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### How Costly is Social Screening? Evidence from the Banking Industry

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#### Abstract

Social banks screen loan applicants by using both social and financial criteria, and social screening implies an extra workload. To check the costs involved in this type of screening we use balance-sheet information on European banks, and compare the operating costs of social banks with those of other banks. Surprisingly, our first results suggest that social banks' costs are not significantly higher than those of their mainstream counterparts. Next, we uncover that the extra costs of social screening are offset by a cheaper workforce. Despite their need for specific screening, social banks are financially sustainable in a market dominated by for-profit institutions.

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## 1. Introduction

Nonprofit and hybrid organizations are accountable to their stakeholders (Tacon *et al.* 2017). They need to demonstrate that they efficiently spend the funds earmarked for carrying out their social mission, which could be jeopardized by high costs (Reichert 2018). Yet, little is known about the costs of assessing the social orientation of projects. This paper addresses the issue through the lens of social banks, which carry out social screening of loan applications (Cornée and Szafarz 2014, Cornée *et al.* 2018). Using balance-sheet information, we compare the operating costs of social banks with those of their mainstream counterparts.

Social banks—sometimes called “ethical” or “alternative” banks—are value-based financial intermediaries that prioritize social goals over financial returns, and fund community-oriented projects and social enterprises.<sup>1</sup> They signal their social commitment in three ways. First, they keep their operations as transparent as possible by favoring direct intermediation and refraining from sophisticated speculative transactions (Cornée *et al.* 2016). Second, they operate under rules of stakeholder governance (Becchetti *et al.* 2011, San-Jose *et al.* 2011). Third, they assess the social orientation of loan applications by conducting specific screening, which implies the time-consuming task of gathering “soft information” about applicants, their values and business practices (Willis 2003).

Since social banks conduct dual screening of social and financial characteristics, their operating costs could be expected to exceed those of mainstream banks, which screen borrowers solely on a financial basis. Yet, social banks themselves are social enterprises whose value-laden orientation can attract a cheaper and better motivated workforce (Mason 2013). As Ellingsen and Johannesson (2007) put it: “idealistic workers appreciate the respect of an idealistic employer” (p. 135). Evidence indicates that nonprofits pay below-market wages to their employees, who tend to value non-monetary (or “warm glow”) compensation (Andreoni 1990, Benz 2005). In the extreme case, volunteers work for a zero wage because they are motivated by the organization’s social orientation (Menchik and Weisbrod 1987, Freeman 1997, Meier and Stutzer 2008).<sup>2</sup> This, in turn, would make these institutions’ operations more cost-efficient than those of mainstream banks. Our paper assesses the resulting trade-off between the extra cost due to social screening and the wage reduction associated with staff motivation.

## 2. Data and Methods

Based on the Bankscope database provided by Bureau van Dijk, our sample is made up of the unconsolidated balance-sheet information of 5,448 banks located in Western European countries where social banks are active, over the 1998-2013 period.<sup>3</sup> As screening costs cannot be isolated from other operating costs, we use two proxies: the cost-to-income ratio (*CIR*, operating costs to operating income) and overhead (operating costs to total assets). Both are standard indicators for cost efficiency in banking analysis (Weill 2004, Beck *et al.* 2013). We interpret higher values of any of these proxies in social banks as evidence of costly social screening. To check whether lending in social banks is more labor-intensive, we use two labor-

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<sup>1</sup> Albeit niche institutions, social banks have grown considerably in the last two decades, especially in Europe (Benedikter 2011). They make a difference in the banking sector (Barigozzi and Tedeschi 2015).

<sup>2</sup> Lovera (2015) shows that social banks do indeed attract volunteers. In a lab experiment setting, Cornée *et al.* (2012) show that social bankers exhibit stronger social preferences than do their mainstream counterparts.

