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DO LOCAL FINANCIAL AND LEGAL SYSTEMS AFFECT SMES CAPITAL STRUCTURE?

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Do local financial and legal systems affect SMEs capital structure?

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Abstract

This paper investigates the role of institutional differences at the *local* level as determinants of firms' capital structure. Specifically, its aim is to empirically assess whether and to what extent SMEs' financial decisions are affected by local financial development – evaluating this influence both ceteris paribus, and by allowing it to be conditional on different levels of legal enforcement inefficiency. Controlling for debt inertia, firms' heterogeneity and endogeneity problems, we find that local financial development may be an important determinant of SMEs' capital structure, and that firms appear to have better access to financial debt in areas characterized by a higher quality of the legal system. Thus, despite the international process of capital markets integration, local financial institutions do not seem to become irrelevant for SMEs, which are in need of well developed institutions at local level to gain easier access to external financial resources.

JEL code: G21; G32.

Keywords: firms' capital structure; bank debt; local financial development; local enforcement system, SMEs.

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1. Introduction

Despite financial integration has linked cross-country capital markets, allowing both beneficial effects by higher competition and efficiency and easier shocks' contagious, local markets do not seem to have lost economic relevance (Guido et al 2004; Pollard 2003). In recent years, the research relating financial paradigms to the economic role of geographical context has deepened the analysis about the effects of the local environment on firms' financial behavior. Indeed, the characteristics of the local context may exert a crucial role on corporate financial decisions, providing distorted investment incentives, modifying market expectations, disciplining management and raising financial constraints to firms' growth. This paper aims to respond to the general call for integration between finance and economic geography research, by examining how firms' financial decisions are related to the local institutional environment where entrepreneurships operate.

Several contributions in the financial literature show that corporate financing choices are likely to be determined by a host of factors that are related not just to the characteristics of the firm, but also to the institutional environment where the latter operates (La Porta et al. 1997, 1998). Although most contributions examine corporate financing choices focusing on firm's characteristics, a recent strand of literature studies the channels through which institutional factors may affect firms' capital structure choices (Demirguc-Kunt and Maksimovic 2008, 2002, 1998, 1996a; Cheng and Shiu 2007; Lopez-Iturriaga and Rodriguez-Sanz 2007; Utrero-González 2007; Bianco et al. 2005; Giannetti 2003; Titman et al. 2003; Booth et al. 2001; La Porta et al. 1997, 1998; Rajan and Zingales 1995).

Most of this research used cross-country data to examine large firms facing a wide range of institutional environments, while recent works have highlighted differences in institutional settings *at local level* (e.g. Guiso et al. 2004). The latter claim that, within a single country, local institutional differences can exist and might play a crucial role in determining corporate financial decisions. One of the local institutional characteristics that has received increasing interest from scholars is the degree of financial development. Indeed, despite the process of financial markets integration and internationalization, local financial markets may still be of great relevance in affecting firms' capital structure, especially when firms

cannot realize the benefits of moving to the international capital market or they consider it too costly and not easily accessible.

Besides, several studies highlight the role of judicial enforcement in shaping the functioning of a financial system, hence in affecting financing decisions (La Porta et al. 1997, 1998; Beck and Levine 2004). Indeed, judicial enforcement is important as the regulations governing the financial system work in the interest of investors, protecting creditors only to the extent that the rules are actually enforced. Due to the risk of default and the difficulty to get back the liquidation value of the collateral, enforcement affects the ex-ante availability of agents to provide finance. Likewise, as recent contributions point out (e.g. Utrero-González 2007; Giannetti 2003), by fostering financial market development, enforcement and investors' protection contribute to mitigate agency problems.

Inspired by the above literature, the present paper aims to empirically investigate whether and to what extent the financial decisions of small and medium sized firms (henceforth SMEs) are influenced by the degree of local financial development. We evaluate this relationship both *ceteris paribus*, and by allowing the impact of the provincial financial development to be conditional on different levels of legal enforcement inefficiency. Thus, our work distinguishes itself from the extant literature as – in studying SMEs financial choices – it focuses on local instead of country factors, and it allows for interaction among different institutional features.

Focusing on SMEs is relevant since, as shown by several contributions, the influence of local institutional factors on capital structure decisions is particularly relevant for such firms, despite the international phenomenon of market integration. For example, Demirguc-Kunt and Maksimovic (1998) highlight that institutional factors have a different impact on SMEs' financial policies, compared to those of larger firms. Further, Beck et al. (2005) point out that market imperfections, such as those caused by underdeveloped financial and legal systems, constrain funding decisions depending on firms' size.

This paper aspires to enrich both the finance and the economic geography literature, pointing out some implications for further analysis exploring how finance and economic geography can be welded more closely. Finance and economic geography are two areas of research that traditionally are studied

separately, although they present many connections and both can provide better understanding about the firms' behaviour in a local context.

To carry out the empirical analysis we employ Italian data, as Italy provides an ideal laboratory to test the effect of local institutional factors on SMEs capital structure for at least two reasons. First, the Italian economy is dominated by SMEs. Secondly, it is widely documented that the efficiency of both financial and legal enforcement systems is quite dissimilar across the Italian local areas, despite a financial system and a legal/regulatory framework highly integrated and uniform.

Following Guiso et al. (2004), we consider as local markets the 103 existing Italian administrative provinces (geographic entities very similar to the US counties). Also the Italian Antitrust Authority classifies the province as the 'relevant market' in banking activities. Furthermore, the province was, until 1990, the unit of analysis considered by the Bank of Italy to decide whether to authorize the opening of new branches.

The remainder of the paper is organized as follows. The next section presents a brief review of the literature on the effects of local financial development on firms' capital structure. Section 3 provides a short overview on SMEs and the financial system in Italy. Section 4 illustrates the econometric specification and the methodology adopted. Section 5 describes the data. Section 6 discuses the results obtained, and section 7 concludes.

2. Capital structure, financial development and enforcement at local level: from the extant literature to our testing hypotheses

Capital structure is a controversial topic in academia and in the business community (Rajan and Zingales 1995). The facts about capital structure show that the optimal mix between debt and equity is affected by many factors, that raise benefits and costs.[1] There is a growing interest in empirically studying the connection between institutions and firms' capital structure to understand debt *versus* equity choices

[1] Firms that use debt as a source of finance can benefit from tax advantages, due to interest deduction, a reduction in asymmetric information, and managerial discipline. Nonetheless, there are also costs related to the use of debt that arise from the presence of financial distress, agency problems, and a loss of financial flexibility.

