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Stakeholder Orientation and Capital Structure in the Social Care Sector

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Abstract

Nonprofit enterprises differ from for-profit firms at least along two dimensions: the stakeholder-oriented governance system and the nondistribution-of-profit constraint. In turn, these two dimensions can affect the firms' choice of capital structure. On these grounds, the paper investigates the role played by stakeholder orientation and nondistribution constraint in shaping capital structure differences between for-profits and nonprofits. We show that the stakeholder orientation positively affects firms' leverage, while the nondistribution constraint has a negative impact. We empirically investigate which effect dominates by studying the Italian social care sector, where for-profit and profit enterprises coexist and have similar market shares. The estimates of a partial adjustment dynamic model show that, ceteris paribus, the leverage of mature nonprofit enterprises is 8% to 14% lower than that of mature for-profit companies.

Keywords: capital structure; for-profit firms; non-profit enterprises; stakeholder orientation; nondistribution constraint; social care sector.

JEL Codes: G32, D21, D22, L33.

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1 Introduction

This paper studies whether and how the corporate capital structure differs between for-profit firms and nonprofit enterprises that belong to the same industry. There exist at least two aspects that differentiate for-profits from nonprofits and can crucially affect their capital structure. The first aspect is the stakeholder-oriented governance system of non-profit organizations, according to which the managerial objectives incorporate the welfare of stakeholders other than investors, encompassing employees, customers, suppliers, or the community. The second aspect is the nondistribution-of-profit constraint, which prevents any nonprofit institution from distributing net earnings to individuals who exercise control over it, such as members, officers, directors, or trustees.

To address our research question, the first part of the paper develops a theoretical framework where firms supply a service and maximize an objective function given by a combination between two different goals: profits, on one hand, and welfare of service recipients, on the other hand. The larger the weight firms put on the latter goal, the higher their orientation towards service recipients, referred to as stakeholder orientation. Firms can be either subject or not to a nondistribution constraint and partially rely on external funds to finance service provision; we define firms' leverage as the amount borrowed over the total investment in service provision.

We demonstrate that firms' leverage is positively affected by their stakeholder orientation and negatively by the nondistribution constraint. The intuition for the first result is as follows. More stakeholder-oriented firms reduce the price of service to make service recipients better off. This yields a twofold effect: profits shrink and so does the amount of firms' cash holding, on one hand; the cost of service provision augments due to larger demand, on the other hand. As a result, firms with higher stakeholder orientation have to rely increasingly on external funding: their leverage is larger. This finding suggests that, ceteris paribus, nonprofit enterprises, who care more about service recipients' welfare than for-profits, should exhibit a higher leverage.

The impact of the nondistribution constraint on the leverage is straightforward; by increasing the amount of firms' cash holding, such constraint reduce their need for external funding. This result implies that, ceteris paribus, nonprofit enterprises should exhibit a lower leverage because, unlike for-profits, they are subject to the nondistribution constraint.

The second part of the paper empirically investigates whether the positive effect of the stakeholder orientation on nonprofit enterprises' debt ratios prevails on the negative impact of the nondistribution constraint, or vice versa. To this aim, we rely on a longitudinal data set of balance sheets of 7,488 companies, mainly for-profit firms and social cooperatives, operating in the Italian care sector in the 2005 - 2013 period. This market is an interesting case study because it is one of the few industries where for-profits and nonprofit enterprises coexist, supplying comparable services and covering similar market shares. Moreover, the fact that both types of enterprises are subject to the same accounting and disclosure rules ensures the comparability of their financial statements. Our regression analysis shows that, *ceteris paribus*, the leverage of mature nonprofit enterprises is 8% to 14% lower than that of for-profit companies. Relying on our theoretical model, we explain this finding by arguing that the negative effect of the nondistribution constraint on leverage dominates the positive impact of the stakeholder orientation.

The analysis of capital structure differences between for-profits and nonprofits has been given little consideration in the corporate finance literature. This paper aims to fill the gap. To the best of our knowledge, the only paper that investigated a similar research question is Fedele and Miniaci (2010). The authors compare for-profit and nonprofit firms in terms of capital structure, by focusing on the intrinsically high commitment of nonprofit entrepreneurs, rather than on stakeholder orientation; their empirical findings are in line with those of the present paper.

Related literature. Our paper contributes to the economics and management literature on productive organizations that pursue more than the goal of profit maximization, such as publicly owned firms, nonprofit enterprises and social responsible firms. Studies on Corporate Social Responsibility (CSR) have recently become mainstream (e.g., Hillenbrand et al., 2013); CSR is a form of corporate self-regulation, according to which firms commit to a behavior that takes into account not only the shareholder interests, but also the utility of agents dealing with the firm (for a recent survey, see Kitzmüller and Shimshack, 2012). Relying on this very general definition, this vast literature adopts a somewhat common way to model the objective function of not only CSR firms, but also public firms and nonprofit enterprises: all these entities are assumed to maximize a combination of profits and stakeholders' welfare. For instance, Hediger (2010) model CSR as a trade-off between companies' financial contribution to their shareholders and their contribution to social welfare at large. Brekke et al. (2012) consider nonprofit firms which care about both profits and consumer welfare, whereas in Fedele and Depedri (2016) nonprofit firms are assumed to maximize consumer welfare subject to a break-even constraint. Herr (2011) focus on public hospitals, which maximize their own profits plus a fraction of their market share in order to increase patients' welfare. Finally, in Szymanska and Jegers (2016), the maximization problem of social enterprises consists of a mixture of the objectives of two groups of stakeholders: owners and managers. Our theoretical modelling of firms' stakeholder orientation is borrowed from the above works.

Our empirical exercise is related to the literature that studies how different forms of stakeholder orientation affects corporate finance. Verwijmeren and Derwall (2010) find that firms with leading track records in employee well-being significantly reduce their leverage. The intuition is that lower debt ratios reduce the probability of bankruptcy and, in turn, the loss of income and other non-monetary benefits incurred by employees. This result, in line with the stakeholder theory of capital structure (Titman, 1984), is also consistent with our empirical finding that nonprofits exhibit lower leverage than for-profits. Goss and Roberts (2011) show that US firms with social responsibility concerns bear a significantly higher cost of bank loans than more responsible firms. El Ghoul et al. (2011) find that firms with better CSR scores have access to cheaper equity financing. Finally, Lioui and Sharma (2012) highlight negative correlation between firms' environmental corporate social responsibility and their corporate financial performance, measured by ROA and Tobin's Q.

