporate Governance: An International Review*, 19(1): 41–60.

Brauer, M. F. 2013. The effects of short-term and long-term oriented managerial behavior on medium-term financial performance: longitudinal evidence from Europe. *Journal of Business Economics and Management*, 14(2): 386–402.

Buchanan, B. G., Le, Q. V, & Rishi, M. 2012. Foreign direct investment and institutional

quality: Some empirical evidence. *International Review of Financial Analysis*, 21: 81–89.

Burris, V. 1987. The political partisanship of American business: A study of corporate political action committees. *American Sociological Review*, 732–744.

Campello, M., & Giambona, E. 2013. Real assets and capital structure. *Journal of Financial and Quantitative Analysis*, 48(5): 1333–1370.

Cheng, J. L. C., & Kesner, I. F. 1997. Organizational slack and response to environmental shifts: The impact of resource allocation patterns. *Journal of Management*, 23(1): 1–18.

Child, J., & Rodrigues, S. B. 2005. The Internationalization of Chinese Firms: A Case for Theoretical Extension? 1. *Management and Organization Review*, 1(3): 381–410.

Chuang, W.-B., Lin, H., & Wu, C.-W. 2015. Does Institutional Quality Strengthen The Positive Influence of Offshore R&D Strategy on the Firm Productivity? *Asian Economic and Financial Review*, 5(2): 279–294.

Chunlai, C. 1997. *Provincial characteristics and foreign direct investment location decision within China*. University of Adelaide, Chinese Economies Research Centre.

De Jong, A., Kabir, R., & Nguyen, T. T. 2008. Capital structure around the world: The roles of firm-and country-specific determinants. *Journal of Banking & Finance*, 32(9): 1954–1969.

Dewenter, K. L., & Malatesta, P. H. 2001. State-owned and privately owned firms: An empirical analysis of profitability, leverage, and labor intensity. *American Economic Review*, 91(1): 320–334.

Dollar, D., & Kraay, A. 2003. Institutions, trade, and growth. *Journal of Monetary Economics*, 50(1): 133–162.

Du, J., Lu, Y., & Tao, Z. 2012. Contracting institutions and vertical integration: Evidence from China's manufacturing firms. *Journal of Comparative Economics*, 40(1): 89–107.

Egger, P., & Winner, H. 2005. Evidence on corruption as an incentive for foreign direct investment. *European Journal of Political Economy*, 21(4): 932–952.

Fuentelsaz, L., Gomez, J., & Polo, Y. 2002. Followers' entry timing: evidence from the Spanish banking sector after deregulation. *Strategic Management Journal*, 23(3): 245–264.

Galang, R. M. N. 2012. Victim or victimizer: Firm responses to government corruption. *Journal of Management Studies*, 49(2): 429–462.

García-Canal, E., & Guillén, M. F. 2008. Risk and the strategy of foreign location choice in regulated industries. *Strategic Management Journal*, 29(10): 1097–1115.

Glaeser, E. L., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. 2004. Do institutions cause growth? *Journal of Economic Growth*, 9(3): 271–303.

Golden, M. A., & Picci, L. 2005. Proposal for a new measure of corruption, illustrated with Italian data. *Economics & Politics*, 17(1): 37–75.

Guiso, L., Sapienza, P., & Zingales, L. 2009. Cultural biases in economic exchange? *The Quarterly Journal of Economics*, 124(3): 1095–1131.

Hadani, M., & Schuler, D. A. 2013. In search of El Dorado: The elusive financial returns on corporate political investments. *Strategic Management Journal*, 34(2): 165–181.

Helliwell, J. F., & Putnam, R. D. 1995. Economic growth and social capital in Italy. *Eastern Economic Journal*, 21(3): 295–307.

Henisz, W. J., & Zelner, B. A. 2001. The institutional environment for telecommunications investment. *Journal of Economics & Management Strategy*, 10(1): 123–147.

Henisz, W. J., & Zelner, B. A. 2005. Legitimacy, interest group pressures, and change in emergent institutions: The case of foreign investors and host country governments. *Academy of Management Review*, 30(2): 361–382.

Henriques, I., & Sadorsky, P. 1996. The determinants of an environmentally responsive firm:

An empirical approach. *Journal of Environmental Economics and Management*, 30(3): 381–395.

Hillman, A. J. 2005. Politicians on the board of directors: Do connections affect the bottom line? *Journal of Management*, 31(3): 464–481.

Holmes Jr, R. M., Miller, T., Hitt, M. A., & Salmador, M. P. 2013. The interrelationships among informal institutions, formal institutions, and inward foreign direct investment. *Journal of Management*, 39(2): 531–566.

Hovakimian, A., Hovakimian, G., & Tehranian, H. 2004. Determinants of target capital structure: The case of dual debt and equity issues. *Journal of Financial Economics*, 71(3): 517–540.

Kaufmann, D., Kraay, A., & Mastruzzi, M. 2003. *Governance matters III: Governance indicators for 1996–2002*. The World Bank.

Khanna, T. 2002. *Local institutions and global strategy*.

Klassen, K. J., & Shackelford, D. A. 1998. State and provincial corporate tax planning: income shifting and sales apportionment factor management. *Journal of Accounting and Economics*, 25(3): 385–406.

Kurtz, M. J., & Schrank, A. 2007. Growth and governance: Models, measures, and mechanisms. *The Journal of Politics*, 69(2): 538–554.

Lang, J. R., & Lockhart, D. E. 1990. Increased environmental uncertainty and changes in board linkage patterns. *Academy of Management Journal*, 33(1): 106–128.

Lasagni, A., Nifo, A., & Vecchione, G. 2015. Firm productivity and institutional quality: Evidence from Italian industry. *Journal of Regional Science*, 55(5): 774–800.

Levchenko, A. A. 2007. Institutional quality and international trade. *The Review of Economic Studies*, 74(3): 791–819.

LiPuma, J. A., Newbert, S. L., & Doh, J. P. 2013. The effect of institutional quality on firm export performance in emerging economies: a contingency model of firm age and size. *Small Business Economics*, 40(4): 817–841.

Lu, J., Liu, X., & Wang, H. 2011. Motives for outward FDI of Chinese private firms firm resources, industry dynamics, and government policies. *Management and Organization Review*, 7(2): 223–248.

Lubatkin, M. H., Lane, P. J., Collin, S.-O., & Very, P. 2005. Origins of corporate governance in the USA, Sweden and France. *Organization Studies*, 26(6): 867–888.

Lumpkin, G. T., Brigham, K. H., & Moss, T. W. 2010. Long-term orientation: Implications for the entrepreneurial orientation and performance of family businesses. *Entrepreneurship & Regional Development*, 22(3–4): 241–264.

Luo, Y., & Tung, R. L. 2007. *International expansion of emerging market enterprises: A springboard perspective*. Springer.

Ma, J., & Khanna, T. 2016. Independent directors' dissent on boards: Evidence from listed companies in China. *Strategic Management Journal*, 37(8): 1547–1557.

Mahon, J. F., & Murray Jr, E. A. 1981. Strategic planning for regulated companies. *Strategic Management Journal*, 2(3): 251–262.

Malczewski, J. 1999. *GIS and multicriteria decision analysis*. John Wiley & Sons.

Megginson, W. L., & Netter, J. M. 2001. From state to market: A survey of empirical studies on privatization. *Journal of Economic Literature*, 39(2): 321–389.

Mendoza, R. U., Lim, R. A., & Lopez, A. O. 2015. Grease or sand in the wheels of commerce? Firm level evidence on corruption and SMEs. *Journal of International Development*, 27(4): 415–439.

Méon, P.-G., & Sekkat, K. 2005. Does corruption grease or sand the wheels of growth? *Public Choice*, 122(1–2): 69–97.

Nadkarni, S., & Barr, P. S. 2008. Environmental context, managerial cognition, and strategic

action: An integrated view. *Strategic Management Journal*, 29(13): 1395–1427.

Nelson, R. R. 2008. What enables rapid economic progress: What are the needed institutions? *Research Policy*, 37(1): 1–11.

Nifo, A., & Vecchione, G. 2014. Do institutions play a role in skilled migration? The case of Italy. *Regional Studies*, 48(10): 1628–1649.

North, D. C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge, England: Cambridge University Press.

North, D. C. 1993. Institutions and credible commitment. *Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift Für Die Gesamte Staatswissenschaft*, 11–23.

Ocasio, W. 1997. Towards and attention-based view of the firm. *Strategic Management Journal*, 18(Summer Special Issue): 187–206.

Peng, M. W. 2003. Institutional transitions and strategic choices. *Academy of Management Review*, 28(2): 275–296.

Porter, M. E. 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press.

Putnam, R. D. 1992. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, NJ: Princeton University Press.

Putnam, R. D. 1993. The Prosperous Community: Social Capital and Public Life. *American Prospect*, 13: 35–42.

Quer, D., Claver, E., & Rienda, L. 2012. Political risk, cultural distance, and outward foreign direct investment: Empirical evidence from large Chinese firms. *Asia Pacific Journal of Management*, 29(4): 1089–1104.

Quibria, M. G. 2006. Does governance matter? Yes, no or maybe: Some evidence from developing Asia. *Kyklos*, 59(1): 99–114.

Ralston, D. A., Terpstra-Tong, J., Terpstra, R. H., Wang, X., & Egri, C. 2006. Today's state-owned enterprises of China: are they dying dinosaurs or dynamic dynamos? *Strategic Management Journal*, 27(9): 825–843.

Ramasamy, B., Yeung, M., & Laforet, S. 2012. China's outward foreign direct investment: Location choice and firm ownership. *Journal of World Business*, 47(1): 17–25.

Ramaswamy, K., Li, M., & Veliyath, R. 2002. Variations in ownership behavior and propensity to diversify: A study of the Indian corporate context. *Strategic Management Journal*, 23(4): 345–358.

Rivoli, P., & Salorio, E. 1996. Foreign direct investment and investment under uncertainty. *Journal of International Business Studies*, 27(2): 335–357.

Rodrik, D., Subramanian, A., & Trebbi, F. 2004. Institutions rule: the primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, 9(2): 131–165.