(Demirguc-Kunt and Maksimovic 1998). The main literature is based on cross-country analyses emphasizing the effects of institutional differences on capital structure (Titman et al. 2003; Booth et al. 2001; Demirguc-Kunt and Maksimovic 1999), and showing that financing decisions are shaped both by a country's legal and financial environment (Demirguc-Kunt and Maksimovic 1998; Rajan and Zingales 1998; La Porta et al. 1997, 1998). Specifically, the research on the relationship between law and finance takes into account the role of institutional factors, such as the efficiency of financial and enforcement systems (Lopez-Iturriaga and Rodriguez-Sanz 2007; Rajan and Zingales 2003; La Porta et al. 1998; Demirguc-Kunt and Maksimovic 1996a). Institutions that work efficiently can reduce problems of opportunism and asymmetric information, with significant effects on the relative magnitude of the costs and benefits associated to debt. The impact of financial development on financing decisions is becoming a major research priority considering that, as suggested by Rajan and Zingales (1998), financial development facilitates firms' growth, affecting capital structure decisions through the reduction of external financing costs. Although previous studies are based on cross-country analysis (Demirguc-Kunt and Maksimovic 2008, 2002, 1999, 1998, 1996a, 1996b; Lopez-Iturriaga and Rodriguez-Sanz 2007; Utrero-González 2007; La Porta et al. 1997; Rajan and Zingales 1995),[2] it may also be that, *within a single country*, differences in companies' financial structure are explained by differences in the degree of financial development at the local level. There is increasing evidence in the finance literature that the local context is relevant. Recent financial papers (Degryse and Ongena 2005; Petersen and Rajan 2002) highlight the importance of distance in explaining the availability and pricing of bank loans. In particular, Petersen and Rajan (2002) document the importance of distance in the provision of bank credit to small firms, especially in countries where asymmetric information problems are substantial. Studies on the local context are also close to contemporary debates in the economic geography literature, interested in understanding firm's financing across different regional contexts (Martin 1999). Pollard (2003) suggests

[2] For example, Demirguc-Kunt and Maksimovic (1999) showed that differences in financing patterns are mostly due to differences in financial development, as well as in the underlying legal infrastructure. Fan et al. (2003) also confirmed earlier findings that institutional differences among countries are much more important in determining firms' capital structure choices compared to other factors, such as industry affiliation.

the need of contextualizing firm finance, analyzing how different geographical configurations of financial institutions affect the access to credit for firms operating locally. In general, it is suggested that banks operating locally have more knowledge and control on local firms and entrepreneurs (Alessandrini and Zazzaro 1999). Both Martin (1999) and Pollard (2003), identifying a body of works about financial institutions, services and markets, proposed the need to integrate studies of finance and economic geography, especially with regards to small firms. In particular, Pollard (2003, p.431) suggested the need of further studies in economic geography concerning "how and where firms obtain and use external finance and how capital structure are managed ". Furthermore, with a distinctive approach, the regional economics literature has considered similar arguments, typically based on aggregate analysis related to the regional impact of monetary policy. It has been suggested that, especially for SMEs, there are important regional differences in credit conditions (Dow and Montagnoli 2007).

The above discussion shows that the effects of local financial development on capital structure decisions have been investigated across various fields of research from different analytical perspectives. Considering that firms face several menus of choices, opportunities and constraints according to the geographic context in which they are embedded, analyzing the role of local financial development on debt choices can provide relevant insights. To assess the role of financial institutions in an increasingly integrated capital market we follow a distinctive approach. We study the effect of local financial development within a single country, using an approach similar to Guiso et al. (2004) but applied at provincial level.

As highlighted by Diamond (1993) and Flannery (1986), the existence of asymmetric information is likely to tilt capital structures toward a higher use of debt. According to Titman et al. (2003), key determinants of the financial constraint, influencing firm's capital-structure, may be the existence of asymmetric information and the cost of contracting between companies and potential providers of external financing. Financial constraints are likely to be more severe in the presence of a poorly developed finan-

cial system.[3] By contrast, a well-developed financial system can facilitate the ability of a company to gain access to external financing, providing cheaper finance to worthy companies (Guiso et al. 2004). With a well-developed financial system market efficiency helps to avoid opportunistic behaviors.[4] Thus, across different provincial areas, an increase in financial development is assumed - ceteris paribus - to allow for a higher use of debt (*hypothesis 1*). Hence, finding that local financial development is a determinant of firms' financing decisions may suggest that, despite the international process of capital markets integration, we are far from the 'end of geography' or the flattening of spatial differentiation (O'Brien 1992). Developed local financial intermediaries could still matter for the availability of financing sources stimulating growth.

In addition to the function performed by the financial system, a burgeoning literature suggests to account also for the role of judicial enforcement in shaping the operation of a financial system, and so in affecting financing decisions.[5] In particular, the law and finance theory focuses on the role of legal institutions and enforcement in explaining international differences in financial development (La Porta et al. 1997, 1998; Beck and Levine 2004). Specifically, the judicial enforcement is important because the regulations governing the financial system work in the interest of investors, protecting creditors only to the extent that the rules are actually enforced. Due to the risk of default and the difficulty to get back the liquidation value of the collateral, enforcement affects the ex-ante availability of agents to provide finance. As suggested by La Porta et al. (1998), because a good legal environment protects potential fin-

[3] It seems that firms may raise finance more easily as the financial system develops because physical collateral becomes less important while intangible assets and future cash flows can be financed. As the financial system develops, it should be better able to appreciate the soundness of firm's projects and of its managerial behaviors (Rajan and Zingales 1998).

[4] For example, the less developed the financial system, the more banks will want to use short-term credit as a way to control borrowers (Diamond 1991).