The remainder of the paper is organized as follows. In Section 2, the theoretical framework is laid out. In Section 3, we describe the Italian social care sector, the role played by for-profit companies and nonprofit institutions, and the sample used in the empirical analysis. In Section 4, the partial adjustment model used for the regression analysis is introduced and the results of our estimates are presented. Section 5 concludes. Mathematical proofs are in the appendix.

2 Theoretical Setup

Consider a market with a firm that supplies a social care service and many service recipients. The firm is active for two periods and obtains profits in each period. Without loss of generality, the firm is assumed to value profits in the first period as much as profits in the second period; in other words, the firm's discount factor is equal to 1.

Social care service recipients, referred to as patients, derive utility from service; for the sake of simplicity, they are supposed to maximize their instantaneous utility without caring about the future.

Patient. Patients are homogeneous in that they all are characterized by the same utility function; for this reason, we can focus our attention on a representative patient, without affecting the generality of our analysis. The patient's preferences are represented by a quasi-linear utility function, $U(q) + m$, where: q is the quantity of the social care service, whose quality level is fixed and contractible; $U(q)$ is the utility from the consumption of the service, with $U'(q) > 0 > U''(q)$; m is the amount of a numéraire good. We derive the individual demand for the social care service by solving the following standard problem: the patient chooses q and m to maximize utility subject to her/his budget constraint. In symbols,

$$\max_{q,m} U(q) + m, \qquad (1)$$
$$\text{s.t. } pq + m \leq I,$$

where p denotes the price per unit of service, I is the patient's income and the numéraire good price is normalized to one.[1] In Appendix A.1, we solve problem (1) to obtain the demand for the service, $q(p)$, as a decreasing function of price p, $q'(p) < 0$. The optimal level of the numéraire good m is given by $m^* = I - pq(p)$. Plugging $q(p)$ and m^* into the patient's utility function $U(q) + m$ yields the patient's indirect utility function

$$\phi(p) = U[q(p)] + I - pq(p).$$

The above function is shown to be decreasing in p: the patient is worse-off when faced with a higher price because she/he is forced to buy a lower quantity of service (or quality of service, in case the alternative interpretation described in Footnote 1 is considered). This standard result is key to the rest of the analysis.

Firm. As mentioned, the firm is active for two periods and does not discount future cash flows. In each period, the firm objective function is given by the following expression:

$$V(\alpha, q) = \alpha\phi(p) + (1 - \alpha)\Pi, \qquad (2)$$

where $\alpha \in [0, 1]$, referred to as the stakeholder orientation parameter, measures how much the firm weighs the indirect utility of its representative patient relative to its own profit Π. The higher α, the more patient-oriented the firm is.

In the first period, the firm profit function is

$$\Pi_1 = p_1 q(p_1) - cq(p_1), \qquad (3)$$

where $c > 0$ is the constant marginal cost of the social care service and $cq(p_1)$ is the first-period total cost of service incurred by the firm. The firm has no internal funds in the first period; accordingly, $cq(p_1)$ is financed through external funding. We suppose that the

[1] The following alternative interpretation is compatible with our framework: the representative patient buys only one unit of the social care service, whose quality is variable, rather than fixed, and contractible. In this case, q would denote the quality per unit of service and p the price per unit of quality, with the effect that pq would indicate the price per unit of service.

risk-free interest rate is zero and that lenders are competitive, so that they operate on a break-even basis by charging no markup on the loan. This implies that the amount to be repaid by the firm in the first period is simply $cq(p_1)$.

In the second period, the firm's cash flows are given by the first-period profit Π_1; the cost of the social care service, denoted by $cq(p_2)$, can now be financed through a fraction $\beta \in [0,1]$ of profit Π_1 and/or through external funding; accordingly, the size of external finance is $\max\{0, c_2 q(p_2) - \beta\Pi_1\}$; this also corresponds to the second-period amount to be repaid by the firm. In symbols, the firm second-period profit function is

$$\Pi_2 = \begin{cases} p_2 q(p_2) - cq(p_2) & \text{if} \quad cq(p_2) \leq \beta\Pi_1, \quad (a) \\ p_2 q(p_2) - [\beta\Pi_1 + (cq(p_2) - \beta\Pi_1)] & \text{if} \quad cq(p_2) > \beta\Pi_1. \quad (b) \end{cases} \tag{4}$$

Expression (4-a) denotes the case where the firm self finances the second-period cost of service, while (4-b) indicates the scenario where the firm relies both on own funds $\beta\Pi_1$ and on external funding $(cq(p_2) - \beta\Pi_1)$. We let the profit functions, Π_1 and Π_2, be strictly concave in the prices p_1 and p_2.

The firm solves the following two-period maximization problem: at the beginning of the first period, it chooses the first-period price p_1, the second-period price p_2 and the value β to maximize $\sum_{t=1}^{2} V(\alpha, q(p_t))$, $t \in \{1,2\}$, where $q(p_t)$ denotes the demand functions in the first and second period. Recalling that the firm objective function $V(\alpha, q(p_t))$ as in (2) is a convex combination of the patient's indirect utility and firm profit, we have

$$\begin{gathered} \max_{p_t,\beta} \sum_{t=1}^{2} [\alpha\phi(p_t) + (1-\alpha)\Pi_t], \\ \text{s.t. } \Pi_t \geq 0, \end{gathered} \tag{5}$$

where $\Pi_t \geq 0$ is the per-period break-even constraint. We solve problem (5) in the following lemma:

Lemma 1 *The firm selects the same optimal price in the two periods, $p_1^* = p_2^* = p^*$, with p^* decreasing in the stakeholder orientation parameter α. In symbols,*

$$p^* = \begin{cases} p^*(\alpha) > c & \textit{if} \quad \alpha \in \left[0, \frac{1}{2}\right], \\ c & \textit{if} \quad \alpha \in \left(\frac{1}{2}, 1\right], \end{cases}$$

with $\frac{\partial p^*(\alpha)}{\partial \alpha} < 0$. Moreover, the firm's optimal choice of β takes any value between 0 *and* 1.