Rumelt, R. P. 1984. Towards a strategic theory of the firm. In R. B. Lamb (Ed.), *Competitive Strategic Management*: 556–570. Englewood Cliffs, NJ: Prentice-Hall.

Scott, W. R. 2008. *Institutions and organizations: Ideas and interests*. Sage.

Tran, T. Q., Huong, V. Van, Doan, T. T., & Tran, D.-H. 2016. Corruption, provincial institutions and manufacturing firm productivity: New evidence from a transitional economy. *Estudios de Economía*, 43(2).

Tzelepis, D., & Skuras, D. 2004. The effects of regional capital subsidies on firm performance: an empirical study. *Journal of Small Business and Enterprise Development*, 11(1): 121–129.

Waddock, S. A., & Graves, S. B. 1997. The corporate social performance–financial performance link. *Strategic Management Journal*, 18(4): 303–319.

Wen, Y., Rwegasira, K., & Bilderbeek, J. 2002. Corporate governance and capital structure decisions of the Chinese listed firms. *Corporate Governance: An International Review*,

10(2): 75–83.

Wig, T., & Tollefsen, A. F. 2016. Local institutional quality and conflict violence in Africa. *Political Geography*, 53: 30–42.

Woolcock, M. 1998. Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and Society*, 27(2): 151–208.

Woolcock, M., & Narayan, D. 2000. Social capital: Implications for development theory, research, and policy. *The World Bank Research Observer*, 15(2): 225–249.

Zúñiga Vicente, J. Á., Alonso-Borrego, C., Forcadell, F. J., & Galán, J. I. 2014. Assessing the effect of public subsidies on firm R&D investment: a survey. *Journal of Economic Surveys*, 28(1): 36–67.
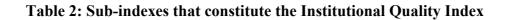
TABLES

Table 1a: Descriptive statistics

Variable	Count	Mean	SD	Min	Max
1. Fixed Assets/Total Assets	256,227	0.221	0.210	0.000	1.000
2. ln Fixed Assets	254,788	7.064	2.147	-6.907	17.569
3. EBITDA	256,244	1.377	2.858	-2.006	36.629
4. Revenues	256,244	17.275	25.734	0.000	234.903
5. Employees (n.)	256,244	50.945	77.518	0.000	612.000
6. ROA	256,239	5.386	10.111	-734.410	437.240
7. Debt Equity ratio	241,804	3.369	22.876	0.000	997.070

"EBITDA" and "Revenues" amounts are in millions of euros. "EBITDA", "Revenues" and "Employees (n.)" data are winsorized at 1%.

Table 1b: Correlations

	Fixed Assets/ Total Assets	Ln Fixed Assets	Ln EBITDA	Ln Revenues	Ln Employees	ROA	Debt Equity ratio
Fixed Assets/Total Assets	1.000						
Ln Fixed Assets	0.626	1.000					
Ln EBITDA	0.219	0.638	1.000				
Ln Revenues	-0.026	0.488	0.668	1.000			
Ln Employees	0.187	0.557	0.559	0.562	1.000		
ROA	-0.157	-0.186	0.319	-0.010	-0.060	1.000	
Debt Equity ratio	-0.007	-0.031	-0.065	-0.038	-0.048	-0.062	1.000

Table 2: Sub-indexes that constitute the Institutional Quality Index

IQI	Sub-index	Components
IQI	**Voice and accountability**	Social cooperatives Associations Election participation Books published Purchased in bookshops
	Government effectiveness	Endowment of social facilities Endowment of economic facilities Regional health deficit Separate waste collection Urban environment index
	Regulatory quality	Economic openness Local government employees Business density Business mortality Business environment
	Rule of law	Crimes against property Crimes reported Trial times Magistrate productivity Submerged economy Tax evasion
	Corruption	Crimes against PA Golden-Picci Index Special commissioners

Table 3

VARIABLES	(1) investments	(2) investments	(3) investments
iqi_prov_	0.209***	0.247***	0.223***
	[0.0538]	[0.0568]	[0.0541]
1.regulated#c.iqi_prov_		-0.221*	
		[0.125]	
lnEBITDA	0.215***	0.215***	0.215***
	[0.0107]	[0.0107]	[0.0107]
lnrevenues	0.134***	0.134***	0.134***
	[0.00926]	[0.00926]	[0.00926]
lnEmployees	0.185***	0.185***	0.185***
	[0.00893]	[0.00893]	[0.00893]
Return on Assets	-0.0273***	-0.0273***	-0.0273***
	[0.00204]	[0.00204]	[0.00204]
DebtEquityratio	0.000379***	0.000379***	0.000380***
	[0.000133]	[0.000133]	[0.000133]
year = 2007	0.0463***	0.0464***	0.0464***
	[0.00335]	[0.00335]	[0.00335]
year = 2008	0.220***	0.220***	0.220***
	[0.00532]	[0.00532]	[0.00532]
year = 2009	0.257***	0.257***	0.257***
	[0.00608]	[0.00608]	[0.00608]
year = 2010	0.281***	0.281***	0.281***
	[0.00667]	[0.00667]	[0.00667]
year = 2011	0.312***	0.312***	0.313***
	[0.00669]	[0.00669]	[0.00669]
year = 2012	0.345***	0.345***	0.345***
	[0.00748]	[0.00748]	[0.00748]
1.state-owned#c.iqi_prov_			-0.911**
			[0.367]
Constant	3.902***	3.900***	3.901***
	[0.0943]	[0.0942]	[0.0943]
Observations	216,533	216,533	216,533
R-squared	0.195	0.195	0.196
Number of id	43,866	43,866	43,866
Year FEs	Yes	Yes	Yes
Firmid	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 4

VARIABLES	(1) investments	(2) investments	(3) investments	(4) investments	(5) investments	(6) investments
iqi_prov_	0.191***	0.235***	0.204***	0.172***	0.212***	0.183***
	[0.0524]	[0.0552]	[0.0527]	[0.0516]	[0.0544]	[0.0518]
1.regulated#c.iqi_prov_		-0.262**			-0.247**	
		[0.123]			[0.120]	
lnEBITDA	0.213***	0.213***	0.213***	0.209***	0.209***	0.209***
	[0.0109]	[0.0109]	[0.0109]	[0.0108]	[0.0108]	[0.0108]
lnrevenues	0.124***	0.124***	0.124***	0.114***	0.114***	0.114***
	[0.00867]	[0.00867]	[0.00867]	[0.00833]	[0.00834]	[0.00834]
lnEmployees	0.177***	0.177***	0.177***	0.169***	0.169***	0.169***
	[0.00819]	[0.00819]	[0.00819]	[0.00787]	[0.00787]	[0.00787]
Return on Assets	-0.0272***	-0.0272***	-0.0272***	-0.0267***	-0.0267***	-0.0267***
	[0.00208]	[0.00208]	[0.00208]	[0.00208]	[0.00208]	[0.00208]
DebtEquityratio	0.000364***	0.000363***	0.000365***	0.000392***	0.000391***	0.000393***
	[0.000131]	[0.000131]	[0.000131]	[0.000128]	[0.000128]	[0.000128]
year = 2007	0.0481***	0.0482***	0.0481***	0.0482***	0.0483***	0.0482***
	[0.00327]	[0.00327]	[0.00327]	[0.00321]	[0.00321]	[0.00321]
year = 2008	0.223***	0.223***	0.223***	0.225***	0.225***	0.225***
	[0.00522]	[0.00522]	[0.00522]	[0.00517]	[0.00517]	[0.00517]
year = 2009	0.259***	0.259***	0.259***	0.261***	0.261***	0.261***
	[0.00599]	[0.00599]	[0.00599]	[0.00590]	[0.00590]	[0.00590]
year = 2010	0.284***	0.284***	0.284***	0.287***	0.287***	0.287***
	[0.00661]	[0.00661]	[0.00661]	[0.00656]	[0.00656]	[0.00656]
year = 2011	0.317***	0.317***	0.317***	0.322***	0.322***	0.322***
	[0.00660]	[0.00660]	[0.00660]	[0.00654]	[0.00653]	[0.00654]
year = 2012	0.350***	0.350***	0.350***	0.354***	0.355***	0.355***
	[0.00739]	[0.00740]	[0.00739]	[0.00731]	[0.00731]	[0.00731]
1.state-owned#c.iqi_prov_			-0.913**			-0.883**
			[0.390]			[0.403]
Constant	4.021***	4.020***	4.020***	4.160***	4.159***	4.159***
	[0.0873]	[0.0873]	[0.0873]	[0.0844]	[0.0844]	[0.0844]
Observations	213,868	213,868	213,868	211,005	211,005	211,005
R-squared	0.198	0.198	0.198	0.199	0.199	0.199
Number of id	43,460	43,460	43,460	42,998	42,998	42,998
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 5

VARIABLES	(1) investments	(2) investments	(3) investments
iqi_prov_	0.207***	0.243***	0.219***
	[0.0493]	[0.0520]	[0.0494]
1.regulated#c.iqi_prov_		-0.223*	
		[0.116]	
lnEBITDA	0.206***	0.206***	0.206***
	[0.00630]	[0.00630]	[0.00630]
lnrevenues	0.0901***	0.0902***	0.0902***
	[0.00735]	[0.00735]	[0.00735]
lnEmployees	0.156***	0.156***	0.156***
	[0.00708]	[0.00708]	[0.00708]
Return on Assets	-0.0271***	-0.0271***	-0.0271***
	[0.00107]	[0.00107]	[0.00107]
DebtEquityratio	0.000299**	0.000299**	0.000300**
	[0.000123]	[0.000123]	[0.000123]
year = 2007	0.0496***	0.0496***	0.0496***
	[0.00309]	[0.00309]	[0.00309]
year = 2008	0.229***	0.229***	0.229***
	[0.00489]	[0.00488]	[0.00489]
year = 2009	0.260***	0.260***	0.260***
	[0.00551]	[0.00551]	[0.00551]
year = 2010	0.284***	0.284***	0.284***
	[0.00587]	[0.00587]	[0.00587]
year = 2011	0.323***	0.323***	0.323***
	[0.00577]	[0.00577]	[0.00577]
year = 2012	0.352***	0.352***	0.352***
	[0.00630]	[0.00630]	[0.00630]
1.state-owned#c.iqi_prov_			-0.962**
			[0.457]
Constant	4.426***	4.424***	4.425***
	[0.0735]	[0.0735]	[0.0735]
Observations	200,224	200,224	200,224
R-squared	0.203	0.203	0.203
Number of id	41,384	41,384	41,384
Year FEs	Yes	Yes	Yes
Firmid	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 6