[5] A selective review of the research on the role of legal institutions in shaping the functioning of financial systems is provided by Beck and Levine (2004). In particular, as highlighted by Beck and Levine (2004) and summarized by Hart (1995), studies on financial decisions are related to the role of the control rights that financial securities bring to their owners as well as to the impact of different legal rules on corporate control. Considering capital structure as a set of contracts, the enforcement of these latter determines the rights of securities holders and the functioning of financial systems.

anciers against expropriation by entrepreneurs, it raises their willingness to provide funds to firms. Thus, as recent contributions highlight (e.g. Utrero-González 2007; Giannetti 2003), by fostering financial market development, enforcement and investors' protection contribute to mitigate agency problems.

The role of legal institutions and enforcement in explaining international differences in financial development across countries (Beck and Levine 2004) can also apply with regards to within-country analyses: the efficiency of the courts at local level can be different although the same law applies. By providing diverse levels of creditors' protections, the existence of differences in the quality of the enforcement at local level affects local financial development. As suggested by the law and finance view, local financial development would be higher where judicial enforcement is more effective, while the financial support to firms would be lower where the quality of the legal system is weaker. Therefore, across different provincial areas, a more efficient enforcement system should strengthen the impact of local financial development on the use of SMEs' debt. Stated differently, we expect that the higher the local judicial costs the lower the impact of local financial development on leverage (*hypothesis 2*). To test this hypothesis, we will model the partial effect of local financial development conditional on the efficiency of the local judicial enforcement.

To summarize, building on the predictions of the literature above discussed, it seems noteworthy to verify whether differences in corporate financing decisions can be explained by institutional factors at local level. The analysis of the role of the local context can extend insight into a firm's decisions regarding capital structure and, in general, on the financial behaviors of firms. In particular, SMEs, which have limited access to alternative source of financing due to their informational opaqueness, seem potentially very sensitive to the degree of development and efficiency of the financial system (Berger and Udell 1998). Cross-country research provided substantial evidence that small firms face significant growth constraints and have less access to formal sources of external finance, potentially explaining the lack of SMEs' contribution to growth (Beck et al. 2008; Storey 1994). Financial and institutional development helps to alleviate SMEs' growth constraints and to increase their access to external finance. The financing of SMEs occurs in an institutional context very different compared to that faced by a corporation, which operates in large and relatively more transparent capital markets (Berger and Udell 1998). If firms

are able to penetrate markets other than the local one, local market conditions become irrelevant; however, due to the existence of market frictions especially with regards to SMEs, the local financial market can still be fundamental. Additionally, the local financial system is likely to exert dissimilar impacts in areas where the judicial enforcement is more effective – areas which may belong to the same country. In fact, though in a nation the same laws apply throughout, the enforcement system can differ at local level, thus providing creditors different levels of protection against opportunistic behaviors. Since both the development of the financial system and the efficiency of the courts vary across the Italian territory, our country represents a noteworthy case study to shed light on the relationship between SMEs' financing decisions and the institutional factors so far illustrated.

3. A short overview on SMEs and the financial system in Italy

Research on the Italian economy should take into account the distinct features of the country's industrial and financial structures. As far as the former is concerned, a first important aspect is that the vast majority of firms (more than 95%) are SMEs. While the proliferation of small-scale enterprises has often been pointed out as one of the reasons for Italy's economic success, the limited types of external funds available to Italian companies make them prone to financing constraints. Cesarini (2003) highlights that, once internal funds are depleted, the banking channel is often the only way for Italian SMEs - usually facing high costs in employing arm's length finance (bond and the Stock Exchange markets finance) - to gain access to external funds.

Another relevant feature of Italian firms is that, for the most part, the model of corporate governance is quite different from the one proposed by Berle and Means (1932); that is, there is not a marked separation between ownership and control. Instead, it is widely documented that the ownership of most Italian companies, even large ones, is strongly concentrated and based on a family business model (Giacomelli and Trento 2005, Bianco and Casavola 1999). In a comprehensive study, La Porta et al. (1999) found that ownership in publicly traded Italian companies is highly concentrated within single families and controlling families participate in the top management levels. Ownership is even more concentrated among non-listed companies. This concentration, a by-product of the relative lack of protection of mi-

nority shareholders by Italian securities law, has been suggested to also restrict growth. The tight concentration of ownership has its pluses and minuses. On the minus side, it acts as a factor influencing financial decisions and may serve as a constraint on firm's expansion, since growth often requires a significant amount of outside financing, which reduces family control.

Turning to the structure of the Italian financial system, one of its major characteristics is that of being strongly bank-oriented. In fact, capital markets in Italy are relatively undeveloped compared not only to the US ones but also, to some extent, to those of other large European countries. Like other continental European countries, the Italian stock market is not an important source of finance. Very few Italian companies trade publicly, not even companies that are quite large (e.g. Ferrero, Fininvest, Barilla).[6]

Despite its central role in the national economy, the Italian banking system was until recently state owned, heavily regulated and scarcely competitive. Up to the early 1990s, the main features of the banking industry were the result of the regulation introduced in 1936 in order to avoid banking instability. Many restrictions were laid down on banks' activity - among which the total control upon entry and exit in the industry, as well as on branching decisions.

A radical regulation reform, which started at the beginning of the past decade, has modified the above scenario (see Costi 2007 for a vast discussion on this normative). Primed by the new legislative framework, the selling-off of state-held banking shares, large consolidation waves and a rapid growth of branches number transformed the physiognomy of the Italian banking sector. From 1990 to 2006, 444 mergers and 205 acquisitions among Italian credit institutions (excluding operations that involved the same bank more than once) were completed. In the same period, the number of banks operating in the country dropped from 1064 to 793, whereas bank branches boosted from 17,721 to 32,337 (Bank of Italy Annual Reports 1991-2007). Focusing on the geographical expansion of banks following the deregulation process, Benfratello et al. (2008) show that branch density at provincial level: *i)* has increased largely, on average; *ii)* is characterized by a large interprovincial dispersion, and this latter has been increasing with time; *iii*) displays much more variation between provinces than over time. Moreover, banks'

[6] In 2000, only 297 companies traded on the Milan Stock Exchange (266 in 1990 and 168 in 1980), and the total capitalized value of companies was 818,384 million of euro, approximately 70% of the national GDP.

geographical expansion and consolidation activities led to a significant variation in banking concentration across the Italian provinces, which characterizes almost all the regions - as well as all the macro-areas of the country (see also FinMonitor, 2006).