<sup>3</sup> Our sample comprises 11 European countries: Denmark, France, Germany, Great Britain, Italy, Malta, Norway, Spain, Sweden, and Switzerland (see also Cornée *et al.* 2016).

related cost measures: number of employees and personnel expenses, both scaled by total assets. Higher values for both metrics in social banks relative to other banks would indicate that social screening necessitates more staff and incurs higher personnel expenses. However, the equivalence of more staff and higher personnel expenses across two groups of banks holds only if wage costs are similar. For this reason, we also scrutinize the wage differential between social and conventional banks.

**Table 1: Definition of Variables**

<i>DEPENDENT VARIABLES</i>	
<i>Cost efficiency measures</i>	
CIR (%)	Cost-to-income ratio (=operating costs / operating income)
Overhead (%)	Operating costs / total assets
<i>Labor-related cost measures</i>	
Employees to assets	Number of employees / total assets
Personnel expenses to assets	Personnel expenses / total assets
<i>INDEPENDENT VARIABLES</i>	
<i>Bank-specific variables</i>	
Social bank	Dummy=1 if the bank is a social bank
Stakeholder bank	Dummy=1 if the bank is a cooperative or savings bank
Bank size	Log of assets
Loans (%)	Asset composition: Loans / total assets
Fixed assets (%)	Opportunity cost for non-earning assets: Fixed assets / total assets
<i>Macroeconomic variables</i>	
HHI	Herfindahl-Hirschman index for assets
Interbank rate (%)	Overnight interbank rate
Inflation (%)	Inflation rate
GDP growth (%)	Growth rate of gross domestic product

Our regression analysis replicates the empirical strategy used by Beck *et al.* (2013) to compare the cost performance of Islamic and conventional banks. We estimate four cost-related models with the following structure:

$$\Psi_{ijt} = \alpha + \beta \text{Social}_i + \varphi X_{ijt} + \vartheta M_{jt} + \mu C_j + \gamma Y_t + \varepsilon_{i,t} \quad (1)$$

where  $\Psi_{ijt}$  is the value taken by our cost-related dependent variable for bank  $i$  in country  $j$  in year  $t$ . Our independent variable of interest is a dummy variable:  $\text{Social}_i$  takes value 1 if bank  $i$  is social, and 0 otherwise. The control variables in vector  $X$  are chosen in line with the banking literature. They include an array of time-variant bank characteristics that could muddy the relationship between bank type (social or not) and screening costs. First, we account for the ownership structure using a dummy variable for stakeholder banks—i.e. cooperative and savings banks. The empirical literature points out that stakeholder banks are often more cost-efficient than shareholder banks (Altunbas *et al.* 2001, Ferri *et al.* 2015).<sup>4</sup> Second, we use the log of assets to control for bank size. The theoretical literature suggests that scale economies

<sup>4</sup> Beyond cost efficiency, the distinctive features of stakeholder banks include: relying on basic, relationship-based intermediation, restricted trading of shares, and other objectives besides profit maximization (Iannotta *et al.* 2007, Ferri *et al.* 2014).

are easier to achieve in larger banks, while the empirical literature is mixed on this issue (Bertay *et al.* 2013). Third, the bank's business orientation is captured by its asset composition, proxied by the loan-to-asset ratio (in short, *Loans*). Previous research shows that a business orientation affects bank performance (Claessens *et al.* 2001, Demirgüç-Kunt and Huizinga 2010). Last, the ratio of fixed-to-total assets controls for the opportunity costs associated with non-earning assets (Bertay *et al.* 2013). Eq. (1) comprises country-fixed effects  $C$ , year-fixed effects  $Y$ , as well as macroeconomic characteristics  $M$ , namely the Herfindahl-Hirschman market concentration index (HHI), the inflation rate, the overnight interbank interest rate, and GDP growth rate.

Table 2 reports summary statistics for social banks and conventional banks separately.<sup>5</sup> The values taken by *CIR* are similar for social banks and conventional banks but, surprisingly, t-tests for equal means show that three cost-related indicators (*Overhead*, *Employees to assets*, and *Personnel expenses to assets*) exhibit lower values for social banks. The regression analysis will reveal whether controlling for bank characteristics and macro conditions affects these exploratory outcomes.