VARIABLES	(1) Fixed assets/Total assets	(2) Fixed assets/Total assets	(3) Fixed assets/Total assets
iqi_prov_	0.0223***	0.0314***	0.0238***
	[0.00669]	[0.00703]	[0.00670]
1.regulated#c.iqi_prov_		-0.0536***	
		[0.0168]	
lnEBITDA	0.0153***	0.0153***	0.0153***
	[0.00104]	[0.00104]	[0.00104]
lnrevenues	-0.0296***	-0.0296***	-0.0296***
	[0.00121]	[0.00121]	[0.00121]
lnEmployees	0.00423***	0.00423***	0.00423***
	[0.000957]	[0.000957]	[0.000957]
Return on Assets	-0.00239***	-0.00239***	-0.00239***
	[0.000191]	[0.000191]	[0.000191]
DebtEquityratio	1.67e-06	1.59e-06	1.77e-06
	[1.74e-05]	[1.73e-05]	[1.74e-05]
year = 2007	0.00144***	0.00146***	0.00145***
	[0.000450]	[0.000450]	[0.000450]
year = 2008	0.0328***	0.0327***	0.0328***
	[0.000740]	[0.000740]	[0.000740]
year = 2009	0.0335***	0.0335***	0.0335***
	[0.000816]	[0.000816]	[0.000816]
year = 2010	0.0291***	0.0291***	0.0291***
	[0.000859]	[0.000859]	[0.000859]
year = 2011	0.0264***	0.0264***	0.0264***
	[0.000848]	[0.000848]	[0.000848]
year = 2012	0.0262***	0.0263***	0.0263***
	[0.000928]	[0.000928]	[0.000928]
1.state-owned#c.iqi_prov_			-0.102
			[0.0627]
Constant	0.365***	0.365***	0.365***
	[0.0115]	[0.0115]	[0.0115]
Observations	216,710	216,710	216,710
R-squared	0.074	0.074	0.074
Number of id	43,901	43,901	43,901
Year FEs	Yes	Yes	Yes
Firmid	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 7

VARIABLES	(1) investments	(2) investments	(3) investments
iqi_prov_	0.180***	0.232***	0.192***
	[0.0522]	[0.0549]	[0.0525]
1.regulated#c.iqi_prov_		-0.310**	
		[0.122]	
lnEBITDA	0.296***	0.296***	0.296***
	[0.00654]	[0.00654]	[0.00654]
lnrevenues	0.0801***	0.0803***	0.0802***
	[0.00920]	[0.00920]	[0.00920]
lnEmployees	0.139***	0.139***	0.139***
	[0.00815]	[0.00815]	[0.00815]
Return on Assets	-0.0158***	-0.0158***	-0.0158***
	[0.00143]	[0.00143]	[0.00143]
DebtEquityratio	0.000114	0.000111	0.000115
	[0.000187]	[0.000187]	[0.000187]
Return on Investments	-0.0217***	-0.0217***	-0.0217***
	[0.000702]	[0.000701]	[0.000701]
Debt ratio	-4.47e-05	-4.36e-05	-4.46e-05
	[7.24e-05]	[7.22e-05]	[7.24e-05]
year = 2007	0.0376***	0.0377***	0.0377***
	[0.00355]	[0.00355]	[0.00355]
year = 2008	0.203***	0.203***	0.203***
	[0.00527]	[0.00527]	[0.00527]
year = 2009	0.224***	0.224***	0.224***
	[0.00580]	[0.00579]	[0.00580]
year = 2010	0.244***	0.244***	0.244***
	[0.00613]	[0.00612]	[0.00613]
year = 2011	0.270***	0.270***	0.270***
	[0.00601]	[0.00601]	[0.00601]
year = 2012	0.284***	0.285***	0.285***
	[0.00654]	[0.00654]	[0.00654]
1.state-owned#c.iqi_prov_			-0.765**
			[0.349]
Constant	4.417***	4.414***	4.416***
	[0.0903]	[0.0903]	[0.0903]
Observations	181,810	181,810	181,810
R-squared	0.214	0.214	0.214
Number of id	40,509	40,509	40,509
Year FEs	Yes	Yes	Yes
Firmid	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 8

VARIABLES	(1) investments	(2) investments	(3) investments
iqi_prov_	0.186***	0.230***	0.199***
	[0.0527]	[0.0556]	[0.0530]
1.regulated#c.iqi_prov_		-0.263**	
		[0.123]	
lnEBITDA	0.337***	0.337***	0.337***
	[0.00739]	[0.00739]	[0.00739]
lnrevenues	0.0963***	0.0964***	0.0963***
	[0.00895]	[0.00896]	[0.00896]
lnEmployees	0.154***	0.154***	0.154***
	[0.00812]	[0.00812]	[0.00812]
Return on Assets	-0.0325***	-0.0325***	-0.0325***
	[0.00103]	[0.00103]	[0.00103]
DebtEquityratio	0.000360	0.000358	0.000363
	[0.000236]	[0.000236]	[0.000236]
Return on Equity	-0.00269***	-0.00269***	-0.00269***
	[0.000148]	[0.000148]	[0.000148]
DebtEBITDAratio	0.00383***	0.00383***	0.00383***
	[0.000203]	[0.000203]	[0.000203]
year = 2007	0.0451***	0.0452***	0.0452***
	[0.00334]	[0.00334]	[0.00334]
year = 2008	0.214***	0.214***	0.214***
	[0.00516]	[0.00516]	[0.00516]
year = 2009	0.249***	0.248***	0.249***
	[0.00578]	[0.00578]	[0.00578]
year = 2010	0.270***	0.270***	0.270***
	[0.00610]	[0.00610]	[0.00610]
year = 2011	0.297***	0.297***	0.297***
	[0.00600]	[0.00600]	[0.00600]
year = 2012	0.327***	0.328***	0.328***
	[0.00663]	[0.00663]	[0.00663]
1.state-owned#c.iqi_prov_			-0.887**
			[0.360]
Constant	3.630***	3.628***	3.629***
	[0.0899]	[0.0898]	[0.0899]
Observations	214,322	214,322	214,322
R-squared	0.221	0.221	0.221
Number of id	43,721	43,721	43,721
Year FEs	Yes	Yes	Yes
Firmid	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 9

VARIABLES	(1) lntotinvest	(2) lntotinvest	(3) lntotinvest	(4) lntotinvest
iqi_prov_	0.285***	0.136	0.251***	0.123
	[0.0714]	[0.0933]	[0.0682]	[0.0880]
1.regulated#c.iqi_prov_	-0.340**	-0.127		
	[0.157]	[0.200]		
lnEBITDA	0.173***	0.226***	0.173***	0.226***
	[0.00984]	[0.0206]	[0.00984]	[0.0206]
lnRevenues	0.215***	0.140***	0.215***	0.141***
	[0.0159]	[0.0125]	[0.0159]	[0.0125]
lnEmployees	0.203***	0.157***	0.203***	0.157***
	[0.0141]	[0.0114]	[0.0141]	[0.0114]
Return on Assets	-0.0259***	-0.0267***	-0.0259***	-0.0267***
	[0.00181]	[0.00397]	[0.00181]	[0.00397]
DebtEquityratio	0.000365*	0.000290*	0.000367*	0.000291*
	[0.000189]	[0.000175]	[0.000189]	[0.000175]
year = 2007	0.0399***	0.0490***	0.0400***	0.0489***
	[0.00416]	[0.00595]	[0.00416]	[0.00595]
year = 2008	0.216***	0.213***	0.216***	0.213***
	[0.00650]	[0.00925]	[0.00650]	[0.00925]
year = 2009	0.253***	0.252***	0.253***	0.252***
	[0.00739]	[0.0106]	[0.00739]	[0.0106]
year = 2010	0.268***	0.283***	0.268***	0.283***
	[0.00786]	[0.0121]	[0.00786]	[0.0121]
year = 2011	0.298***	0.308***	0.299***	0.308***
	[0.00798]	[0.0118]	[0.00798]	[0.0118]
year = 2012	0.317***	0.347***	0.317***	0.347***
	[0.00873]	[0.0133]	[0.00873]	[0.0133]
1. state-owned #c.iqi_prov_			-1.034***	-0.815
			[0.360]	[0.769]
Constant	3.674***	3.427***	3.677***	3.426***
	[0.171]	[0.118]	[0.171]	[0.118]
Observations	122,806	93,727	122,806	93,727
R-squared	0.177	0.186	0.177	0.186
Number of id	25,657	26,875	25,657	26,875
Year FEs	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 10