Proof. In Appendix A.2. ■

By inspecting (5), one can check that the choice of p_1 influences only $V(\alpha, q(p_1))$ and has no effect on $V(\alpha, q(p_2))$; the same reasoning applies to p_2, mutatis mutandis. This means that the firm objective function has a stationary structure and explains why the same optimal price is selected over the two periods.

In addition, Lemma 1 states that the higher the firm stakeholder orientation α, the lower the optimal price p^*. This result is fairly intuitive. The patient's indirect utility $\phi(p)$ is negatively affected by p. If the firm cares increasingly about its representative patient, it will set a lower optimal price, therefore enabling the patient to be better-off by buying a larger quantity (or a higher quality) of the care service.

When α rises above $\frac{1}{2}$, the firm weights the patient's utility more than its own profits. In this scenario, the break-even constraint $\Pi_t \geq 0$ becomes binding and imposes the lower bound c on the price. This explains why $p^* = c$ if $\alpha \in \left[\frac{1}{2}, 1\right]$.

Finally, the optimal choice of β can take any value between 0 and 1; this stems from the assumption that lenders do not charge any markup on the loan, with the effect that the value of the second-period firm profit, Π_2, is unaffected by how the service provision costs are financed, (4-a) = (4-b).

To conclude this subsection, we plug p^* into (3) and (4) to get the per-period optimal profit, $\Pi_1^* = \Pi_2^* = \Pi^*$,

$$\Pi^* = \begin{cases} \Pi\left(p^*\left(\alpha\right)\right) > 0 & \text{if} \quad \alpha \in \left[0, \frac{1}{2}\right], \\ 0 & \text{if} \quad \alpha \in \left(\frac{1}{2}, 1\right]. \end{cases}$$

Note that profit $\Pi\left(p^*\left(\alpha\right)\right)$ is decreasing in $\alpha \in \left[0, \frac{1}{2}\right)$, i.e., a more patient-oriented firm selects a lower price that, in turn, reduces its profits.[2]

2.1 Leverage

The last step of our theoretical analysis focuses on the firm's choice of the optimal leverage. The optimal leverage, denoted by L^*, is defined as the ratio of total debt, $cq\left(p_1^*\right) + \max\left\{0, cq\left(p_2^*\right) - \beta\Pi_1^*\right\}$, to total investment, $cq\left(p_1^*\right) + cq\left(p_2^*\right)$. In symbols,

$$L^* = \frac{cq\left(p_1^*\right) + \max\left\{0, cq\left(p_2^*\right) - \beta\Pi_1^*\right\}}{cq\left(p_1^*\right) + cq\left(p_2^*\right)} \in \left[\frac{1}{2}, 1\right]. \tag{6}$$

Note that the size of L^* ranges from $\frac{1}{2}$, in case the second-period production costs $cq\left(p_2^*\right)$ are fully self-financed (hence the debt is 0), to 1, in case the firm entirely resorts to external lenders (hence the second-period debt is $cq\left(p_2^*\right)$).

We are interested in studying how the value of L^* is affected by α and β. To this aim, one should recall the result of Lemma 1: as the patient orientation parameter α rises, the optimal price selected by the firm in both periods decreases. In turn, a lower first-period price reduces the first-period profit: for any given β, there is a lower cash flow that can be used to finance the second-period production activity. At the same time, lower levels of

[2] This result derives from the three following considerations: (i) $p^*(0)$, i.e. the optimal price when $\alpha = 0$, is the unique profit-maximazing price; (ii) $p^*(\alpha)$ is negatively affected by α according to Lemma 1; (iii) $\Pi\left(p^*\left(\alpha\right)\right)$ is strictly concave in $p^*\left(\alpha\right)$.

p_1^* and p_2^* increase the cost of service over the two periods because the demand increases. These two mechanisms work in the same direction: as α rises, the firm second-period debt and the optimal leverage L^* increase.

The effect of β on L^* is straightforward. For any given α, an increase in the fraction β of the first-period profits invested in the second-period production activity reduces the firm second-period debt and, therefore, the optimal leverage L^*.

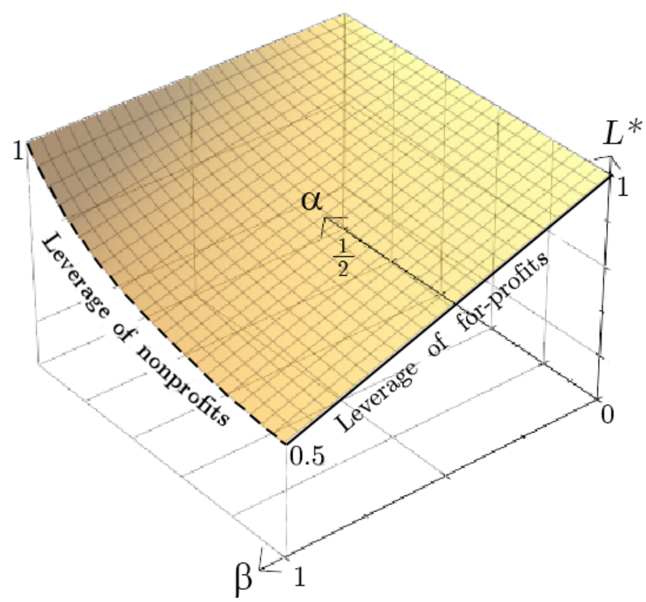
We summarize the above findings in the following

Proposition 1 *The firm optimal leverage L^* is weakly increasing in the stakeholder orientation parameter, α, and weakly decreasing in the fraction of first-period profits invested in the second-period production activity, β.*

Proof. In Appendix A.3. ■

We illustrate the results of Proposition 1 in Figure 1, where we plot the optimal leverage $L^* \in \left[\frac{1}{2}, 1\right]$ as a function of $\alpha \in \left[0, \frac{1}{2}\right]$ and $\beta \in [0, 1]$.[3] To this aim, we consider the linear demand function $q(p) = 1 - p$ and we let the marginal cost c be equal to $\frac{1}{3}$. Figure 1 confirms that L^* is increasing in α for any given $\beta \in (0, 1]$ and decreasing in β for any given $\alpha \in \left[0, \frac{1}{2}\right)$.