**Table 2: Summary Statistics**

Variables	Social banks (SBs)	Conventional banks (CBs)	T-test for equal means
CIR (%)	69.53 (18.11), [N=283]	68.35 (13.29), [N=45,669]	-1.47
Overhead	1.96 (1.23), [N=233]	2.34 (1.22), [N=40,291]	4.79***
Employees to assets	0.17 (0.10), [N=248]	0.23 (0.11), [N=38,026]	8.23***
Personnel expenses to assets	10.71 (5.88), [N=269]	13.40 (6.47), [N=45,098]	6.80***
Stakeholder bank	0.61 (0.48), [N=457]	0.75 (0.72), [N=86,172]	7.01***
Bank size	6.15 (5.93) [N=307]	6.38 (1.178), [N=56,612]	2.20**
Loans (%)	54.48 (21.40), [N=296]	61.15 (19.64), [N=47,307]	5.81***
Fixed assets (%)	1.04 (0.90), [N=268]	1.33 (0.86), [N=46,033]	5.34***
HHI	0.17 (0.10), [N=457]	0.12 (0.10), [N=86,172]	-11.33***
Interbank rate (%)	2.40 (1.75), [N=457]	2.17 (1.58), [N=86,172]	-3.01**
Inflation (%)	1.89 (0.92), [N=457]	1.64 (0.85), [N=86,172]	-6.15***
GDP growth (%)	1.48 (2.19), [N=457]	1.34 (2.20), [N=86,172]	-1.30

Note: Standard errors are in parentheses. Number N of point-observations is in brackets. \*\*\*:  $p < 0.01$ , \*\*:  $p < 0.05$ , \*:  $p < 0.1$ .

The relevance of unconsolidated data for comparability purposes is attested by similar means of total assets (in log) obtained for the two groups of banks. Meanwhile, significant differences in means confirm the need to include the other controls in the regressions.

### 3. Regression Results

Table 3 examines whether social banks, which undertake dual screening, have higher costs than other banks. In line with the descriptive statistics, the regressions explaining the cost-to-income ratio, and featured in columns (1)-(3), fail to deliver significant coefficients for the social-bank dummy. By contrast, the coefficient of the stakeholder-bank dummy is significant, confirming that cooperative and savings banks have lower costs (Weill 2004). Table 2 reports that there are

<sup>5</sup> To prevent our results from being contaminated by outliers, we drop the 1<sup>st</sup> and 99<sup>th</sup> percentiles for all variables except *Bank size* and the macroeconomic variables (Ferri *et al.* 2014).

proportionally more stakeholder banks among non-social banks than among social ones,<sup>6</sup> which rules out the possibility that our regression results are distorted by overlap between stakeholder banks and social banks. Likewise, the overhead regressions in columns (4)-(6) detect no extra costs associated with social screening.

**Table 3: Operating Cost Regressions**

VARIABLES	CIR			Overhead		
	(1)	(2)	(3)	(4)	(5)	(6)
Social bank	3.92 (2.963)	3.56 (2.891)	3.46 (2.912)	-0.27 (0.220)	-0.38 (0.271)	-0.38 (0.270)
Stakeholder bank		-2.31*** (0.617)	-2.42*** (0.620)		-1.00*** (0.071)	-1.00*** (0.071)
Bank size		-1.32*** (0.102)	-1.35*** (0.103)		-0.23*** (0.010)	-0.22*** (0.010)
Loans		-0.08*** (0.011)	-0.08*** (0.011)		-0.01*** (0.001)	-0.01*** (0.001)
Fixed assets		3.12*** (0.165)	3.09*** (0.164)		0.30*** (0.020)	0.30*** (0.020)
Constant	55.47*** (3.588)	57.88*** (4.805)	61.52*** (5.224)	1.36*** (0.155)	3.12*** (0.339)	3.15*** (0.382)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Macro variables <sup>a</sup>	No	No	Yes	No	No	Yes
Observations	45,952	44,803	44,803	40,524	39,547	39,547
R-squared	0.07	0.15	0.16	0.08	0.32	0.32
Adj. R-squared	0.07	0.15	0.16	0.08	0.32	0.32

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors (in parentheses) are heteroscedasticity and cluster robust.