VARIABLES	(1) EBITDA/Assets	(2) EBITDA/Assets	(3) EBITDA/Assets	(4) EBITDA/Assets	(5) EBITDA/Assets	(6) EBITDA/Assets
totinvestment		5.32e-06	5.56e-06	-1.24e-05	5.76e-06	3.87e-05
		[5.86e-06]	[6.16e-06]	[1.72e-05]	[1.08e-05]	[4.17e-05]
1.regulated#c. totinvestment					-6.35e-05	
					[7.04e-05]	
iqi_prov_	-637.1		-637.2	-638.0	-91.95	-646.6
	[637.1]		[637.1]	[638.0]	[91.99]	[646.5]
c. totinvestment #c.iqi_prov_				2.48e-05	-7.42e-06	3.30e-06
				[3.00e-05]	[1.42e-05]	[1.98e-05]
1.regulated#c.iqi_prov_					-3,211	
					[3,210]	
1.regulated#c. totinvestment #c.iqi_prov_					9.91e-05	
					[0.000108]	
lnRevenues	-2.788	-2.513	-2.794	-2.796	-1.160	-2.977
	[2.862]	[2.586]	[2.868]	[2.869]	[1.352]	[3.049]
lnEmployees	36.98	37.00	36.97	36.97	37.21	36.95
	[37.00]	[37.02]	[36.99]	[36.99]	[37.21]	[36.97]
DebtEquityratio	0.889	0.891	0.889	0.889	0.886	0.889
	[0.893]	[0.895]	[0.893]	[0.893]	[0.890]	[0.892]
year = 2007	-3.802	-2.599	-3.809	-3.802	-2.511	-3.893
	[3.804]	[2.601]	[3.811]	[3.804]	[2.526]	[3.895]
year = 2008	17.96	-4.065	17.94	17.95	15.59	17.94
	[17.98]	[4.055]	[17.96]	[17.97]	[15.60]	[17.95]
year = 2009	24.77	-4.986	24.74	24.75	23.50	24.64
	[24.79]	[4.967]	[24.77]	[24.77]	[23.53]	[24.67]
year = 2010	21.64	-5.519	21.61	21.63	21.53	21.43
	[21.66]	[5.502]	[21.64]	[21.65]	[21.57]	[21.45]
year = 2011	-7.569	-15.21	-7.602	-7.587	-7.751	-7.780
	[7.549]	[15.19]	[7.582]	[7.568]	[7.735]	[7.761]
year = 2012	-67.18	-85.52	-67.21	-67.19	-66.18	-67.38
	[67.15]	[85.49]	[67.18]	[67.16]	[66.14]	[67.35]
1.state-owned#c. totinvestment						-4.61e-05
						[4.86e-05]
1.state-owned#c.iqi_prov_						590.7
						[590.9]
1.state-owned#c. totinvestment #c.iqi_prov_						7.16e-06
						[2.10e-05]
Constant	321.8	-99.34	321.8	322.4	298.7	323.5
	[334.3]	[86.94]	[334.3]	[334.8]	[311.1]	[335.9]
Observations	233,155	233,155	233,155	233,155	233,155	233,155
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
Number of id	44,613	44,613	44,613	44,613	44,613	44,613
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 11

VARIABLES	(1) Number of firms	(2) Number of firms	(3) Number of state-owned firms	(4) Number of regulated firms
iqi_prov_	-25.06**	-25.06**	-6.172	7.954
	[12.62]	[12.62]	[10.06]	[8.895]
year = 2007	1.584***	1.584***		
	[0.537]	[0.537]		
year = 2008	3.459**	3.459**		
	[1.615]	[1.615]		
year = 2009	4.549**	4.549**		
	[1.831]	[1.831]		
year = 2010	4.944***	4.944***		
	[1.669]	[1.669]		
year = 2011	6.364***	6.364***		
	[1.821]	[1.821]		
year = 2012	7.489***	7.489***		
	[2.166]	[2.166]		
Constant	28.52***	28.52***	18.14***	-3.635
	[7.419]	[7.419]	[6.835]	[6.042]
Observations	269,544	269,544	269,544	269,544
R-squared	0.209	0.209	0.013	0.001
Number of id	47,453	47,453	47,453	47,453
Year FEs	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes

Robust standard errors in brackets
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Figure 1: Maps of the IQI provincial levels

4. PAPER 3

Working more or working less? The impact of shop opening hours deregulation on firm performance

ABSTRACT

There is a growing consensus among scholars that the liberalization of shop opening hours increases revenues and creates jobs. While this is probably true, there are missing evidences on the consequences of this kind of liberalization on firm performance. In fact, although theory establishes a direct link between increasing of shop opening hours with revenues and employment, is challenging to rule out how firms react to this and if there are effects on firm performance. Although several studies on firms' strategic choices on opening hours have recently been released, no empirical studies provide evidence on firms' performance following a change in regulation of shop opening hours. We explore the effects of extended shopping hours on performance faced by firms operating in retail industries. To this purpose, we collected data about a large sample of limited companies in Italy, where a reform was issued in 2012 to boost the economy even through a liberalization of shops opening hours. Using data of Italian firms operating in the retail industries, we find that reducing restriction on shopping hour's increases revenues and personnel costs. Interestingly, our model predicts that the deregulation of shopping hours involves firms' lower performance.

INTRODUCTION

The debate concerning liberalization in terms of number of opening hours is still a controversial topic for scholars and practitioners. The theme is relevant, since it implicates social, political and economic interests (Rizzica, Roma, & Rovigatti, 2019). Notwithstanding the tendency concerning the liberalization of shops openings hours in both the America and the European contexts appears well defined, the type and level of the opening hours regulation still differ across countries, regions and provinces. The justification for the opening hours liberalization is that it implies more flexible purchasing activities for clients, better choice, higher competition, and growth of economic activity (Huddleston & Huddleston, 2010). The primary targets of liberalizing shops opening time can be divided in 4 types (Tanguay, VALLGE, & Lanoie, 1995): (i) providing chances to buy needed goods and services; (ii) safeguarding a good life quality; (iii) defending small firms; (iv) guaranteeing a day of rest for the employees. However, not all the primary targets can be always reached all together. Moreover, despite the primary interest of employees is having an assurance of available free time, most of the limitations on liberalization of shop opening hours have been revoked or declared unconstitutional in many countries (Goos, 2004). Furthermore, the shopping hours liberalization has economic effects that go beyond the matter of ensuring employees the right to a day of rest (Rizzica et al., 2019). One reason against the liberalization is that competition may bring to unreasonable extension of shopping hours even if this kind of reform is based on the idea that competition should not influence firms to maintain stores open even when is not economically supportable (Clemenz, 1994).

This kind of liberalization provides a unique setting in which to examine the effects of increasing the flexibility of firms' business activities in the market in a context with substantive reforms. In fact, since the liberalization permits to firms active in retail industries

to modify the shops opening hours, competition between firms of the same industries changes (Paul, 2015). Moreover, the liberalization may have an influence on labor market evaluations of different kind of employees. In fact, while liberalization normally aims at lowering unemployment and increasing chances to buy needed goods and services (Blanchard & Giavazzi, 2003), the particular labor configuration in the retail industry has raised several consultations on whether this kind of liberalization encourages part-time employment at the expense of full-time employment (Paul, 2015).

Liberalization has an important effect on firm behaviour, since it provides firms with new opportunities in setting business hours strategically (Kügler & Weiss, 2016). The primary concern of firms is about the cost-benefit analyses in relation to the changes induced by this kind of reform. While most of previous studies analysed the perceived impact on employment, and how liberalization of shops opening time affect retail labor and product markets (Shy & Stenbacka, 2008; Wenzel, 2011), there are no empirical studies with the aim to understand firm performance in consequence to this kind of reform (Kügler & Weiss, 2016). Understanding the changes in firm performance in response to liberalization is fundamental to comprehend the effects of those kinds of reforms. In fact, in this context firm performance can be affected by several possible mechanisms: (i) an increase of the revenues, (ii) an increase of personnel costs due to a higher demand for personnel to cover the additional hours (Nooteboom, 1983); (iii) changing resource allocation for personnel costs in relation to the choice to use part-time employees or full-time employees.

The empirical analysis of our paper investigates firms' performance in a single market (Italy) after a liberalization of shops opening hours. This paper examines the liberalization on shop opening hours occurred in Italy from January 2012. The Italian Law Decree n.201 of 2011 entirely liberalized days and shop opening hours all over the country.

Using retail firm financial data from 2009 to 2018, this study provides some evidence that personnel costs and revenues significantly increased for the firms affected by the liberalization of year 2012. Moreover, we find that the liberalization brought to a reduction of performance for firms affected by the liberalization. These estimations are strongly robust using different specifications.

THEORETICAL BACKGROUND

Previous research has focused on exploring, from different perspectives, the consequences of liberalizing shop hours regulations. However, sometimes the literature has generated contrasting findings. Prior literature concentrated on the correlation between opening hours liberalization and prices, finding that the retail firms with the longer opening hours are inclined to charge higher prices to the clients, in order to pay the additional operating costs, and they also achieve a higher market share (Shy & Stenbacka, 2008). Another study explains that the shops opening hour's liberalization leads to lower prices in the retail industry (Kay & Morris, 1987). Clemenz (1990) indicates that shops opening hour's liberalization brings to a reduction of retail prices, because an increase of shopping hours incentive a broader search activity, which, in turn, brings retail prices reduction. Regarding the strategic aspects that bring firms to increase shops opening hours, prior studies examined the motivation of firms to use shops opening hours as a mechanism to complete product diversification in order to improve their market share (Inderst & Irmen, 2005).

The increase of shops opening hours is considered as a strategic variable in competition, since an increase of shopping opening hours tend to reduce transportation costs for the clients, and therefore there is a benefit in the client's utility function (De Meza, 1984; Ferris, 1990). Moreover, increasing shops opening hours can be understood as a good quality characteristic of firms active in the retail industry because it positively affects clients'

motivation to buy firm products (Kugler & Weiss, 2013). In fact, shop longer opening hours positively influence clients' inclination to purchase products sold at those shops (Ferris, 1990), since longer opening hours permit clients to have more time to choose and therefore increase the "entertainment" value of spending.

Since is confirmed that an increase of shops opening hours can be considered as a good quality characteristic of the firm, becomes relevant to understand the effects and the firm convenience of taking decisions in relation to an increase of shops opening hours (e.g. increase the quality of the service provided to the clients). Prior scholars concentrated on the "differentiation effect" of quality changes, where firms improve the quality of their products (opening hours) to reduce price competition (Shaked & Sutton, 1982). Therefore, in order to react to an increase of competitor's quality, the other firms have to increase the quality of their own product. As the high-quality firms increase quality and therefore enlarge the gap between qualities, the low-quality firms have additional motivations to improve quality. When the low-quality firms increase quality and therefore become a kind of alternative to the high-quality firms, the stimulus of the high-quality firms to distinguish from the low-quality firms becomes greater. This mechanism implies that quality levels (opening hours) are strategic choices. Therefore, a rise of shops opening hours of one firm is expected to proportionally push client demand for this firm, since clients choose to buy where the quality level is higher (higher opening hours) (Economides, 1989). At the same time, client demand for the competitor's product drops. Therefore, rising shops opening hours has a "demand steeling" influence on competitors, and consequently is a key factor in explaining firm performance (Pennerstorfer & Weiss, 2013). The implications of increasing quality in terms of shops opening hours are part of the relevant strategic decisions that firms have to take in order to obtain good performance.