FIGURE 1. OPTIMAL LEVERAGE AS A FUNCTION OF α AND β



Proposition 1 helps address our research question as to how the stakeholder orientation, measured by α, and the fraction of profits invested in the second-period activity, measured

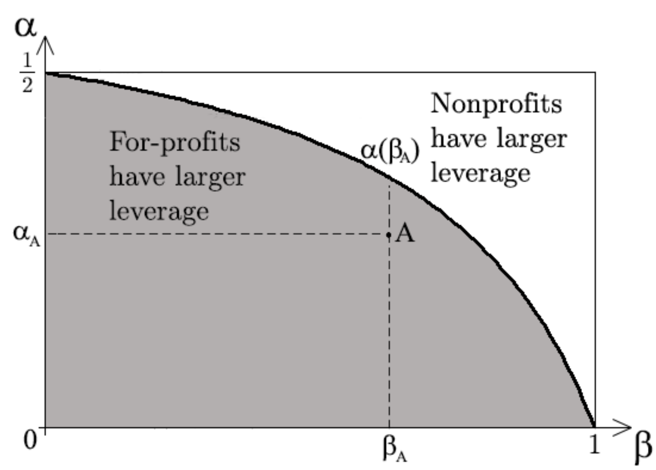
[3] We disregard the interval $\alpha \in \left(\frac{1}{2}, 1\right]$, where $\Pi^* = 0$, hence $L^* = 1$ for any β.

by β, affect the capital structure of nonprofits and for-profits and as to which of these two types of firm is expected to have higher or lower leverage.

Indeed, nonprofits care about patients' wellbeing by definition, i.e., they are characterized by a strictly positive parameter α; moreover, they are barred from distributing profits, i.e., their β is equal to 1. On the contrary, for-profits are by definition characterized by $\alpha = 0$ and are not barred from distributing profits to shareholders; this means that for-profits choose any $\beta \in [0, 1]$, as proved in Proposition 1. The dashed line in Figure 1 represents the optimal leverage of nonprofits; this line is drawn at $\beta = 1$, increases with α, and ranges from 0.5 to 1. The solid line represents the optimal leverage of for-profits; it is drawn at $\alpha = 0$, decreases with β, and ranges from 0.5 to 1.

With the aim of providing a clear-cut ranking between nonprofits and for-profits in terms of leverage level, in Appendix A.4 we plug $\alpha = 0$ ($\beta = 1$) into (6) to get the optimal leverage of for-profits (nonprofits), i.e., the equation for the solid (dashed) line in Figure 1. We then denote these two values by L^*_{FP} and L^*_{NP}, subscripts FP and NP standing for for-profits and nonprofits, and solve equation $L^*_{FP} = L^*_{NP}$ by α. The solution, $\alpha(\beta)$, denotes the value of α above (below) which nonprofits have higher (lower) leverage than for-profits for any given β chosen by the latter. In Figure 2, we rely on the linear example of Figure 1 (i.e., $q(p) = 1 - p$ and $c = \frac{1}{3}$) and plot $\alpha(\beta)$ in plane (β, α). Since $\alpha(\beta)$ is decreasing in β, for-profits turn out to have larger leverage than nonprofits in the shaded southwest portion of plane (β, α), e.g., at point A, where the stakeholder orientation of nonprofits, α_A, is relatively low given the fraction of first-period profits for-profits decide to invest in the second-period activity, β_A; in symbols, $\alpha_A < \alpha(\beta_A)$. The opposite occurs in the northeast portion of plane (β, α).

Figure 2. Nonprofits versus For-profits in Terms of Leverage



The paper proceeds with an empirical analysis of the Italian social care sector, where nonprofits and for-profits coexist. Our principal aim is to compare the leverage levels of the two types of firms. If nonprofits turn out to have lower (higher) leverage on average, we can rely on our theoretical framework to infer that, ceteris paribus, their patient orientation is relatively low (high) given the average value β chosen by for-profits. Put it differently, the positive impact of the stakeholder orientation on their average leverage is dominated by (dominates) the negative effect of the nondistribution constraint.