<sup>a</sup>The macro variables include: HHI, interbank rate, inflation, and GDP growth.

In all the estimations, the loadings of the controls are in line with those found by Beck *et al.* (2013), which adds relevance to our empirical design. Overall, Table 3 suggests that social screening is neutral from an operating cost standpoint. If so, how do social banks manage to run dual screening at no extra cost? Table 4 addresses this question by scrutinizing labor costs, since personnel expenses represent the lion's share of operating costs in banking

Table 4 reports the outcomes of regressions explaining *Employees to assets* and *Personnel expenses to assets* in columns (1)-(3) and (4)-(6), respectively. The left side shows that the number of employees per asset unit is not significantly different in social banks and other banks, which is puzzling since social banks rely on relational, labor-intensive technologies (Cornée 2017). Activity-specific workloads help rationalize the findings. Social banks have fewer intermediation activities on the lending side of the balance sheet (proxied by *Loans* in Table 4), and intermediation activities are typically more labor-intensive than market activities and investment (De Young *et al.* 2008). The non-intermediation activities of social banks are also purposefully simple and transparent, in line with their foundational principles (Cornée *et al.* 2016).

<sup>6</sup> Using unconsolidated data magnifies the number of stakeholder banks among conventional banks (Cornée *et al.* 2017), since many cooperative banks are structured as networks of small and legally separate entities.

**Table 4: Labor-Related Cost Regressions**

VARIABLES	Employees to assets			Personnel expenses to assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Social bank	-0.02 (0.020)	-0.03 (0.018)	-0.03 (0.018)	-2.06* (1.056)	-2.78** (1.368)	-2.76** (1.364)
Stakeholder bank		-0.02*** (0.005)	-0.01*** (0.005)		-4.82*** (0.364)	-4.79*** (0.364)
Bank size		-0.02*** (0.001)	-0.02*** (0.001)		-1.28*** (0.050)	-1.27*** (0.050)
Loans		-0.0003*** (0.0001)	-0.0002*** (0.0001)		-0.04*** (0.006)	-0.04*** (0.006)
Fixed assets		0.03*** (0.002)	0.03*** (0.002)		1.65*** (0.102)	1.65*** (0.102)
Constant	0.13*** (0.013)	0.38*** (0.055)	0.36*** (0.055)	7.78*** (0.860)	16.65*** (0.824)	14.26*** (1.070)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
Macro variables <sup>a</sup>	No	No	Yes	No	No	Yes
Observations	38,274	37,519	37,519	45,367	44,444	44,444
R-squared	0.34	0.51	0.51	0.11	0.33	0.33
Adj. R-squared	0.34	0.51	0.51	0.11	0.33	0.33

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors (in parentheses) are heteroscedasticity and cluster robust.

<sup>a</sup>The macro variables include: HHI, interbank rate, inflation, and GDP growth.

The right-hand side of Table 4 reveals that personnel expenses are significantly lower for social banks than for conventional banks, thereby suggesting that the former's workforce is paid less than the latter's. Altogether, Table 4 solves the apparent puzzle of costless social screening. The rationale would be that the extra costs of dual screening are offset by a cheaper workforce.<sup>7</sup> Social banks apparently take advantage of intrinsically motivated personnel, who accept lower wages in exchange for working in a social enterprise. The results suggest that despite labor-intensive dual screening stemming from their mission, social banks' operating costs are comparable to those of their non-social counterparts.<sup>8</sup> Our findings are in line with those of Borzaga and Tortia (2006), who show that nonprofit banks pay lower wages than for-profit ones, possibly because of non-pecuniary compensation and higher satisfaction.