A relevant characteristic of the firm behaviour in this context is that they define their strategy considering the competitors conduct. By extending shops opening hours the firms attract clients from the competitor firms that decide to do not extend shops opening hours. By extending shops opening hours firms must hire new employees and pay higher personnel costs. Therefore, firms elaborate cost-benefit analyses regarding the extension of the opening hours, in order to estimate expected higher revenues, and expected higher labor costs. The cost-benefit analyses will differ across retail firms in relation to the characteristic of their organization (independent retailer or retail chain). Prior scholars investigated competition between independent retailers and retail chains (Wenzel, 2011), which is influenced significantly by firm efficiency. In fact, when firm efficiency is high, due to strong buyer power, more well-organized structure, and economies of scale, firms will be more prone to choose longer shopping hours, otherwise they are not (Clemenz, 1990).

In terms of firm profitability, Wenzel (2011) explains, with a stylized model with only two firms in the retail market, following the example of the prisoners' dilemma, that if liberalization leads the two retail firms to increase the number of opening hours, both firms decrease profits. In case one firm decides to increase the number of opening hours, while the other not, the first firm will increase profits while the latter will lose. The reason is that if all the firms increase the number of opening hours, prices and market shares are not influenced and remain unaltered, while the operating costs increase.

Therefore, when firms are affected in the same way by the liberalization, and they react with the same approach since they do not want to leave margins to the competitors, they lose profits.

HYPOTHESES DEVELOPMENT

Strategic behaviour includes the allocation of already owned resources and the growth of new ones to reach firm targets (Chandler, 1990).

The resources able to influence firm growth can be categorized as organizational, technological, human and financial (Grant, 1991). Resource-based view scholars have focused on specific and distinctive resources from which firms may develop sustainable competitive advantage (Mauri & Michaels, 1998). According to this stream of research, the firms are able to obtain a competitive advantage in the market only if they acquire valuable and rare resources (Peteraf, 1993). Those specific resources can be labelled as core resources, since firm strategy is based on those resources owned by the firm. Consequently, those resources influence firm performance. In the specific, resource-based view scholars explain that some of the most important determinants of firm performance are firm-level drivers as marketing and organizational differentiation, which are considered core resources (Dierickx & Cool, 1989). Therefore, firm-level drivers are able to influence firm performance. However, there are also environmental factors, unlinked to firm-level characteristics, able to influence firm resource allocation and so firm performance. The importance of the environment—and particularly of its changes—on resource allocation has been supported by numerous studies (Cheng & Kesner, 1997; Harris, Kriebel, & Raviv, 1982; Meyer, 1982). For example, Meyer (1982) highlights that relevant negative environmental changes (e.g., crises, disasters, threats) influence organizational behavior, as they stimulate firm responses. Consequently, several types of environmental changes—such as government laws, liberalization, regulation, business policies, and country economic growth—may affect firms' resources allocation, and therefore firm performance.

Liberalization effect on firm revenues

Firms respond to external environmental changes when they notice the variation and interpret it either as a threat or as an opportunity (Nadkarni and Barr 2008). In other words, firms try first to understand what the event signifies, and then they develop a specific response (Nadkarni & Barr, 2008). In short, changes in the external environment generate stimuli that guide the firms to change their behavior.

Economic liberalization is considered as a change in the external environment that is widely occurring in most of the countries. It happens that firms with different characteristics (size, technology, industry, etc.) must react in a heterogeneous way to the competitive pressure induced by the elimination of specific limits during the liberalization process (Aghion, Burgess, Redding, & Zilibotti, 2005). Therefore, the effect of liberalization can be unbalanced, even if the firms have to react considering the behaviour of firm competitors.

In fact, with an external environmental change like shops opening hour's liberalization, retail firms have to define their strategy in relation to the competitor behaviour. An increase of shops opening hours of one firm is expected to proportionally push client demand for this firm, since clients choose to buy where the quality level is higher (higher opening hours) (Economides, 1989). Therefore, firms that do not follow the increase of opening hours induced by the liberalization lose clients. Consequently, rising shops opening hours has a "demand steeling" influence on competitors, and consequently is a key factor in explaining firm behaviour in relation to the competitor strategy. Therefore, we expect that the implication of shops opening hour's liberalization is that firms behave evenly and increase the shops opening hours as the competitors. As explained by prior studies, an increase of shops opening hours positively affects clients' motivation to buy firm products (Kugler & Weiss, 2013), and in fact it brings active customers to spend extra money (Halk & Täger, 1998), and therefore this in turn leads to systematic increase of firm revenues. Hence:

Hypothesis 1: Shops opening hours liberalization increases firms' revenues in the retail industry.

Liberalization effect on personnel costs

Shops hours' liberalization effect on personnel costs has mixed evidences, since the empirical analyses on this theme have not reached common consensus (Paul, 2015). Prior scholars explain that increase opening hours has not effects on employment, and that it worsens the working time arrangements of employees (Jacobsen & Hilf, 1999). On the other side, studies show that increase of opening hours push firms to spend more money for employees and therefore employment increase (Bossler & Oberfichtner, 2017).

A change of employment as a consequence of increase of opening hours is due to the fact that firms must make a higher use of employees. In fact, in order to permit an increase of shops opening hour's firms have to hire new employees or to extend the number of working hours for each employee (Goos, 2004). Despite the mixed evidences on the consequences of on employment, most of the studies focused on liberalization agree on the positive impact on employment. Studies used changes of retail laws in order to analyse the effect of shops hours' liberalization on the employment, showing that the liberalization in the retail sector has positive effect on employment (Skuterud, 2005). In his analysis he found that liberalization of shops opening hours can bring to an increase of 8% - 12% of employment in the retail sectors.

A shop's level of needed labor includes a minimum volume of (fixed) work to guarantee a constant provision of employees during the extended shop opening times. Therefore, increasing shops opening hours is likely to influence the optimal labor demand by increasing the employees' costs it incurs (Paul, 2015).

Hypothesis 2: Shops opening hours liberalization increases firms' personnel costs in the retail industry.

Liberalization effect on firm performance

Several countries currently have legal limitations on shops opening hours that have been lately come disputed, and in several circumstances they have been reduced or completely removed. However, the matter is still under discussion, and it is intensely troubling that scholars have not yet added so much to explain the different issues of the topic. A significant deficiency of the previous analyses that should permit an examination of shops opening hours is that all focus only on individual aspects as personnel costs or revenues or employees rights (Clemenz, 1994).

An argument not in favour of liberalization is that tougher competition can bring to an unreasonable number of shops opening hours. In fact, retailers compete in prices and also in opening hours (Wenzel, 2010), therefore an increase of shops opening hours of only some retail firms brings the other firms to open in order to do not lose customers. The question therefore is whether the competitive outcome in shops opening hours can influence firm performance since is also related to the extra costs following the increase of shops opening hours.

The number of shops opening hours influences the costs for the firm in two modes: operating costs (net of employees costs) show an increase, and employees costs show an increase (Clemenz, 1994). In fact, a higher number of employees is a prerequisite to cover the supplementary hours of opening (Nooteboom, 1983). At the same time, an increase of the number of shops opening hours encourages sales (Gradus, 1996; Kugler & Weiss, 2013). The increase in the revenues amount is settled (i) by the elasticity to a variation of the number of shops opening hours under unchanged prices and (ii) by the price elasticity to the liberalization (Paul, 2015). Since the consequences evolve into a firm's labor need within its productivity function, the mechanism influences the productivity of additional workers, the

revenues consequences of the company (Skuterud, 2005), and therefore firm performance. Thus, the mechanism behind the link between liberalization of shops opening hours and firm performance in the retail sector is based on consequences on sales and on costs. As prior literature explains with theoretical models, if liberalization brings to longer shopping hours in all the retail firms, there is an overall reduction of the profits (Wenzel, 2011). This effect is due to the fact that firms increase too much the number of shops opening hours to compete with the competitors, and furthermore because liberalization tends to increase concentration in the retail sector, and consequently there is a relevant increase of competition able to reduce firm performance (Wenzel, 2010).

Hypothesis 3: Shops opening hours liberalization decreases firms' performance in the retail industry.

RESEARCH METHOD

Sample and empirical setting

In order to examine the effect on firms of shop opening hours liberalization is necessary to have a regulatory framework applied to an identified group of firms over a determined amount of time. In fact, the needed setting to test our hypotheses should permit us to observe the variation on firm's revenues, personnel costs and performance, for firms affected by the liberalization of shops working hours. While finding a perfect context might be challenging, different elements make the Italian setting suitable for the actual analysis. First of all, Italy introduced a national legislation in 2011 that completely liberalized days and hours of shopping all over the country (Law Decree 201/2011 – "Salva Italia"). Therefore, this liberalization directly affected all the firms of the retail industry, while the firms of other industries are only indirectly affected with high or low magnitude. Second, for Italian firms is compulsory by law to disclose their financials to the Italian Chamber of Commerce.

Therefore, the sample of firms used in this study is not affected by a sample selection bias. Third, the analysis on only one country decreases the risk of an omitted-variable problem of multi-country examinations where it is problematic to control for all the time-variant country characteristics concurrently influencing the dependent and the independent variables (De Jong, Kabir, & Nguyen, 2008).

So as to execute our analysis, we create a dataset with firm-level data. Firms' data are extracted from AIDA, a Bureau van Dijk database containing financial data on all Italian limited companies. We focused our analysis on firms with revenues over euro 5 millions. Our sample of firm-level data contains a dataset of 69,643 Italian limited companies with revenues higher than euro 5 millions for at least one year in the period 2009-2015. Our dataset contains a total of 487,503 firm-year observations.

Descriptive statistics for the variables and their pairwise correlations are reported, respectively, in Table 1 and Table 2. All data are computed at the end of each fiscal year.

Insert Tables 1 & 2 about here

Variables description

Independent variable

Liberalization. The *liberalization* introduced by a national legislation in 2011 in Italy (effective from 1st of January from 2012), totally liberalized shops opening hours and days all over the country therefore overcoming the distinction between touristic and non touristic cities. The firms directly affected by the legislation were the retail companies that had to totally rethink the organization of the working hours of their shops. Our independent variable identifies the effects of the liberalization on two different kinds of firms: *affected* (firms in the retail sector) and *not-affected* (firms not in the retail sector). Liberalization takes a value of one for firms that are directly affected by the liberalization from 2012, and 0 otherwise.