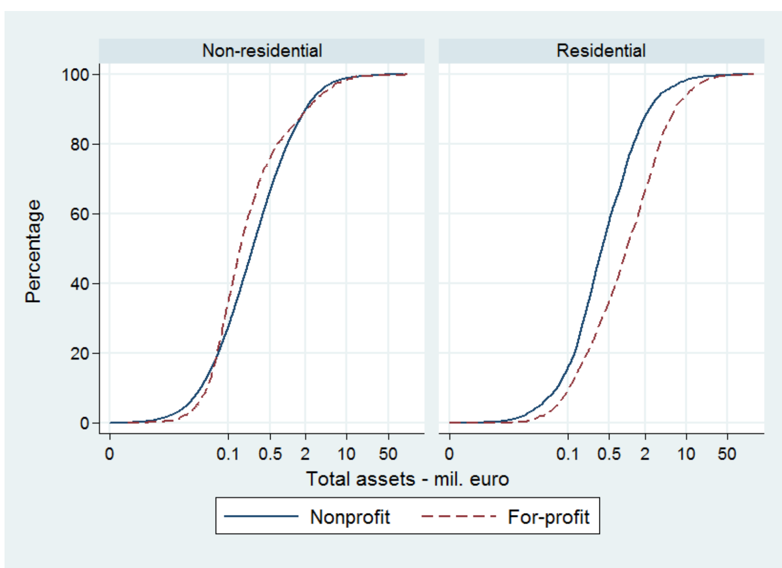
3 The Data

Our theoretical model predicts that the optimal leverage of stakeholder-oriented enterprises with $\alpha \in \left[0, \frac{1}{2}\right)$ (i.e., that weigh patients' welfare less than their own economic results) is strictly lower than 1; as a result, these nonprofit enterprises do not necessarily resort to debt more than their for-profit competitors. The empirical investigation can provide evidence about which of the two drivers prevails in real economies, either the pro-patient attitude or the nondistribution constraint. In order to be informative, the analysis needs to consider a market where both for-profit and stakeholder-oriented enterprises are present, where the two types of companies have same disclosure requirements, same (if any) quality requirements, and identical fiscal incentives to finance their activities with debt. This is indeed the case of the markets for residential care and non-residential social work activities in Italy; the last census of businesses and nonprofit organizations in 2011 counted 7,930 units of service provision managed by for-profit companies (employing about 56,800 people) and 35,991 managed by private nonprofit institutions (with an occupation of about 222,000, see www.istat.it); within the latter set, 8,343 units were managed by nonprofit enterprises, mainly social cooperatives, which employ about 166,000 workers. In terms of market shares, information are available for the residential care sector: in 2013, social cooperatives supplied 18.1% of the available beds, for-profit enterprises 23.3% and the remaining quota was split between public institutions (23.6%) and other nonprofit institutions (35%, half of which consisting in ecclesiastical entities, see www.istat.it). All service providers must comply with the same (regional) regulations about service standards, and all Italian corporations, regardless of their legal form and nonprofit orientation, have the same disclosure obligations and make their balance sheets publicly available. Finally, the Italian taxation system gives the same fiscal incentives to debt to all the businesses, therefore excluding the possibility of tax arbitrage phenomena, such as those studied in the United States (e.g. Gentry, 2002).

We use AIDA to carefully compare the financing choices of the companies that belong to the markets for residential care and the non-residential social work activities. AIDA is the Italian component of Amadeus, the database distributed by Bureau van Dijk, which is used in most of the empirical analysis on the capital structure of European firms (e.g., Huizinga, Laeven and Nicodeme, 2008). We have access to accounts, ratios and activities of virtually all the Italian corporations (more than 1,2 million) from 2005 to 2013. We consider firms whose activities are described by the ATECO 2007 (NACE Rev. 2) codes corresponding to the residential care activities and social work activities without accommodation; more precisely, firms operating nursing care activities, residential care activities for mental retardation, mental health and substance abuse, homes for the elderly and disabled, and those providing social assistance without accommodation. We found 7,488 companies with valid information in the 2005 - 2013 period. Among them, 6,061 are nonprofit organizations (mainly social cooperatives, and few social enterprises, foundations and associations), while 1,427 are for-profit companies. By their nature, nonprofit organizations are stakeholder-oriented, and in many cases representatives of service recipients have a formal and active role in the governance of the institutions. In order to precisely identify patient-oriented enterprises, we focused on social cooperatives and excluded other types of cooperatives: the latter are a hybrid case, in that they are run according to the mutual principle of cooperative organizations, but they are not necessarily oriented toward patients.

Figure 3: Distribution of total assets by activity and company type

(Empirical cumulative distribution functions computed using data for the 2005-2013 period at 2010 prices)



Companies are remarkably heterogeneous with respect to their size and ratios. Figure 3 shows the empirical cumulative distribution function of total assets by company type and activity (at 2010 prices). In the non-residential sector, nonprofit companies are larger than for profit ones: the median of total assets is 0.25 million euro for nonprofit companies and only 0.18 million euro for the for-profit ones. In the residential sector, the relative positions are inverted and the difference between company types are wider: as the graph shows, the for-profit companies' distribution of total assets strictly dominates the distribution of the nonprofit companies. We obtain similar evidence about the companies' size in terms of total revenues.

Table 1: Ratios by company type and activity, averages over the 2005-2013 period

	Non-residential		Residential	
	Nonprofit	For-profit	Nonprofit	For-profit
Leverage (Total debts/Total assets, %)	66.51	75.76	58.93	72.93
ROA (%)	-1.33	-2.00	0.99	4.88
Tangible/Total Assets (%)	13.26	22.11	18.00	33.03
Labour cost/Total production (%)	61.93	40.83	61.32	35.86
Operating grants/Total production (%)	3.38	2.36	1.96	0.71
Financial charges/Total Debt (%)	2.04	2.51	1.84	2.54
Years operating	14.09	9.11	13.30	13.02
Number of companies	4,804	534	1,257	893
Average number of years in sample	6.51	5.67	6.48	6.31
Number of observations	26,687	2,448	6,700	4,561

Table 1 provides first evidence that the capital structure of for-profit and nonprofit enterprises differs between them: on average, the leverage of for-profit companies (defined as the ratio between total debt and total assets) is remarkably higher than that of nonprofit enterprises. For-profit companies in the residential sector have a *Return on Assets* (ROA) index, defined as the ratio between profits gross of taxes and total assets, of 4.88%, five times as big as the profitability index of the nonprofit ones. In the non-residential sector, instead, the nonprofit companies have a higher, although negative, ROA than for-profit ones. The *Tangible Assets/Total Assets* ratio, which is a proxy of the amount of collateral the company can provide to lenders, is higher for for-profit companies. This gives for-profit companies an advantage in the credit market, which is somewhat counterbalanced by their higher *Financial charges/Total debt* ratio. The fact that in our sample the cost of debt is lower for nonprofit enterprises is in line with the findings of Goss and Roberts (2011), who show that socially responsible corporations enjoy cheaper bank debt. At the same time, El Ghoul et al. (2011) prove that also the cost of equity is substantially lower for companies with high CSR scores, which may neutralize their incentive to resort to debt.

Although the firms in our sample operate in the same sectors, their activities may substantially differ in a not directly observable way. Some difference may be captured by the incidence of the labour cost on the value of total production (*Labour costs/Total Production*). In Table 1, the mean of this ratio is remarkably higher for nonprofit organizations; this suggests that different types of firm supply heterogeneous services, with nonprofit companies specializing in more labour intensive activities. Similarly, the ratio between operating grants received by companies to run their activities, and the total value of the production (*Operating grants/Total production*) is higher for nonprofits; given that public authorities, private foundations, and donors pay operating grants to support the provision of universalistic assistance, the difference in the incidence of operating grants is consistent with the idea that nonprofit organizations meet the basic needs of the population rather than the demand of wealthier users.

