DETERMINANTS OF SURVIVAL: EMPIRICAL EVIDENCE FROM EUROPEAN SOCIAL AND NON-SOCIAL ENTERPRISES

Kristjana JACE
HELLENIC OPEN UNIVERSITY

Leonidas MAROUDAS
UNIVERSITY OF PATRAS

ABSTRACT

This study contrasts bankrupt social enterprises with bankrupt non-social enterprises in order to identify distinguishing financial features (if any) influencing the survival prospects of aforementioned groups. To do so we explore a rich sample of 1249 European firms for the period 2008-2017. We provide empirical evidence that certain financial figures such as sales growth and leverage do affect differently social and non-social enterprises. Future research could verify these results using more advanced econometric techniques and a battery of additional sensitivity tests.

Keywords: Social and non-Social Enterprises; Bankruptcy; Empirical Analysis

JEL Classification: G33, L25, L26, L31

Introduction

The vast majority of extant empirical research examining the relationship between various quantitative or qualitative corporate characteristics and

bankruptcy event selects samples of for-profit firms. With this paper we provide additional insights to this topic by exploiting a unique database with financial statements information for comparable bankrupt social and non social European enterprises for a long period of time. Our study builds upon the paper of Jace et. al. (2020), to expand the results of this innovative international study by means of an enriched firm-level data set. Jace et. al. (2020), exploiting a large sample of 6,911 healthy and 808 bankrupt social enterprises (SEs) from 3 European countries (Italy, Belgium and Serbia) for the period 2008-2017 empirically investigated for first time the bankruptcy event into the social enterprises context based on a a novel econometric methodology (Bootstrap-based Minimum Bias Maximum Simulated Likelihood Estimator of Mixed Logit).

Here our purpose is to identify the differences (if any) between bankrupt social enterprises and non-social enterprises (non-SEs) in terms of their financial characteristics. We are not aware of any other bankruptcy study trying to compare those two groups of firms. In fact, prior research due to the prevalence of non-SEs to the market economies has rather neglected social enterprises.

Using the Generalized Method of Moments applied to a commonly used set of variables we find that there are indeed some crucial distinguishing features between SEs and non-SEs: overall, the latter tend to be highly leveraged and this fact seems to have a negative impact on survival prospects. On the other hand, the volume of sales seems to play the most important role for the survival of the former (SEs).

The paper proceeds as follows. Next section provides a theoretical framework on bankruptcy processes. Section 3 briefly reviews the relevant literature. In section 4 we describe the sample and variables used. Section 5 presents the methodology and the results. Finally, section 6 concludes the paper.

Theoretical framework

Market economies, driven by competition, are characterized by a turnover of companies: the entrance of new firms and the exit of existing ones. In this way, a sufficient number of companies is maintained in each sector to satisfy customer demand while price competitivity and efficiency in terms of production are guaranteed. It is important to note, however, that entrance and exit do not necessarily entail a company's actual inclusion in or exclusion from, respectively, a sector. Rather, they can also refer to developments such as operational increase or decrease, increase in or deficiency of resources, and diversion of resources to a different operational area. Hence, the competitive

processes can be understood as ensuring that a sufficient number of efficient resources remains in a certain sector while, concurrently, inefficient ones are excluded (Hashi, 1997).

It is possible, for example, that when companies experience a decline in demand for certain products, they decide to shut down the facility in question or move resources previously destined for one product toward another for which they predict a greater demand. An exit process for corporations which operate on a large scale can, therefore, also be understood as the managed reallocation of production resources. Indeed, market economies are characterized by a tendency among firms to steer constantly away from inefficient and toward efficient processes. In consequence (and in theory), highly competitive economies therefore rarely witness cases of insolvency, default, bankruptcy, or shutdown.

Today's company can be conceptualized as a "nexus of contracts", both formal and implicit, whose purpose is to balance and manage the claims made on its assets by a range of stakeholders, spanning government bodies through all types of creditors, shareholders, managers, the workforce, suppliers, and end-customers. In a sophisticated market economy, this contractual network falls into the area of property rights, and the contracts themselves are created, managed, and overseen by the financial system in which the company is embedded.

It should be noted that when the social enterprises (and worker cooperatives) intervene in economic sectors or are located in territories characterized by strong social and cooperative traditions, they can enjoy certain advantages over capitalist enterprises (Dow, 2003) [1]

In particular, the insertion in a collaborative network of exchanges, capabilities and knowledge ensures better conditions for their activity, consolidation and development (Menzani and Zamagni, 2010; Novkovic and Holm, 2012). This is due to a number of economic, organizational, institutional and cultural factors: Common values facilitate coordination and enable solidarity and trust to be built; the exchange flows within the network consolidate stable relations between suppliers and customers, diminish uncertainty, enable lower cost of inputs and scale effects, and make access to finance easier; experimentation of new organizational forms are disseminated and the workers can draw on successful examples of alternative practices; a pool of qualified professionals who share the

---

[1] Plywood cooperatives on the Pacific Northwest coast of the US produced 20% to 25% of output in this sector during the period 1942-1957 (Pencavel, 2001), while similar examples exist in the Basque region of Spain and in the region of Emilia Romana in Italy (Arando et al., 2012).

values of the cooperative movement is available, parallel to shared administrative support and privileged access to certain goods and services to the members (Maroudas and Rizopoulos, 2017). Further, institutional players are more familiar with cooperatives and provide political and economic support.