Dependent variables

To capture the effect of liberalization on firms, we use firm-year data as revenues, personnel costs and profitability.

Revenues. To measure the liberalization influence on firms' revenues, we use the natural logarithm of the revenues. In fact, according to prior studies, because revenues were nonnormal, we use the natural logarithm of this measure (Chadwick, Super, & Kwon, 2015).

Personnel costs. To measure the liberalization influence on firms' use of personnel, we use the number of employees (Rizzica et al., 2019). According to prior studies, because the numbers of employees were nonnormal, we use the natural logarithm of this measure (Chadwick et al., 2015).

Firm performance. In order to measure firm performance we considered a proxy already used by the literature. According with arguments in prior studies, profitability is measured using return on equity (ROE) (Mascarenhas & Aaker, 1989). Therefore we considered the variable return on equity (ROE), as performance indicator (Oehmichen, Schrapp, & Wolff, 2017). ROE is used because it is a ratio between net income and equity, and if is high, signifies that there are more profits. This measure has the advantage of being objective and based on publicly available data (Senderovitz, Klyver, & Steffens, 2016).

Control variables

We introduce several conventional control variables in our analysis in order to control for firm characteristics.

To control for firm size, we include the number of employees along with sales (Bromiley, Rau, & Zhang, 2017). We consider also variables to control for debt in the capital structure, using the Debt-to-Equity ratio (Anderson & Reeb, 2003; Chen & Steiner, 1999). Moreover, in order to control for profitability, we included Return on Assets variable (ROA) and earnings before interest, tax, depreciation, and amortization (EBITDA) (Anderson & Reeb, 2003;

Mascarenhas & Aaker, 1989).

Moreover, we estimate our models including firms' fixed effects, which control for any firm time-invariant characteristic, including where the firm operates and its ownership (e.g., privately, publicly, or foreign-owned). We also include year fixed effects, which control for yearly aggregate shock.

Analytical Method

To measure the effect of the liberalization on firm—in terms revenues, employees and performance— we use a DID design model. Using this method, we can assess the influence of the liberalization by comparing the changes in results over time among affected firms (firms directly affected by the liberalization) and non-affected firms (firms not directly affected by the liberalization). The model estimates the differential effect of the change induced by the liberalization through two different groups (Cerqueiro, Ongena, & Roszbach, 2016). Adopting this method we are able to ease concerns that confounding elements in the analysis influence the outcomes (Altamuro & Beatty, 2010). This DID design model is implemented to detect the effects of a specific regulation for two different groups: an "eligible" group composed of firms affected by the regulation (liberalization), and a "non-eligible" group composed of firms not affected by the regulation (liberalization). Through the DID model, firms affected by the regulation are matched to firms not affected by the regulation in a control sample to diminish the impact of unobserved effects (Shevlin, Thornock, & Williams, 2017). This approach permits to delete fixed differences between eligible and non-eligible groups, and considers post-regulation variations for the firms not affected by the regulation as a counterfactual for what would have occurred if firms affected by the regulation had not been eligible for the liberalization (Gubler, Larkin, & Pierce, 2017).

The unit of analysis is the firm. Our methodology follows that of Cuñat *et al*. (2012), who

study the effect of governance proposals on firm value. In the specific, we estimate the following regression:

$$Y_{it} = \alpha + \beta * Liberalization_{it} + \delta X_{it} + \gamma_i + c_i + \varepsilon_{it} \qquad (1)$$

where Y is our dependent variable at time t for firm i; "Libralization" is the "regulation dummy"—that is, a dummy variable equal to one if firm i is directly affected by the liberalization in year t. X_{it} is the vector of control variables, which includes revenues, number of employees, Return on Assets and Debt/Equity Ratio. γ_i represents year fixed effects, c_i represents firm fixed effects, and ε_{it} is the error term. The coefficient of interest is β, which measures the differential effect of the liberalization application for eligible versus non-eligible firms. For example, H1 predicts that β should be positive and significant when Y_{it} is "revenues", meaning that the liberalization realization increases--in the post-regulation with respect to the pre-regulation period--the revenues of firms directly affected by the liberalization, more than the increase--in the post-regulation with respect to the pre-regulation period--firms not directly affected by the liberalization.

RESULTS

Regression Analysis

Table 3 shows the regression estimates of the impact of the liberalization on eligible firms, with respect to non-eligible firms.

Insert Table 3 about here

Analyses show that eligibility for the liberalization has a relevant influence on firm revenues (column 1 of Table 3), since the effect is positive and statistically significant. This

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result supports Hypothesis 1, and is consistent with prior studies that explain how an increase of shops opening hours positively affects clients' motivation to buy firm products (Kugler & Weiss, 2013), and therefore leading to systematic increase of firm revenues. As expected by Hypothesis 2, we find that eligibility for a liberalization of shop opening hours increases the number of employees of firms directly affected by the liberalization in comparison with firms not directly affected by the liberalization. As shown in column 2 of Table 3, the effect is positive and statistically significant, with an increase of the number of employees. Consistent with Hypothesis 2, liberalization of shop opening hours pushes firms to increase the number of employees.

As predicted by Hypothesis 3, we find that eligibility for liberalization of shops working hours decreases performance among eligible firms compared with non-eligible firms. As shown in column 3 of Table 3, the effect is negative and statistically significant, with a decrease of performance in terms of Ebitda. Consistent with H3, the liberalization of shops working hours reduces firm performance.

Robustness checks

In this section we present some robustness checks of our baseline analysis, in order assess the significance of our findings. Overall, these additional checks provide evidence that our findings are robust to different specifications.

Different censoring. As a first robustness check, we restricted the sample considering different percentages of censoring. Tables 4 through 6 show the estimated effect of the liberalization application on firm revenues, employees and performance considering a change in the sample size due to a censoring of one percent, two percent, and three percent. Considering the different specifications, the effect with different size of censoring remains statistically and economically significant.

Insert Tables 4, 5 & 6 about here

Inclusion of further control variables. Results might be influenced by an omitted-variable problem if relevant controls simultaneously affecting the dependent and independent variables are not considered in the model. To measure the sensitivity of our results to the inclusion of other important controls, we considered an alternative model including additional hypothetically important control variables. Using different control variables, we obtain similar results (Table 7).

Insert Table 7 about here

Change of dependent variables. In order to assess the validity of our results we use different dependent variables that explain the same mechanisms. To analyze the sensitivity of our results to the change of the dependent variable, we specified an alternative model considering other variables already used in prior studies (Aliabadi, Dorestani, & Balsara, 2013; Sheela & Karthikeyan, 2012). We consider different proxies to measure performance; in the specific, we consider the variable Ebitda variation in relation to the average value, Operating result, Return on Investments (ROI), Return on Equity (ROE), Return on Assets (ROA). To measure the effect on employees, we consider the total cost of employees (in natural logarithm). Using different dependent variables, we obtain similar results (Table 8).

Insert Table 8 about here

CONCLUSION

The influence of environmental issues as liberalization on firms' is a relevant topic. This study investigates whether the introduction of a deregulation (i.e., a liberalization of shops working hours) may influence the firms affected by the policy in terms of revenues, employees, and performance.

Liberalization, considered as a form of deregulation, is one of the key current issues that firms have to consider in order to implement strategies. In fact, we argue that some kinds of liberalization (e.g. liberalization of shops working hours) could have unplanned negative consequences by inducing firms' directly influenced by the deregulation to spend more then how much they earn, and therefore to lose profits.

In the specific, we evaluate the causal implications of shop opening hours liberalization in Italy, considering the revenues, employees costs and profitability in the retail sector in Italy. According to prior studies (Rizzica et al., 2019), we find a positive effect of the shop opening hour's liberalization on revenue and employees costs. Moreover, we also find a negative effect of shop opening hour's liberalization on profitability.

Those results can be explained by the fact that firms plan their strategy considering the competitors behaviour. In fact, when a deregulation as shops working hour's liberalization is announced, firms tend to react as the competitors do in line with the scope of the liberalization, therefore increasing the number of shops working hours. This is induced by the fact that an increase of shops opening hours of one firm is expected to proportionally push client demand for this firm (Economides, 1989), therefore the other firms react in consequence of this. However, increasing the shops working hours brings to an increase of employees costs (Bossler & Oberfichtner, 2017), as well as of revenues (Kugler & Weiss, 2013). Nevertheless, even if an increase of shops opening hours positively affects clients'

motivation to buy firm products (Kugler & Weiss, 2013), and brings active customers to spend extra money (Halk & Täger, 1998), revenues are not subject to a so significant increase able to repay all the extra operating costs. Consequently, firms lose profitability.

Our findings contribute to literature on firm outcomes as consequences of a specific kind of liberalization, and the effects on performance. First, our results enrich our knowledge of the determinants of firm decisions after liberalization, showing that generally firms follow the behavior of the competitors, which is in line with the scope of the liberalization. In this way, our study helps to address the lack of empirical findings related to the consequences of a specific kind of liberalization in terms of firm performance.

REFERENCES

Aghion, P., Burgess, R., Redding, S., & Zilibotti, F. 2005. Entry liberalization and inequality in industrial performance. *Journal of the European Economic Association*, 3(2–3): 291–302.

Aliabadi, S., Dorestani, A., & Balsara, N. 2013. The most value relevant accounting performance measure by industry. *Journal of Accounting and Finance*, 13(1): 22–34.

Altamuro, J., & Beatty, A. 2010. How does internal control regulation affect financial reporting? *Journal of Accounting and Economics*, 49(1–2): 58–74.

Anderson, R. C., & Reeb, D. M. 2003. Founding-family ownership and firm performance: evidence from the S&P 500. *The Journal of Finance*, 58(3): 1301–1328.

Blanchard, O., & Giavazzi, F. 2003. Macroeconomic effects of regulation and deregulation in goods and labor markets. *The Quarterly Journal of Economics*, 118(3): 879–907.

Bossler, M., & Oberfichtner, M. 2017. The Employment Effect Of Deregulating Shopping Hours: Evidence From German Food Retailing. *Economic Inquiry*, 55(2): 757–777.