Overall considered, the above figures suggest that the transformations intervened in the Italian banking sector during the last two decades have increased heterogeneity in the structure of credit markets, making the Italian experience a valuable scenario to conduct empirical studies on the implications that the degree of local banking development might have, for instance, on firms' financial decisions.

4. Empirical question and econometric methodology

As mentioned above, the aim of this paper is to empirical assess whether and to what extent Italian SMEs' capital structure is affected by local financial development – evaluating this relationship both ceteris paribus (*hypotheses 1*), and by allowing the impact of provincial financial development to be conditional on different levels of legal enforcement inefficiency (*hypothesis 2*). To carry out this analysis, we estimate the following equation:

$$LEV_{it} = \alpha + \beta_1 LEV_{i,t-1} + \beta_2 BRANCH + \beta_3 JUDCOST + \beta_4 BRANCH * JUDCOST + \phi \underline{X}'_{it} + \sum_t \varphi_t T_t + \varepsilon_{it} \qquad (1)$$

where indices *i* and *t* refer to individuals and time periods, respectively. According to equation (1), the capital structure decision (LEV) is a function of local financial development (BRANCH), local enforcement (JUDCOST), the interaction between the latter two (BRANCH*JUDCOST), a set of control variables and the lagged dependent variable. A variables' description is provided in Table 1, while Table 2 reports some descriptive statistics.[7]

Insert Tables 1 and 2

The dependent variable (LEV) is calculated as the ratio of financial (or interest-bearing) debt (excluding trade debt) to the total financial debt plus equity (as in Titman et al. 2003, Giannetti 2003, Rajan and

[7] The correlation matrix is available from the authors upon request.

Zingales 1995). On the right hand side, BRANCH and JUDCOST are our measures of local financial development and inefficiency of the legal system, respectively.

Following Benfratello et al. (2008), BRANCH is the provincial branch density (calculated as bank branches on population). The authors indicate at least two motivations to choose this variable as a measure of the level of local banking development. A first one is that it is widely used in the studies on local banking development (e.g. Degryse and Ongena, 2005). A second one, and perhaps more important, is that "it captures the dimension of banking development that is likely to be more heavily affected by the deregulation process" (Benfratello et al. 2008, p.200) – a process that, as outlined in section 3, greatly contributed to transform the physiognomy of the Italian banking system in the last two decades.

Similarly to Fabbri and Padula (2004) and Bianco, Jappelli and Pagano (2005), JUDCOST is the ratio of backlog of pending civil trials to incoming civil trials. [8] The hypothesis underlying the use of this variable is that the quality of the legal enforcement system at local level depends inversely on the congestion of the judicial district.

The vector $\underline{X}$ of control variables accounts for observable firm-specific characteristics. Theoretical and empirical studies have shown that features such as size, age, profitability, non-debt tax-shields, tangibility, trade debt and growth opportunities are likely to affect capital structure (e.g. Hall et al. 2004; Van der Wijst et al. 1993). Large firms tend to have more collateralizable assets and more stable cash flows (Rajan and Zingales 1995; Harris and Raviv 1991). Thus, the variable SIZE_E, measured by the number of firm's employees, is included in the model. To account for informational opacity across the different stages of firm's life cycle, the AGE variable is added. Most tax and asymmetric information models of capital structure predict a relationship between leverage and profitability (Rajan and Zingales 1995; Harris and Raviv 1991). Thus, our empirical model includes the return on assets (ROA), expressed

[8] The computation of JUDCOST relies on the trials at the first degree of judgment (lower court). However, as a robustness check (see subsection 5.1), we have also considered the trials at the second degree of judgment (appeal court). Lower court and appeal court represent the two degrees of judgment that Italian civil trials can undergo. Data on pending and incoming trials are available at judicial districts level only, these latter corresponding roughly to the Italian regions (for a matching of judicial districts with regions and provinces, see Fabbri and Padula 2004).

as the ratio of earnings before interest and taxes (EBIT) to total assets. De Angelo and Masulis (1980) argue that firms that are able to reduce taxes using methods other than deducting interest, such as depreciation, will employ less debt in their capital structure. The *non-debt tax shields* (NDTS) variable considered in this study is measured through the depreciation and amortization of tangible and intangible assets divided by total assets (MacKie-Mason 1990). Tangible assets (TGASS) may provide collateral for loans, reducing agency costs and the cost for lenders, and thus are expected to be associated with higher leverage (Rajan and Zingales 1995; Titman and Wessels 1988). Firms with high growth opportunities may retain financial flexibility through a low leverage to be able to exercise those opportunities in subsequent years (Myers 1977), while a firm with outstanding debt may forgo such opportunities (Jensen and Meckling 1976). To capture this effect, we use a measure of firm's growth (FGROW_S), given by the growth rate of annual net sales. Considering that trade debt may be a substitute for bank debt (De Blasio, 2005), the TRADE variable – expressed by the ratio of trade debt to total assets – is also included. Vector $\underline{X}$ also comprises industry dummies (PAV), to control for heterogeneity at sectoral level,[9] two variables at provincial level – the (log of) per capita real gross domestic product (GDPPC) and the ratio of bad loans to total loans (BAD), this latter as a proxy for credit market riskiness – and a territorial dummy (SOUTH), to account for the dualism in the degree of socio-economic development between Center-North and South (this variable is coded 1 for firms located in the southern regions, and zero otherwise). Besides, T_t is a set of time fixed effects; $\varepsilon_{it} = \nu_i + u_{it}$ is a composite error, where the individual effect (v_i) summarizes unobserved firm's characteristics (such as managerial risk aversion, governance structure, and other relevant factors that are difficult to measure) that are time-invariant, and have been acknowledged as potential determinants of capital structure decisions (Lemmon et al. 2008; Flannery and Rangan 2006). The second term (u_{it}) captures idiosyncratic shocks to leverage.

Finally, it is worth highlighting the inclusion of lagged leverage as an explanatory variable. This term enables us to account for the dynamics suggested by the literature on the capital structure adjustment process (Flannery and Rangan 2006; Leary and Roberts 2005; Welch 2004; Fama and French 2002; Bontempi and Golinelli 1996). These studies highlight that firms tend to achieve a desired leverage ratio

[9] On the relevance of industry affiliation see, among others, Showalter (1999) and Harris and Raviv (1991).

in the long-run, although they cannot completely adjust toward their optimal leverage in each period due to the presence of adjustment costs. Hence, partial adjustment models are advocated to estimate the capital structure adjustment process.