#### 4. Conclusion

Our findings suggest that social banks manage to assess the social contribution of the projects presented by loan applicants without significantly adding to their costs. Since social screening is expensive, some compensation is required. Our regression results are consistent with the presence of volunteers and workers who accept below-market wages for working with socially-oriented institutions. They also suggest that the cost of screening depends on its institutional context.

<sup>7</sup> The evidence is further assessed in Appendix A.

<sup>8</sup> Stakeholder banks take also advantage of motivated personnel, but they do not carry out dual screening. It follows that their activity is systematically less costly than that of shareholder banks (see Tables 3 and 4).

While social banking is still a niche in financial intermediation, it elucidates the mechanisms underlying the sustainability of pro-social organizations faced with capitalistic competition in their business sector. In one way or another, pursuing a social mission can harm financial performance by requiring additional screening for the sake of accountability to stakeholders. The additional burden materializes as a screening cost that could jeopardize the survival of the organization. This paper shows that the extra cost is offset by the altruistic behavior of the workforce. Arguably, non-pecuniary compensation, such as the “warm glow”, could ultimately make companies that perform social screening as cost-efficient as purely commercial firms. However, further work is needed to assess this hypothesis in non-financial industries.

Social banks are hybrid organizations. Their business model combines sacrifices from stakeholders, such as owners and depositors, with soft loans to fund socially-oriented projects. This paper underlines that, on top of the financial sacrifices made by funders, social banks also benefit from labor donations, which may be total, as in volunteering, or partial, as in working for below-market wages. In sum, even if this latter factor is hardly visible at first sight, social banks evolve like other nonprofits and hybrid organizations: they fund the accomplishment of their social mission by means of donations in both the capital factor and the labor factor.



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## Appendix A

Table A1 shows that the average wage (total personnel expenses to number of employees) in social banks is lower than in other banks. Columns (1) to (3) replicate the specifications displayed in Tables 3 and 4. For robustness, *Fixed assets* is replaced in specifications (4) and (5) by the return on assets (*ROA*), which is more easily interpretable and accounts for the typically positive link between wages and firm performance (Bell and Van Reenen 2012). Like Philippon and Reshef (2012), we find that wages depend negatively on the loan-to-asset ratio, as credit granting is less profitable than market-oriented activities. Specifications (4) and (5) are consistent with wages being higher in larger banks (Brown and Medoff 1989).

**Table A1: Average Wage Regressions**

VARIABLES	Average wage				
	(1)	(2)	(3)	(4)	(5)
Social bank	-7,924.28** (3,197.837)	-7,658.64** (3,344.307)	-7,900.06** (3,351.240)	-7,421.49** (3,155.275)	-7,540.48** (3,158.143)
Stakeholder bank		-18,815.18*** (949.754)	-19,200.86*** (954.434)	-18,494.89*** (937.945)	-18,839.98*** (942.227)
Bank size		177.18 (178.316)	61.31 (179.485)	411.82** (179.981)	310.22* (181.287)
Loans		-196.64*** (15.872)	-205.73*** (16.070)	-196.80*** (16.782)	-204.98*** (16.994)
Fixed assets		-1,336.95*** (252.233)	-1,419.95*** (254.056)		
ROA				2,537.35*** (414.074)	2,815.09*** (422.396)
Constant	81,769.78*** (4,397.788)	47,795.49*** (8,691.414)	59,221.01*** (8,921.543)	86,224.00*** (5,063.682)	96,589.71*** (5,925.954)
Year dummies	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes
Macro variables <sup>a</sup>	No	No	Yes	No	Yes
Observations	37,500	36,774	36,774	36,946	36,946
R-squared	0.34	0.50	0.51	0.49	0.50
Adj. R-squared	0.34	0.50	0.51	0.49	0.50

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors (in parentheses) are heteroscedasticity and cluster robust.

<sup>a</sup>The macro variables include: HHI, interbank rate, inflation, and GDP growth.