Bromiley, P., Rau, D., & Zhang, Y. 2017. Is R & D risky? *Strategic Management Journal*, 38(4): 876–891.

Cerqueiro, G., Ongena, S., & Roszbach, K. 2016. Collateralization, bank loan rates, and monitoring. *The Journal of Finance*, 71(3): 1295–1322.

Chadwick, C., Super, J. F., & Kwon, K. 2015. Resource orchestration in practice: CEO emphasis on SHRM, commitment-based HR systems, and firm performance. *Strategic Management Journal*, 36(3): 360–376.

Chandler, A. D. 1990. *Strategy and structure: Chapters in the history of the industrial enterprise*, vol. 120. MIT press.

Chen, C. R., & Steiner, T. L. 1999. Managerial ownership and agency conflicts: A nonlinear simultaneous equation analysis of managerial ownership, risk taking, debt policy, and dividend policy. *Financial Review*, 34(1): 119–136.

Cheng, J. L. C., & Kesner, I. F. 1997. Organizational slack and response to environmental

shifts: The impact of resource allocation patterns. *Journal of Management*, 23(1): 1–18.

Clemenz, G. 1990. Non-sequential consumer search and the consequences of a deregulation of trading hours. *European Economic Review*, 34(7): 1323–1337.

Clemenz, G. 1994. Competition via shopping hours: a case for regulation? *Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift Für Die Gesamte Staatswissenschaft*, 625–641.

De Jong, A., Kabir, R., & Nguyen, T. T. 2008. Capital structure around the world: The roles of firm-and country-specific determinants. *Journal of Banking & Finance*, 32(9): 1954–1969.

De Meza, D. 1984. The fourth commandment: is it Pareto efficient? *The Economic Journal*, 94(374): 379–383.

Dierickx, I., & Cool, K. 1989. Asset stock accumulation and sustainability of competitive advantage. *Management Science*, 35(12): 1504–1511.

Economides, N. 1989. Quality variations and maximal variety differentiation. *Regional Science and Urban Economics*, 19(1): 21–29.

Ferris, J. S. 1990. Time, space, and shopping: The regulation of shopping hours. *JL Econ & Org.*, 6: 171.

Goos, M. 2004. *Sinking the blues: The impact of shop closing hours on labor and product markets*. Centre for Economic Performance, London School of Economics and Political ….

Gradus, R. 1996. The economic effects of extending shop opening hours. *Journal of Economics*, 64(3): 247–263.

Grant, R. M. 1991. The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review*, (Spring): 114–135.

Gubler, T., Larkin, I., & Pierce, L. 2017. Doing well by making well: The impact of corporate wellness programs on employee productivity. *Management Science*.

Halk, K., & Täger, U. C. 1998. Verbraucher begrüßen neue Ladenöffnungszeiten. *Ifo Schnelldienst*, 51(23): 3–11.

Harris, M., Kriebel, C. H., & Raviv, A. 1982. Asymmetric information, incentives and intrafirm resource allocation. *Management Science*, 28(6): 604–620.

Head, T. C., Larsen, H. H., Nielsen, P. L., & Sorensen Jr, P. F. 1993. The Impact of National Culture on Organizational Change: A Danish Case Study. *International Journal of Public Administration*, 16(11): 1793.

Huddleston, V., & Huddleston, P. 2010. *The impacts of retail trade deregulation: a review of evidence from other jurisdictions*. The University of Western Australia. FACTBase Bulletin.

Inderst, R., & Irmen, A. 2005. Shopping hours and price competition. *European Economic Review*, 49(5): 1105–1124.

Jacobsen, H., & Hilf, E. 1999. *Beschäftigung und Arbeitsbedingungen im Einzelhandel vor dem Hintergrund neuer Öffnungszeiten*. Landesinst. Sozialforschungsstelle.

Kay, J. A., & Morris, C. N. 1987. The economic efficiency of Sunday trading restrictions. *The Journal of Industrial Economics*, 113–129.

Kugler, A., & Weiss, C. 2013. Time as a Strategic Variable: An Empirical Analysis of Opening Hours in the Austrian Gasoline Market. *Work-in-Progress, Vienna University of Business and Economics, Vienna*.

Kügler, A., & Weiss, C. 2016. Time as a strategic variable: business hours in the gasoline market. *Applied Economics Letters*, 23(15): 1051–1056.

Mascarenhas, B., & Aaker, D. A. 1989. Mobility barriers and strategic groups. *Strategic Management Journal*, 10(5): 475–485.

Mauri, A. J., & Michaels, M. P. 1998. Firm and industry effects within strategic management:

An empirical examination. *Strategic Management Journal*, 19(3): 211–219.

Meyer, A. D. 1982. Adapting to Environmental Jolts. *Administrative Science Quarterly*, 27(4): 515.

Nadkarni, S., & Barr, P. S. 2008. Environmental context, managerial cognition, and strategic action: An integrated view. *Strategic Management Journal*, 29(13): 1395–1427.

Nooteboom, B. 1983. Trading Hours and Economy of Scale in Retai Ling. *European Small Business Journal*, 1(2): 57–62.

Oehmichen, J., Schrapp, S., & Wolff, M. 2017. Who needs experts most? B oard industry expertise and strategic change—a contingency perspective. *Strategic Management Journal*, 38(3): 645–656.

Paul, A. 2015. After work shopping? Employment effects of a deregulation of shop opening hours in the German retail sector. *European Economic Review*, 80: 329–353.

Pennerstorfer, D., & Weiss, C. 2013. Spatial clustering and market power: Evidence from the retail gasoline market. *Regional Science and Urban Economics*, 43(4): 661–675.

Peteraf, M. A. 1993. The cornerstones of competitive advantage: A resource-based view.

Strategic Management Journal, 14(14): 179–191.

Rizzica, L., Roma, G., & Rovigatti, G. 2019. *The effects of shop opening hours deregulation: Evidence from Italy*.

Senderovitz, M., Klyver, K., & Steffens, P. 2016. Four years on: Are the gazelles still running? A longitudinal study of firm performance after a period of rapid growth. *International Small Business Journal*, 34(4): 391–411.

Shaked, A., & Sutton, J. 1982. Relaxing price competition through product differentiation. *The Review of Economic Studies*, 3–13.

Sheela, S. C., & Karthikeyan, K. 2012. Financial performance of pharmaceutical industry in India using dupont analysis. *European Journal of Business and Management*, 4(14): 84–91.

Shevlin, T., Thornock, J., & Williams, B. 2017. An examination of firms' responses to tax forgiveness. *Review of Accounting Studies*, 22(2): 577–607.

Shy, O., & Stenbacka, R. 2008. Price competition, business hours and shopping time flexibility. *The Economic Journal*, 118(531): 1171–1195.

Skuterud, M. 2005. The impact of Sunday shopping on employment and hours of work in the retail industry: Evidence from Canada. *European Economic Review*, 49(8): 1953–1978.

Tanguay, G. A., VALLGE, L. U. C., & Lanoie, P. 1995. Shopping hours and price levels in the retailing industry: A theoretical and empirical analysis. *Economic Inquiry*, 33(3): 516–524.

Wenzel, T. 2010. Liberalization of opening hours with free entry. *German Economic Review*, 11(4): 511–526.

Wenzel, T. 2011. Deregulation of shopping hours: The impact on independent retailers and chain stores. *Scandinavian Journal of Economics*, 113(1): 145–166.

TABLES

Table 1. Descriptive statistics

	Observations	Mean	SD	Min	Max
Revenues	451,309	13,387	21,675	0	304,166
EBITDA	451,309	876	1,551	-2,508	17,113
Employees (n.)	451,309	42	59	0	493
Operating result	451,309	479	1,022	-2,509	7,030
ROI	351,215	7	9	-30	30

* Revenues, EBITDA and Operating result are in '000 - We restricted the sample considering a percentage of censoring for revenues, EBITDA, employees and Operating result at 1%.

Table 2. Correlation statistics

	Revenues	EBITDA	Employees (n.)	Operating result	ROI
Revenues	1.0000				
EBITDA	0.5587	1.0000			
Employees (n.)	0.4747	0.4868	1.0000		
Operating result	0.4571	0.8426	0.3291	1.0000	
ROI	0.0180	0.1899	-0.0133	0.3825	1.0000

Table 3. Regression estimates of the impact of the liberalization on eligible firms, with respect to non-eligible firms.

VARIABLES	(1) Revenues (ln)	(2) N. of employees (ln)	(3) Ebitda (ln)
1.treated#1.after	0.0860***	0.0201***	-0.0560***
	[0.00909]	[0.00675]	[0.0109]
Ebitda (ln)	0.351***	0.0399***	
	[0.00631]	[0.00360]	
N. of employees	0.000110**		4.58e-05**
	[5.00e-05]		[1.88e-05]
Return on Assets	-0.00898***	-0.00598***	0.0506***
	[0.00118]	[0.000688]	[0.00491]
Debt Equity ratio	-3.01e-05	7.80e-05	0.000463**
	[0.000185]	[8.61e-05]	[0.000202]
year = 2010	0.0631***	0.000562	0.0284***
	[0.00236]	[0.00174]	[0.00307]
year = 2011	0.118***	0.00222	0.0303***
	[0.00263]	[0.00206]	[0.00356]
year = 2012, omitted	-	-	-
year = 2013	0.00792***	0.0123***	0.0379***
	[0.00190]	[0.00134]	[0.00275]
year = 2014	0.0299***	0.0248***	0.0768***
	[0.00216]	[0.00164]	[0.00331]
year = 2015	0.0684***	0.0390***	0.107***
	[0.00235]	[0.00194]	[0.00384]
Revenues (ln)		0.309***	0.607***
		[0.00616]	[0.0110]
Constant	6.808***	0.330***	0.390***
	[0.0332]	[0.0520]	[0.0772]
Observations	399,662	379,796	399,662
R-squared	0.267	0.167	0.417
Number of id	74,729	72,566	74,729
Year FEs	Yes	Yes	Yes
Firmid	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 4. Censoring 1% - Robustness checks