To test our first hypothesis, we estimate equation (1) without considering the interaction term between BRANCH and JUDCOST. Then, to verify our second hypothesis, we estimate model (1) – which makes the effect of financial development conditional on different levels of enforcement inefficiency. Specifically, we consider the partial effect of BRANCH conditional on the level of judicial costs ($\partial LEV / \partial BRANCH = \hat{\beta}_2 + \hat{\beta}_4 * JUDCOST$), and the relative standard errors.[10] Since both are dependent on JUDCOST, the marginal effect of BRANCH may change sign and gain or lose significance according to the value of the enforcement variable. To provide a concise report on these figures, we will graph the marginal effect of BRANCH - along with its 95% (or 90%) confidence intervals - across the range of the JUDCOST regressor.

From an econometric perspective, controlling for leverage inertia and unobserved heterogeneity (i.e. adopting a dynamic panel model as the one specified in equation (1)) poses two major problems. The first involves the potential correlation between fixed effects and regressors. The second concerns the correlation between the lagged dependent variable and the past idiosyncratic error. This latter link makes the strict exogeneity assumption fail, compromising the consistency of the most popular methods employed in a static panel data setting (random effects, fixed effects and first differencing). Moreover, in model (1) the lag of the leverage measure is not the only endogenous variable. In fact, also other explanatory variables are likely to be endogenous.[11]

A general approach for coping with both the above mentioned problems consists of two steps. First the data are transformed in order to eliminate the unobserved individual effects, and then valid instrumental variables are employed in order to deal with the endogeneity problem. Arellano and Bond (1991)

[10] Formally, the latter are: $\hat{\sigma} = \sqrt{var(\hat{\beta}_2) + (JUDCOST)^2 * var(\hat{\beta}_4) + 2 JUDCOST * cov(\hat{\beta}_2, \hat{\beta}_4)}$

[11] We treat as endogenous the variables that are likely to be determined simultaneously along with the leverage (BRANCH, BRANCH* JUDCOST, SIZE, ROA, NDTS, TGASS, TRADE, FGROW_S and BAD). The remaining regressors are treated as exogenous.

propose a GMM procedure, exploiting the entire set of internal instruments that the model generates, under the assumption of white noise errors. When the explanatory variables are persistent over time, however, the lagged level may result in poor instruments. Since our variables of interest (BRANCH and JUDCOST) display little variation over time, in what follows we adopt the so-called *system GMM* (*SYS-GMM*) estimator of Arellano and Bover (1995) and Blundell and Bond (1998). This estimator employs extra orthogonality conditions that "remain informative even for persistent series, and it has been shown to perform well in simulations" (Bond et al. 2001, page 4), increasing the efficiency of the estimation.[12]

5. Data

The econometric analysis is based on data coming from several sources. Information on Italian manufacturing firms is drawn from Capitalia's 7th, 8th and 9th surveys (*Indagini sulle Imprese Manifatturiere*), conducted on all Italian manufacturing firms employing more than 500 workers and on a stratified sample of firms with more than 10 workers. Each of these surveys, including mostly qualitative information, spans three years: the 7th survey, carried out in 1998, reports data for a panel of 4,493 firms for the period 1995-1997; the 8th one was conducted in 2001 and has data for a panel of 4,680 firms for the years 1998-2000, and the 9th, in 2004, on 4,289 firms for the period 2001-2003. Capitalia provides also balance-sheet data on the firms included in the surveys. By matching qualitative and accounting information, we obtain an unbalanced panel of 5,998 firms for the period 1995-2003, for a total of 25,530 observations. As abovementioned, we focus on SMEs - which are bound to ask credit from banks with branches in the same local market where they operate. Therefore, we drop firms with more than 250 workers and those listed on the Stock Exchange.

A second data source, which gives us figures on the territorial distribution of branches for each Italian bank over the period considered in the analysis, is provided by the Bank of Italy. From the same database we draw information on banks' non-performing loans and banks' total loans (both at provincial

[12] More precisely, the *system GMM* estimator, along with the moment conditions of the difference GMM, uses the lagged differences of the regressors as instruments for the equation in levels. The main assumption underlying the use of moment restrictions in levels is that the unobserved effects are not correlated with changes in the error term.

level), to compute the BAD variable. Finally, data on pending and incoming civil trials, GDP and population come from ISTAT (Italian National Institute of Statistics).[13]

6. Empirical Results

The *SYS-GMM* results are reported in Table 3. Column 1 shows the results obtained when estimating equation (1) without considering the interaction term between BRANCH and JUDCOST. The key assumptions are verified. The autocorrelation tests signal a strong first order correlation in the differenced residuals, but no higher order autocorrelation, therefore supporting the assumption of lack of autocorrelation in the errors in levels, underlying the adopted estimator.[14] Further, the Hansen test cannot reject the null hypothesis of validity of the over-identifying restrictions, and the difference in Hansen test supports the validity of the additional instruments used by the *SYS-GMM* estimator.[15]

Many control variables are statistically significant and their estimated coefficients are generally consistent with those found in previous studies.[16] For instance, SIZE has a positive and statistically significant effect on leverage: older firms, which are likely to have more stable cash flows and a track record of their business activity, seem to obtain more financial resources in terms of debt. The variable ROA has a negative and statistically significant effect on leverage, suggesting that higher profitability - possibly mitigating problems of asymmetric information in accessing capital markets - may allow managers to be less dependent on creditors for financial resources. The NDTS parameter is negative and statistically

[13] To moderate the influence of potential outliers, for each variable involved in the econometric analysis, the observations lying in the first and last percentile of the distribution have been dropped.

[14] Indeed, if the errors in level are characterized by a lack of serial correlation, the error in differences are expected to display first order autocorrelation and to be uncorrelated at all other lags.

[15] The estimates are obtained by using a subset of the available instruments. This is because, as Altonji and Segal (1994) point out, the use of all instruments implies small-sample downward bias of the coefficients and standard errors. Further reducing the number of instruments - or using all those available - does not affect our main results.