In order to assess whether and how the stakeholder orientation and the nondistribution constraint affect the corporate capital structure of nonprofits and for-profits, we need to take into consideration the role of all the aforementioned differences. To this aim, in the next section we resort to a multiple regression analysis; this analysis exploits the longitudinal structure of our data to control for observable and unobservable characteristics that may make companies more or less debt prone.

4 Regression Analysis

We run a multiple regression analysis to asses whether nonprofit enterprises, on average and all other things being equal, use more or less debt than for-profit companies. In what follows, we assume that the theoretical optimal leverage ratio, L^*, is proxied by the *Total debt/Total assets* ratio; this implicitly implies that we consider the theoretical optimal investment amount, $cq\left(p_1^*\right) + cq\left(p_2^*\right)$, to be proxied by the stock of assets (either tangibles or not) of the company.

Our empirical strategy assumes that the observed level of leverage is the outcome of a partial adjustment toward a target ratio L^* that depends on firm characteristics, among which its patient orientation. We postulate the following model for the target (log)ratio and the adjustment process:

$$\left\{ \begin{array}{l} \ln L_{it}^* = z_i'\alpha + x_{it-1}'\beta + +T_t'\gamma + \varepsilon_i \\ \Delta \ln L_{it} = \lambda\left(\ln L_{it}^* - \ln L_{it-1}\right) + \rho \Delta \ln L_{it-1} + u_{it} \end{array} \right. \tag{7}$$

where: $\ln L$ is the logarithm of the leverage of firm i at time t; z_i is a set of time invariant company characteristics including dummies for company type, activity (residential vs non residential services) and years of operation less than 5; x_{it} includes total assets (in logs), the ratio of tangible to total assets, the incidence of the labour costs on production value, the incidence of operating grants on production value, and the ROA index; T_t identifies a full set of time dummies in order to take into account business cycle effects; ε_i is the unobservable time invariant company specific effect; finally, u_{it} is the idiosyncratic error term. The set of covariates included in x is consistent with most of the empirical corporate finance literature (for a survey, see Parsons and Titman, 2008); it aims at describing the determinants of both the target leverage and the deviations from the target, referred to as the first and second ingredients in Parsons and Titman (2008). The presence of the *Operating grants/Total production* ratio captures some of the peculiarities of the sector, as it is a potential key determinant of the nonprofit enterprises' capital structure (e.g. Bowman, 2002)

We adopt an adjustment equation which deviates from the standard practice (e.g. Flannery and Rangan, 2006). In fact, we consider the possibility that current changes in leverage, $\Delta \ln L_{it}$, may not only depend on the distance from the target value, $\ln L^*_{it} - \ln L_{it-1}$, but also on the adjustment already implemented, $\Delta \ln L_{it-1}$. On one hand, this extension helps to take into account the documented persistence of corporate capital structure (e.g. Lemmon et al., 2008); on the other hand, it ensures the correct specification of the model at the estimation stage.

By combining the two equations in (7), we obtain the following dynamic model,

$$\ln L_{it} = (1-\lambda)\ln L_{it-1} + \rho\Delta \ln L_{it-1} + z_i'\widetilde{\alpha} + x_{it-1}'\widetilde{\beta} + T_t'\widetilde{\gamma} + \widetilde{\varepsilon}_i + u_{it}, \tag{8}$$

where $\widetilde{\alpha}$, $\widetilde{\beta}$, $\widetilde{\gamma}$ and $\widetilde{\varepsilon}$ denote the corresponding elements in the target equation, i.e., the first equation in the system (7), multiplied by λ. Given the dynamic nature of the model under analysis, neither the ordinary least squares (OLS), nor the generalized least squares (GLS) provide consistent estimates of the parameters of interest. In fact, the past values of the balance sheet items are correlated with the unobservable time invariant characteristics of the firms, ε_i, and are potentially correlated with past idiosyncratic shocks, u_{it}. Given the limited amount of periods covered by our data, a fixed effect approach in not suitable either (for a review of the estimation issues in the context of corporate finance dynamic panel models, see Flannery and Hankins, 2013).

We opted to estimate the parameters of interest, using the Generalized Method of Moments (GMM), as suggested by Blundell and Bond (2000). The time variant covariates lagged at least twice are used as instruments for the first differenced equation, together with

T_t and all the time invariant variables in z_i. The latter, that we consider exogenous with respect to both error components, define the orthogonal conditions for the level equation. The Sargan test for the overidentifying restrictions and the Arellano-Bond test for zero autocorrelation in first-differenced errors never reject the hypothesis of correct specification. The restricted model with $\rho = 0$ fails to pass these tests of correct specification.

Table 2: GMM estimates. Dependent variable: $\log(leverage_{it})$

(The specification includes also year, regional and industry dummies. Standard errors are robust to heteroskedasticity.)

	Coefficient	Standard error	z	$Pr > \lvert z \rvert$
lnLeverage$_{t-1}$	0.2822	0.1055	2.68	0.007
ΔlnLeverage$_{t-1}$	-0.2683	0.0830	-3.23	0.001
For-profit companies	0.0792	0.0333	2.38	0.017
Less than 5 yrs	0.1473	0.0441	3.34	0.001
For-profit × Less than 5 yrs	-0.0721	0.0333	-2.16	0.030
Residential	-0.0485	0.0242	-2.00	0.045
For-profit × Residential	0.0597	0.0483	1.24	0.216
ln(Total Assets)$_{t-1}$	-0.0250	0.0329	-0.76	0.447
(Tangible/Total Assets)$_{t-1}$	0.2220	0.1331	1.67	0.095
ROA$_{t-1}$	-0.0026	0.0008	-3.22	0.001
(Labour cost/Total production)$_{t-1}$	-0.0700	0.0421	-1.66	0.097
(Operating grants/Total production)$_{t-1}$	0.0770	0.1549	0.50	0.619