VARIABLES	(1) Revenues (ln)	(2) N. of employees (ln)	(3) Ebitda (ln)
1.treated#1.after	0.0866***	0.0163**	-0.0492***
	[0.00918]	[0.00658]	[0.00982]
Ebitda (ln)	0.350***	0.0395***	
	[0.00650]	[0.00359]	
N. of employees	0.000159		3.91e-05*
	[0.000115]		[2.03e-05]
Return on Assets	-0.00900***	-0.00589***	0.0556***
	[0.00123]	[0.000692]	[0.00452]
Debt Equity ratio	-2.94e-05	8.11e-05	0.000499**
	[0.000186]	[8.65e-05]	[0.000208]
year = 2010	0.0629***	0.00132	0.0295***
	[0.00237]	[0.00172]	[0.00310]
year = 2011	0.117***	0.00403**	0.0320***
	[0.00266]	[0.00202]	[0.00356]
year = 2012, omitted	-	-	-
year = 2013	0.00766***	0.0123***	0.0388***
	[0.00192]	[0.00132]	[0.00274]
year = 2014	0.0306***	0.0244***	0.0761***
	[0.00219]	[0.00162]	[0.00318]
year = 2015	0.0689***	0.0388***	0.104***
	[0.00240]	[0.00192]	[0.00350]
Revenues (ln)		0.303***	0.597***
		[0.00598]	[0.0106]
Constant	6.781***	0.353***	0.426***
	[0.0336]	[0.0502]	[0.0753]
Observations	395,509	375,589	394,864
R-squared	0.267	0.168	0.431
Number of id	74,227	71,999	74,268
Year FEs	Yes	Yes	Yes
Firmid	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 5. Censoring 2% - Robustness checks

VARIABLES	(1) Revenues (ln)	(2) N. of employees (ln)	(3) Ebitda (ln)
1.treated#1.after	0.0751***	0.0153**	-0.0489***
	[0.00763]	[0.00663]	[0.00988]
Ebitda (ln)	0.277***	0.0392***	
	[0.00388]	[0.00357]	
N. of employees	0.000133		4.08e-05
	[9.95e-05]		[2.57e-05]
Return on Assets	-0.00611***	-0.00590***	0.0559***
	[0.000648]	[0.000691]	[0.00467]
Debt Equity ratio	-9.06e-05	9.28e-05	0.000494**
	[8.97e-05]	[8.43e-05]	[0.000211]
year = 2010	0.0657***	0.00223	0.0298***
	[0.00184]	[0.00171]	[0.00312]
year = 2011	0.117***	0.00495**	0.0321***
	[0.00209]	[0.00202]	[0.00358]
year = 2012, omitted	-	-	-
year = 2013	0.00721***	0.0120***	0.0387***
	[0.00152]	[0.00132]	[0.00277]
year = 2014	0.0301***	0.0241***	0.0763***
	[0.00180]	[0.00161]	[0.00322]
year = 2015	0.0696***	0.0386***	0.105***
	[0.00202]	[0.00191]	[0.00355]
Revenues (ln)		0.297***	0.595***
		[0.00591]	[0.0107]
Constant	7.223***	0.386***	0.413***
	[0.0205]	[0.0492]	[0.0753]
Observations	389,286	371,423	390,065
R-squared	0.257	0.165	0.428
Number of id	73,556	71,438	73,864
Year FEs	Yes	Yes	Yes
Firmid	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Censoring 3% - Robustness checks

VARIABLES	(1) Revenues (ln)	(2) N. of employees (ln)	(3) Ebitda (ln)
1.treated#1.after	0.0648***	0.0131**	-0.0485***
	[0.00686]	[0.00665]	[0.00995]
Ebitda (ln)	0.247***	0.0385***	
	[0.00317]	[0.00355]	
N. of employees	0.000130		4.00e-05
	[9.95e-05]		[2.62e-05]
Return on Assets	-0.00443***	-0.00578***	0.0561***
	[0.000489]	[0.000684]	[0.00479]
Debt Equity ratio	7.93e-07	8.38e-05	0.000501**
	[7.54e-05]	[8.45e-05]	[0.000214]
year = 2010	0.0654***	0.00276	0.0292***
	[0.00170]	[0.00172]	[0.00314]
year = 2011	0.117***	0.00579***	0.0319***
	[0.00193]	[0.00202]	[0.00362]
year = 2012, omitted	-	-	-
year = 2013	0.00704***	0.0122***	0.0393***
	[0.00140]	[0.00131]	[0.00279]
year = 2014	0.0290***	0.0243***	0.0765***
	[0.00168]	[0.00162]	[0.00325]
year = 2015	0.0669***	0.0388***	0.105***
	[0.00190]	[0.00192]	[0.00359]
Revenues (ln)		0.294***	0.595***
		[0.00591]	[0.0107]
Constant	7.398***	0.393***	0.397***
	[0.0171]	[0.0490]	[0.0752]
Observations	381,824	367,238	385,270
R-squared	0.249	0.163	0.426
Number of id	72,772	70,825	73,448
Year FEs	Yes	Yes	Yes
Firmid	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 7. Inclusion of further control variables – Robustness checks

VARIABLES	(1) Revenues (ln)	(2) N. of employees (ln)	(3) Ebitda (ln)
1.treated#1.after	0.0834***	0.0120*	-0.0538***
	[0.00845]	[0.00657]	[0.0105]
Ebitda (ln)	0.327***	0.0230***	
	[0.00420]	[0.00188]	
Number of employees	9.40e-05**		
	[4.33e-05]		
Return on Equity	-0.00260***	-0.00136***	0.0139***
	[8.18e-05]	[5.23e-05]	[0.000119]
Financial debt / revenues	-0.00496***	0.00183***	0.00203***
	[0.000127]	[9.26e-05]	[0.000147]
year = 2010	0.0681***	-4.89e-05	0.0105***
	[0.00208]	[0.00173]	[0.00317]
year = 2011	0.123***	-0.000482	0.0159***
	[0.00232]	[0.00207]	[0.00352]
year = 2012, omitted	-		-
year = 2013	0.00379**	-0.0304***	0.0658***
	[0.00169]	[0.00172]	[0.00276]
year = 2014	0.0274***	-0.0163***	0.102***
	[0.00195]	[0.00138]	[0.00308]
year = 2015	0.0671***		0.116***
	[0.00215]		[0.00335]
Revenues (ln)		0.349***	0.724***
		[0.00641]	[0.00710]
year = 2012		-0.0423***	
		[0.00191]	
Constant	7.054***	0.0254	-0.585***
	[0.0259]	[0.0546]	[0.0651]
Observations	377,448	361,423	377,448
R-squared	0.306	0.176	0.386
Number of id	72,423	70,677	72,423
Year FEs	Yes	Yes	Yes
Firmid	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Table 8. Change of dependent variables – Robustness checks

VARIABLES	(1) Ebitda Variation	(2) Operating result	(3) Return on Investments	(4) Return on Equity	(5) Return on Assets	(6) Employees cost (ln)
1.treated#1.after	-0.0708***	-0.0630***	-0.378***	-2.173***	-1.238***	0.0535**
	[0.0117]	[0.0144]	[0.106]	[0.400]	[0.232]	[0.0265]
Revenues (ln)	0.704***	0.616***	0.440***	5.601***	3.147***	
	[0.00762]	[0.0162]	[0.129]	[0.137]	[0.112]	
N. of employees	3.08e-05**	3.46e-05***	-0.000110*	-0.00155**	-0.000437**	
	[1.20e-05]	[1.07e-05]	[6.16e-05]	[0.000737]	[0.000206]	
Return on Asset		0.0715***	1.548***			-0.0110***
		[0.00871]	[0.0735]			[0.00149]
Debt Equity ratio	0.000108	0.000574**	-0.00295***	-0.120***	0.00615***	0.000302*
	[0.000161]	[0.000289]	[0.000690]	[0.0137]	[0.00227]	[0.000175]
year = 2010	0.0240***	0.0160***	0.0534**	1.176***	0.176***	0.0375***
	[0.00357]	[0.00450]	[0.0257]	[0.115]	[0.0478]	[0.0128]
year = 2011	0.0170***	0.0336***	0.00879	-0.466***	-0.299***	0.0715***
	[0.00394]	[0.00539]	[0.0261]	[0.126]	[0.0573]	[0.0117]
year = 2012		-0.155***			-0.173**	
		[0.00492]			[0.0742]	
year = 2013	0.0420***	-0.0913***	0.139***	-1.548***	-0.193***	0.0541***
	[0.00306]	[0.00514]	[0.0254]	[0.102]	[0.0733]	[0.0100]
year = 2014	0.0898***	-0.0319***	0.156***	-0.682***	-0.0104	0.0837***
	[0.00344]	[0.00357]	[0.0409]	[0.113]	[0.0627]	[0.0103]
year = 2015	0.130***		0.0969*	0.870***		0.124***
	[0.00373]		[0.0559]	[0.119]		[0.0107]
Ebitda (ln)						0.170***
						[0.00826]
Constant	-6.377***	-0.372***	-2.208**	-40.86***	-23.47***	9.982***
	[0.0683]	[0.0955]	[0.927]	[1.234]	[0.988]	[0.0452]
Observations	401,815	368,725	364,457	420,945	441,600	374,309
R-squared	0.233	0.398	0.663	0.027	0.027	0.005
Number of id	74,842	73,327	71,402	75,453	76,490	72,052
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Firmid	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

5. CONCLUSION

This dissertation explores firms' behaviour and firm performance in relation to the dependence on the external environment. The firms' external dependence explains that the external environments shape firms behaviour and performance. Analysing the external environment permits to explain and predict many characteristics and causes of organizational behaviour and firm performance. For example, the framework of the dissertation can help to explain why specific firms behave in a counterintuitive way, and why some firms pay special attention to specific regulations or to the institutional environment while other not. It can also help to predict a firm's future behaviour in areas of political activities, diversification, internationalization, competition, changes in the design of organization, etc.

The three analyses presented in the dissertation offer a logical way of thinking about the several actions that firms undertake to operate in relation with external dependence, and even the consequences of firms in terms of performance for specific external issues.

Finally, the framework takes us beyond the acknowledgment that firm-environment compatibility often appears to be linked with positive results. It suggests explanations on why external dependence might be sometimes unable to generate a firm-environment fit.