[16] The standard errors (not reported) are consistent in the presence of any pattern of heteroskedasticity and autocorrelation within panels.

significant as well; thus, managers seem to prefer reducing debt when it is possible to use non-debt tax shields.[17] BRANCH and JUDCOST are both positive and not statistically significant.

Insert Table 3

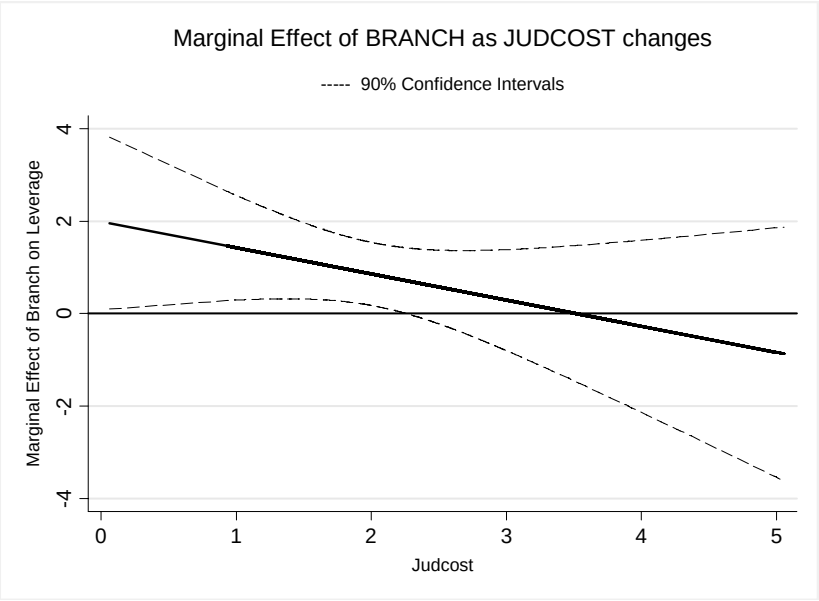
Column 2 of Table 3 reports the estimates of model (1). Specification tests and control variables' estimated coefficients are similar to those discussed for column 1. Looking at the individual sign and significance of our key variables, the BRANCH estimated parameter appears positive and significantly related to leverage. Given the presence of the interaction term, though, such a positive effect corresponds to the marginal effect of BRANCH only when the JUDCOST variable is equal to zero, which clearly does not represent a noteworthy case. The JUDCOST estimated coefficient is not statistically significant. Again, given the inclusion of the interaction term, this means that our legal enforcement indicator does not influence the dependent variable when the number of branches is zero, another meaningless case. The interaction term (BRANCH*JUDCOST) is not statistically significant. An F-test, however, supports the hypothesis of joint significance of BRANCH and its interaction term.[18] The negative sign of the latter indicates that, as expected, the positive BRANCH effect tends to decrease as JUDCOST raises. As mentioned in the previous section, however, these figures do not convey full information on the magnitude,

[17] For the sake of completeness, we also mention that the positive effect of TGASS supports the hypothesis that fixed assets, providing better collateral, can foster the future capability to repay and guarantee the loan. The positive sign of the TRADE variable indicates that trade debt may have a complementary effect to that of financial debt. Further, higher growth opportunities seem to be associated with a lower use of debt, possibly implying the usage of other forms of 'patient' funds. The industry dummies (PAV) coefficients, in all cases statistically significant, provide evidence of the existence of different financial behaviours across industries. Finally, the coefficient of the lagged dependent variable provides evidence that firms face relatively relevant transaction costs in the adjustment process to their optimal debt ratio.

[18] The divergence between individual and joint significance is usually interpreted as a symptom of multicollinearity (see Brambor et al. 2006 and Wooldridge 2003) induced by the inclusion of an interaction term. As Brambor et al. (2006) highlight, ''even if there really is high multicollinearity and this leads to large standard errors on the model parameters, it is important to remember that these standard errors are never in any sense *too* large… they are always the 'correct' standard errors. High multicollinearity simply means that there is not enough information in the data to estimate the model parameters accurately and the standard errors rightfully reflect this''.

sign and significance of the marginal effect of BRANCH (neither of JUDCOST). Since we are interested in appraising whether the BRANCH's effect on leverage is different in magnitude and significance according to the level of JUDCOST, we have to consider the estimated marginal impact of BRANCH and its confidence intervals for all JUDCOST values. Being the latter a continuous variable, it is useful to consider the following figure, which condenses the information needed.

Figure 1



91.1% of the observations

According to the above graph, the influence of financial development on the amount of SMEs' debt is indeed dependent on the judicial system efficiency. At low levels of judicial costs, the BRANCH estimated marginal effect is positive and statistically significant (the confidence band does not include the zero line). When such costs increase, the impact of BRANCH decreases, turning to be statistically not significant beyond a threshold value of about three. More than 91% of our sample observations fall within the significance region.

Summarizing, our evidence suggests that the degree of local financial development is a statistically significant determinant of SMEs' capital structure decisions, but its relevance decreases at higher level of local courts inefficiency.

6.1 Robustness Checks

We first check the sensitivity of our results to the specification adopted. Results do not substantially change neither when controlling for non-linearity of firms' size and age (i.e. the squares of SIZE_E and AGE are added to equation (1)), nor when including the (log of) provincial population. Findings are robust also when controlling for the local credit market size by using the (log of) deposits in the province. Besides, none of the added variables is statistically significant. These results are not reported to avoid cluttering, but they are available from the authors upon request.

Similarly, the outcome remains substantially unaltered both when we include in the equation (1) a dummy variable (GRUP) to control for firms membership[19] (see column 3 of Table 3), and when replace some controls with other ones. In column 4 of Table 3, firm's growth is measured in terms of number of employees (FGROW_E), rather than net sales (FGROW_S); in column 5, the number of firms' employees is replaced by the log of total assets per employer (SIZE_TA/E); in column 6 JUDCOST is replaced with JUDCOST2, the latter being the ratio of backlog of pending civil trials to incoming civil trials (first and second degree of judgment). [20]

Finally, we consider the disparity characterizing the two biggest macro-areas of the country. Indeed, the South of Italy has a poorer institutional environment, characterized by a less developed and efficient financial system, as well as by a lower quality of the enforcement system. To allow for different coefficients in the two mentioned macro-areas, we split the sample according to firms' geographical location (see columns 7 and 8 of Table 3). Not reported graphs (but available upon request) show that while in the northern regions the marginal impact of BRANCH is statistically significant for most observations,

[19] This dummy is 1 if firms belong to groups and zero otherwise.