Table 2 shows the estimated parameters of equation (8). The speed of adjustment toward the target value is estimated to be equal to $\widehat{\lambda} = 1 - 0.28 = 0.72$, a relatively high value if compared with the literature referring to leverage ratios based on market values, but consistent with the results shown in Huang and Ritter (2009) for book leverage ratios and short panels. The past changes of the ratio negatively (and significantly) affect the current leverage ($\widehat{\rho} = -0.27$). The leverage decreases when the companies become more profitable, as the estimated parameter for ROA_{t-1} is negative and significantly different from zero, although with limited economic relevance: one percentage point more of ROA is associated with a decrease of 0.26% of the leverage, which at the mean leverage level of 65.5% corresponds to 0.17 percentage points. The elasticity of L_t to total assets ($\partial \ln L_t / \partial \ln TotalAssets_{t-1}$) is not significantly different from zero, suggesting that the size of these companies does not play a key role in affecting their capital structure. The asset tangibility, measured by the $Tangible/TotalAssets$ ratio, is marginally significant, which signals that the ability to put up a collateral can facilitate access to the credit market. The incidence of labour costs on the value of the production reduces the indebtedness of the business, while the fraction of production supported by operating grant does not affect the capital structure of the companies.

Even after controlling for the previous observable characteristics, the for-profit corporations proved to have a leverage higher than nonprofit enterprises. In particular, we can compare the two types of company across sectors and years of operation. Leverage of for-profit companies which have been operating in the non residential sector for more than 5 years is 7.9% higher than that of similar nonprofit companies; the gap is almost doubled (13.9% = 7.92% + 5.97%) for experienced companies in the residential care sector. The difference is instead reduced, and not statistically different from zero, between start up companies, whose debt ratios are remarkably higher than those of mature rivals.

Our theoretical framework provides a possible explanation for the fact that mature for-profits exhibit higher indebtedness than nonprofits. Nonprofit enterprises supply more or better services because of their stronger orientation towards patients' welfare. The resulting increase in the service provision costs force cash-constrained firms to increase borrowing. At the same time, nonprofit organizations have to comply with the nondistribution constraint: this increases the fraction of own capital on total investment and negatively affects leverage. In the light of the theoretical predictions, our empirical findings suggest that the similar capital structure of start-up companies, both for-profits and nonprofits, is driven by their typical cash constraints. On the contrary, the stock of nondistributed profits of nonprofit enterprises determines lower debt ratios. All in all, we can conjecture that for mature nonprofit enterprises the negative effect of the nondistribution constraint on leverage outdoes the positive one due to their stakeholder orientation.

5 Conclusion

In this paper, we investigated capital structure of for-profits and nonprofits in the Italian social care sector. We focused our attention on two key aspects that differentiate non-profits from for-profits, that is, the nondistribution constraint and the stakeholder-oriented governance system. We developed a theoretical model and showed that the nondistribution constraint negatively affects firms' leverage, whilst the stakeholder orientation has a positive effect. We then analyzed a longitudinal data set of balance sheets of 7,488 companies operating in the care sector in Italy in the 2005 - 2013 period. We found that, once controlled for observable characteristics, the leverage of mature for-profit companies is 8% higher in the non-residential social care sector and 14% higher in the residential social care sector than that of nonprofit enterprises. Finally, we explained this finding by conjecturing that the effect of the nondistribution constraint prevails over the effect of stakeholder orientation.

A Appendix

A.1 Patient Problem

The Lagrangean of problem (1) is $U(q) + m - \lambda(pq + m - I)$; the system of first order conditions (FOCs) is

$$\begin{cases} \frac{\partial}{\partial q} = 0 \Rightarrow U'(q) - \lambda p = 0, \\ \frac{\partial}{\partial m} = 0 \Rightarrow 1 - \lambda = 0, \\ \frac{\partial}{\partial \lambda} = 0 \Rightarrow pq + m - I = 0. \end{cases}$$

The third equality can be rewritten as $m = I - pq$. Plugging the second equality into the first one yields $U'(q) - p = 0$; the solution to this equation is denoted by $q(p)$. Applying the implicit function theorem to $U'(q) - p = 0$ yields

$$\frac{\partial q(p)}{\partial p} = \frac{1}{U''(q)} < 0.$$

Applying the envelope theorem to the indirect utility function $\phi(p) = U[q(p)] + I - pq(p)$ yields

$$\frac{\partial \phi(p)}{\partial p} = -q(p) < 0.$$

A.2 Proof of Lemma 1

We solve problem (5) as an unconstrained maximization problem and investigate ex-post the role played by the break-even constraints $\Pi_t \geq 0$. The objective function is stationary; this enables us to anticipate that $p_1 = p_2 = p_t$ at the optimum; we thus differentiate the per-period objective function

$$V(\alpha, q(p_t)) = \alpha\{\phi(p_t)\} + (1-\alpha)[(p_t - c)q(p_t)]$$

wrt p_t. The FOC is

$$\frac{\partial V(\alpha, p_t)}{\partial p_t} = 0 \Rightarrow \alpha[-q(p_t)] + (1-\alpha)[q(p_t) + p_t q'(p_t) - cq'(p_t)] = 0. \tag{9}$$

Rearranging (9) yields

$$p_t = -\frac{q(p_t)}{q'(p_t)} \frac{1-2\alpha}{1-\alpha} + c. \tag{10}$$

Focus on the RHS of (10): $-\frac{q(p_t)}{q'(p_t)}$ is positive for any p_t, $\frac{1-2\alpha}{1-\alpha}$ is decreasing in $\alpha \in [0,1)$, nonnegative in $\alpha \in \left[0, \frac{1}{2}\right]$ and negative in $\alpha \in \left(\frac{1}{2}, 1\right]$. Overall, the RHS decreases with α, hence equation (10) denotes a negative relationship between the optimal price p^* that solves (10) and the stakeholder orientation parameter α. More precisely, $-\frac{q(p)}{q'(p)} \frac{1-2\alpha}{1-\alpha}$ is: (i) strictly higher than zero in $\alpha \in \left[0, \frac{1}{2}\right)$, in which case $p^*(\alpha) > c$; (ii) equal to zero if $\alpha = \frac{1}{2}$, in which case $p^*\left(\frac{1}{2}\right) = c$; (iii) strictly lower than zero in $\alpha \in \left(\frac{1}{2}, 1\right]$, in which case $p^*(\alpha) < c$. This last solution is not admissible because it violates the firm break-even constraints, $\Pi_t \geq 0$. The result in the text follows.

A.3 Proof of Proposition 1

Taking into account that $p_1^* = p_2^* = p^*$, (6) can be rearranged as

$$L^* = \frac{cq\left(p^*\right) + \max\left\{0, cq\left(p^*\right) - \beta\Pi^*\right\}}{2cq\left(p^*\right)}.$$

This expression can take three alternative values.

(i) When $\beta\Pi^* = 0$, the size of the second-period debt is $cq\left(p^*\right)$, hence the optimal leverage is at its maximum, $L^* = 1$. This occurs, in turn, in two cases: when $\alpha \in \left[\frac{1}{2}, 1\right] \Rightarrow \Pi^* = 0$, i.e., when the firm's stakeholder orientation is so high, $\alpha \in \left[\frac{1}{2}, 1\right]$, that its first-period profits are zero and/or and/or when $\beta = 0$, i.e., when the firm decides to invest no first-period profits in the second-period production activity.

(ii) When $\beta\Pi_1^* \geq cq\left(p_2^*\right)$, the size of the second-period debt is 0, hence the optimal leverage is at its minimum, $L^* = \frac{1}{2}$. This can occur, in turn, when α is close to zero (hence the second-period costs $cq\left(p_2^*\right)$ are relatively small and the first-period profits Π^* are relatively large) and/or β is close to one (hence a consistent portion of Π^* finances the second-period production activity).

(iii) For all other values of α and β, $\beta\Pi^* \in \left(0, cq\left(p^*\right)\right)$ and the size of the second-period debt is $cq\left(p^*\right) - \beta\Pi^*$; the resulting optimal leverage is

$$L^*\left(\alpha, \beta\right) = 1 - \frac{\beta\Pi^*}{2cq\left(p^*\right)} \in \left(\frac{1}{2}, 1\right).$$

For any given $\beta \in (0, 1]$, $L^*\left(\alpha, \beta\right)$ increases with $\alpha \in \left[0, \frac{1}{2}\right)$. Indeed,

$$\frac{\partial L^*\left(\alpha, \beta\right)}{\partial \alpha} = -\beta \frac{\underbrace{\frac{\partial \Pi^*}{\partial \alpha}}_{<0} \times \underbrace{2cq\left(p^*\right)}_{>0} - \underbrace{\Pi^*}_{>0} \times \underbrace{2c\frac{\partial q\left(p^*\right)}{\partial p^*}\frac{\partial p^*}{\partial \alpha^*}}_{>0}}{\left[2cq\left(p^*\right)\right]^2}.$$

The numerator of the above expression is negative because it is given by the difference between a negative term and positive one. Accordingly, the whole fraction is positive. By contrast, for any given $\alpha \in \left[0, \frac{1}{2}\right)$, the effect of $\beta \in (0, 1]$ on $L^*\left(\alpha, \beta\right)$ is negative:

$$\frac{\partial L^*\left(\alpha, \beta\right)}{\partial \beta} = -\frac{\Pi^*}{2cq\left(p^*\right)} < 0.$$

The results in the text follow.

A.4 Figure 2: computations

Plugging $\alpha = 0$ into (6) yields the optimal leverage of a for-profit firm,

$$L_{FP}^* = \frac{cq\left(p^*\left(0\right)\right) + \max\left\{0, cq\left(p^*\left(0\right)\right) - \beta\Pi^*\left(0\right)\right\}}{2cq\left(p^*\left(0\right)\right)}.$$

The above function is continuous and decreasing in β, ranges from $\max\left\{\frac{1}{2}, 1 - \frac{\Pi^*(0)}{2cq(p^*(0))}\right\}$ at $\beta = 1$ to 1 at $\beta = 0$.

Plugging $\beta = 1$ into (6) yields the optimal leverage of a nonprofit firm,

$$L_{NP}^{*} = \frac{cq\left(p^{*}\left(\alpha\right)\right) + \max\left\{0, cq\left(p^{*}\left(\alpha\right)\right) - \Pi^{*}\left(\alpha\right)\right\}}{2cq\left(p^{*}\left(\alpha\right)\right)},$$

which is continuous and increasing in α, ranges from $\max\left\{\frac{1}{2}, 1 - \frac{\Pi^{*}(0)}{2cq(p^{*}(0))}\right\}$ at $\alpha = 0$ to 1 at $\alpha \in \left[\frac{1}{2}, 1\right]$.

Suppose that $\max\left\{\frac{1}{2}, 1 - \frac{\Pi^{*}(0)}{2cq(p^{*}(0))}\right\} = 1 - \frac{\Pi^{*}(0)}{2cq(p^{*}(0))} \Leftrightarrow$

$$c \geq \frac{\Pi^{*}\left(0\right)}{q\left(p^{*}\left(0\right)\right)}. \tag{11}$$

In this case, solving $L_{FP}^{*} = L_{NP}^{*}$ by α yields a unique solution.

At the opposite, when c tends to zero, L_{FP}^{*} and L_{NP}^{*} are equal to $\frac{1}{2}$ in most of their domains. In this case, one can prove that there exists a level of c below which $L_{FP}^{*} = L_{NP}^{*} = \frac{1}{2}$ is fulfilled for a continuum of solutions.

Overall, expression $a\left(\beta\right)$ in Figure 2 is computed under the assumption that (11) holds true. In particular, plugging $q\left(p\right) = 1 - p$ into (11) yields $c \geq \frac{1}{3}$. We let $c = \frac{1}{3}$, plug $q\left(p\right) = 1 - p$ and $c = \frac{1}{3}$ into L_{FP}^{*} and L_{NP}^{*} and then solve $L_{FP}^{*} = L_{NP}^{*}$ by α; we find $\alpha\left(\beta\right) = \frac{2-2\beta}{4-3\beta}$.

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