[20] Moreover, to take into account that unobserved (or not easily measurable) factors reflecting provincial characteristics may imply some correlation among the error terms over time for firms belonging to the same area, we re-estimate our benchmark model by clustering the observations at province level. The results obtained from this estimation confirm our main conclusions, but we do not report them since the value of the Hansen test and that of the difference-in-Hansen do not appear reliable (both p-value are equal to one). Indeed, as Roodman (2009) points out, when clustering in *GMM-SYS* "the standard errors and specification tests reported […] are consistent only as the number of clusters grows large". Our clusters are 102 (missing firms from Enna, a Sicilian province).

for the southern ones BRANCH is not significant for any level of legal system efficiency. The latter result, though, has to be considered with caution, as – given the limited sub-sample size – the Hansen and difference in Hansen tests are weakened by the presence of many instruments.

7. Concluding remarks

The present study has analyzed the influence of institutional differences at the local level on Italian SMEs' capital structure choices, taking into account the interaction between local financial development and the effectiveness of the local enforcement system. Controlling for financial debt inertia, endogeneity problems and firms' heterogeneity, local financial development appears to exert a significant role in affecting SMEs' debt capacity, conditioned by the quality of the local enforcement system.

According to our main findings, corporate financial decisions seem to be not only the result of firm/ industry specific characteristics, but also a by-product of the institutional environment in which firms operate. Thus, despite the international process of capital markets integration, the local institutional context still seems to matter for Italian SMEs. In particular, higher levels of local financial development appear associated to easier access to external financial resources.

Further, a more efficient local judicial system appears to amplify the positive relationship between financial development and firms' capital structure, possibly as intermediaries may be more inclined to provide funds where the enforcement system enables a more effective credit protection. In other words, higher quality of the local enforcement system shows a relevant indirect effect on firm's financial decisions, allowing SMEs to obtain credit more easily. Where local enforcement system is more efficient, banks may be less frightened of firms exhibiting opportunistic behaviour; vice versa, if it is difficult to enforce loan covenants, bankers could prefer to provide less credit - being scared of ex-post opportunistic problems.

Broadly speaking, our study suggests that it may be relevant to jointly consider financial development and enforcement at local level as crucial determinants of SMEs' capital structure decisions. Thus, a policy implication of our results is the need to improve local financial development – while considering that the way financial system affects firms' decisions is qualified by the local courts' efficiency. Indeed, an

improvement in the local enforcement system can play an important role in creating the conditions for better relationships between firms and banks, reducing asymmetric information and agency problems, hence increasing credit availability for entrepreneurships.

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TABLE 1 - Description of variables used in the estimations

VARIABLE	DESCRIPTION
LEV	Financial debt (excluding trade debt) to (total financial debt plus equity)
BRANCH	Bank branches (*10000) to population
JUDCOST	Backlog of pending civil trials to incoming civil trials (first degree of judgement)
SIZE_E	Number of firm's employees
AGE	Current year minus firm's year of establishment
ROA	EBIT (earnings before income taxes) to total assets
NDTS	Depreciation of physical assets and intangible assets to total assets
TGASS	Property, plant, equipment and land to total assets
FGROW_S	Annual growth rate of firm's net sales
TRADE	Trade debt to total assets
PAV1	Dummy =1 if firms belong to the traditional sectors and zero otherwise
PAV2	Dummy =1 if firms belong to the scale sectors and zero otherwise
PAV3	Dummy =1 if firms belong to the specialized supplier sectors and zero otherwise
PAV4	Dummy =1 if firms belong to the science based sectors and zero otherwise
GDPPC	GDP per capita
BAD	Bad loans to total loans
SOUTH	Dummy =1 if firms belong to Southern regions and zero otherwise

All the variables are drawn from the 7th, 8th and 9th Capitalia's surveys (*Indagini sulle Imprese Manufatturiere)* with the exception of: *i)* BRANCH and BAD, computed on data coming from Bank of Italy and ISTAT databases; *ii)* JUDCOST and GDPPC drawn from ISTAT. BRANCH, GDPPC and BAD are measured at provincial level, while JUDCOST at judicial district level.

TABLE 2 - Summary statistics

Variable	Mean	Std. Dev.	Min	Max	Obs
LEV [a]	23.39	22.63	0	76.72	18,281
BRANCH	5.80	1.47	1.51	10.29	18,281
JUDCOST	2.10	0.57	0.06	5.05	18,280
SIZE_E [b]	47	44	5	250	18,281
AGE [b]	23	14	2	80	18,265
ROA [a]	7.19	6.32	-11.65	33.33	18,281
NDTS [a]	4.43	2.84	0.35	15.78	18,281
TGASS [a]	22.69	14.99	0.81	67.42	18,281
FGROW_S [a]	5.09	17.31	-36.67	82.91	13,614
TRADE [a]	19.99	16.74	0	68.41	18,281
PAV1	0.53	0.50	0	1	18,232
PAV2	0.19	0.39	0	1	18,232
PAV3	0.25	0.43	0	1	18,232
PAV4	0.04	0.19	0	1	18,232
GDPPC [c]	21.23	4.70	8.89	31.97	18,281
BAD [a]	6.14	5.42	1.44	45.25	18,244
SOUTH	0.14	0.35	0	1	18,281

[a] In percentage terms; [b] in units; [c] in thousands of Euro. The other variables are dummies. For the description of the variables see Table 1.

TABLE 3 - Estimation results. Dynamic panel-data estimation. One-step system GMM

	DEPENDENT VARIABLE (LEV)							
	Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**	**Column 6**	**Column 7**	**Column 8**
	Benchmark model (no interaction)	Benchmark model (with interaction)	Adding dummy GROUP	FGROW_E instead of FGROW_S	SIZE_TA/E instead of SIZE_E	JUDCOST_2 instead of JUDCOST	South=0	South=1
LEV_1	0.557	0.555	0.551	0.559	0.557	0.556	0.559	0.555
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
BRANCH	0.567	1.992	2.092	2.446	1.903	2.283	1.864	-0.146
	0.283	*0.087*	*0.070*	*0.039*	*0.074*	*0.064*	*0.198*	*0.963*
JUDCOST	0.235	3.263	3.679	4.955	3.243		3.402	0.791
	0.549	*0.263*	*0.204*	*0.102*	*0.215*		*0.444*	*0.833*
JUDCOST_2						4.027		
						0.185		
BRANCH*JUDCOST		-0.567	-0.642	-0.889	-0.557		-0.535	-0.195
		0.290	*0.228*	*0.110*	*0.246*		*0.467*	*0.869*
BRANCH*JUDCOST_2						-0.706		
						0.204		
SIZE_E	0.047	0.050	0.048	0.039		0.050	0.049	0.035
	0.000	*0.000*	*0.001*	*0.005*		*0.000*	*0.000*	*0.140*
SIZE_TA/E					5.077			
					0.000			
AGE	-0.210	-0.214	-0.118	0.045	0.070	-0.215	-0.343	1.217
	0.511	*0.509*	*0.727*	*0.892*	*0.811*	*0.507*	*0.325*	*0.094*
ROA	-0.276	-0.286	-0.296	-0.267	-0.227	-0.287	-0.287	-0.261
	0.001	*0.001*	*0.001*	*0.002*	*0.008*	*0.001*	*0.001*	*0.118*
CASHFLOW								
NDTS	-1.007	-1.150	-1.126	-1.034	-0.883	-1.157	-1.073	-1.711
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
TGASS	0.255	0.235	0.229	0.251	0.261	0.236	0.210	0.288
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
FGROW_S	-0.126	-0.140	-0.124		-0.097	-0.139	-0.141	-0.064
	0.000	*0.000*	*0.000*		*0.007*	*0.000*	*0.000*	*0.156*
FGROW_E				-0.098				
				0.114				
TRADE	0.317	0.315	0.309	0.317	0.313	0.315	0.309	0.260
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.004*
GROUP			0.779					
			0.498					
PAV2	-0.914	-0.717	-0.821	-0.997	-1.145	-0.710	-0.470	-1.541
	0.034	*0.098*	*0.061*	*0.021*	*0.011*	*0.101*	*0.307*	*0.198*
PAV3	-0.777	-0.815	-0.880	-0.752	-0.240	-0.801	-0.685	-2.187
	0.052	*0.042*	*0.030*	*0.064*	*0.548*	*0.046*	*0.102*	*0.063*
PAV4	1.750	1.890	1.813	1.940	2.151	1.902	2.380	-0.228
	0.032	*0.022*	*0.030*	*0.020*	*0.009*	*0.022*	*0.007*	*0.915*
GDPPC	-1.851	-3.218	-3.489	-3.579	-3.571	-3.246	-4.502	0.883
	0.300	*0.101*	*0.073*	*0.073*	*0.063*	*0.092*	*0.057*	*0.925*
BAD	-0.074	-0.135	-0.157	-0.207	-0.150	-0.143	-0.301	-0.274
	0.477	*0.289*	*0.213*	*0.117*	*0.217*	*0.253*	*0.210*	*0.088*
SOUTH	-0.059	0.175	0.023	-0.360	-0.728	0.089		
	0.968	*0.892*	*0.986*	*0.782*	*0.578*	*0.945*		

(continued)

TABLE 3 (*continued*) - Estimation results. Dynamic panel-data estimation. One-step system GMM

	DEPENDENT VARIABLE (LEV)							
	Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**	**Column 6**	**Column 7**	**Column 8**
	Benchmark model (no interaction)	Benchmark model (with interaction)	Adding dummy GROUP	FGROW_E instead of FGROW_S	SIZE_TA/E instead of SIZE_E	JUDCOST_2 instead of JUDCOST	South=0	South=1
N.obs	12,942	12,942	12,919	12,514	12,651	12,942	11,137	1,805
F-test (BRANCH, INT)		2.61	2.55	2.57	2.32	2.67	2.26	0.14
		0.074	*0.079*	*0.077*	*0.099*	*0.070*	*0.105*	*0.868*
F-test (BRANCH, JUDCOST, INT)		2.51	2.44	2.17	2.36	2.41	2.27	0.12
		0.057	*0.062*	*0.089*	*0.070*	*0.065*	*0.079*	*0.950*
Model-test	115.65	110.41	106.45	115.02	107.17	110.27	108.11	25.04
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
AB test (AR1)-FD	-12.63	-12.75	-12.64	-12.08	-12.75	-12.74	-13.11	-3.73
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
AB test (AR2)-FD	1.02	1.03	0.97	0.94	1.10	1.03	-0.61	2.72
	0.308	*0.303*	*0.333*	*0.345*	*0.271*	*0.304*	*0.544*	*0.007*
Hansen test	268.39	292.8	317.0	281.4	305.2	293.3	305.4	189.0
	0.167	*0.220*	*0.192*	*0.382*	*0.102*	*0.214*	*0.101*	*1.000*
Difference-in-Hansen tests of exogeneity of instrument subsets: GMM instruments for levels	59.61	67.72	74.52	66.02	93.58	67.84	70.46	48.90
	0.562	*0.521*	*0.364*	*0.579*	*0.026*	*0.517*	*0.429*	*0.968*

In Italics are reported the *p-values* of the tests. For the description of the variables included in the benchmark model (column 1) see Table 1. GROUP (in column 3) is a dummy variable which is one if a firm belong to a group and zero otherwise. FGROW_E (in column 4) is the annual growth rate of firm's employees. SIZE_TA/E (in column 5) is the ratio of total assets to the number of firm's employees. JUDCOST_2 (in column 6) is the ratio of backlog of pending civil trials to incoming civil trials (first and second degree of judgement). The variables SIZE_TA/E, AGE(+1) and GDPPC are in natural logarithms. Constant and time dummies included but not reported. AB test (AR1)-FD and AB test (AR2)-FD stand for Arellano-Bond test for AR in first differences and Arellano-Bond test for AR in second differences, respectively.