If financial distress occurs in the context of mature financial markets, it takes the form of, on the one hand, a fall in market prices (which generally triggers certain reaction mechanisms) and, on the other, a rise in mergers and acquisitions. These developments come about because other actors on the market see a competitor's financial distress as temporary and caused by inefficient management practices, inefficient production, or failure to switch production away from unwanted products to ones for which there is a demand. Understood in these terms, acquisitions, in theory, offer financially distressed companies an opportunity to switch production to a more sought-after offering, produced more efficiently, under new ownership by purging themselves of unused or inefficient resources (Hashi, 1997).

Frequently, financially distressed companies come to terms, whether formally or informally, with their creditors as a means to restructure debts and improve finances. Restructuring measures can be, for example, reduction of the workforce or shutting down loss-generating facilities, leading to an exit of resources from the sector. The ultimate option, taken when other avenues have been exhausted, is liquidation or, otherwise put, an actual physical exit from the market.

Mature markets have traditionally seen few financially distressed companies and even fewer bankrupt ones; in emerging markets, in contrast, companies of all sizes have experienced financial distress. Although liquidating such companies may be seen as a natural outcome of competition, it can have disastrous consequences by causing a radical decrease in, or damage to, the production and capacity of the industry in question. As concerns the impact on the workforce of such drastic measures, the potentially large sums paid out in unemployment insurance and welfare could place a burden on government which, in turn, negatively impacts macroeconomic policy. Hence, the social welfare consequences of liquidation are regarded as unacceptable by stakeholders (Inekwe et. al. 2018; Liu 2004; Liu 2009).

Weakly-structured companies, as well as those under poor financial management, are liable to experience financial distress and, possibly, bankruptcy, especially in times of economic downturn. That said, an economic downturn is not the only cause of financial distress, as this can be triggered even in stable economic circumstances if management practices are inadequate or

incompetent. In ideal circumstances, a business will last forever and continue to achieve its basic aim of profit creation. Not all, however, manage to do so; indeed, a large number fold before they have survived even two years on the market. Moreover, an initial period of expansion is no guarantee that distress, including failure, will not occur at some point (Hashi, 1997; Pérotin, 2006).

There is no one-size-fits-all model of corporate failure; similarly, each failure impacts stakeholders in different ways and to different extents. The literature on corporate failure contains a range of definitions and concepts to describe and address the different forms that failure can take. The financial distress literature is, in fact, marked by the tumultuous circumstances it describes and in which it was created in its attempts to cover the many ways in which corporate value and stakeholders can be affected. Consequently, it is advisable to formulate clear definitions of the necessary concepts to ensure they are understood in the same way by all actors.

Multiple conceptualizations and terminologies have been used to describe unsuccessful companies, depending on whether the researcher is more focused on the formal processes of the failure or the economic and financial context in which they are embedded. However, the literature offers four basic categorizations, namely failure, insolvency, default, and bankruptcy (Altman and Hotckiss, 2005). Although these terms are sometimes regarded as interchangeable, in fact they refer to different financial distress scenarios. Most corporate failures can, ultimately, be traced back to financial and operational distress, each of which has its own theoretical underpinning. Finance theory conceptualizes financial distress in terms of corporate valuation and optimum capital structure, with a focus on elements within debt-capital structure, such as cash flow generation and debt payment power (Perold, 1999). Operational distress, on the other hand, is often analyzed in qualitative, including managerial, dimensions rather than financial ones.

In general, the financial distress process is both long-drawn-out and subject to constant and ongoing change. It has ramifications for multiple aspects of management, from corporate capital structure through investment policies to performance (Kahl, 2002). Financial distress raises a red flag that a firm is entering dangerous territory and must take urgent steps to mitigate the consequences. Timely recognition of financial distress is, therefore, crucial, and management must take immediate action to correct the company's course and navigate it back into safe territory in as little time as possible and containing losses to the utmost extent (Whitaker, 1999). Hesitation, prevarication, and outright failure to notice the warning signs, on the other hand, can lead to more

severe damage. In some cases, remedial steps are not taken until it has become too late to save a firm, with the inevitable consequence of bankruptcy (Wruck, 1990).

There are, similarly, many definitions of financial distress. The process of financial distress can differ enormously among companies. In some cases, a lengthy and dynamic process is triggered by a single, brief, but dramatic event or chain of events, and in other cases a long-term decline or series of adverse events gradually sends the company below the financial threshold at which distress begins. Given that financial distress is dynamic, there are distinct stages to the process, each of which makes its own contribution to the ultimate failure. That said, it is not a simple task to identify the starting point or events in the chain leading to financial distress, and the characteristics of financial distress themselves elude easy definition and quantification. If bankruptcy prediction models are applied more than three years before the chain of events leading to disaster begins, they are considerably less accurate, as there is disagreement around what constitute the first indicators of declining performance − if such indicators exist at all, given that, if they do, they are so weak as to be almost imperceptible (Matenda et. al. 2021; Bellovary et. al. 2007).

Generally speaking, the first signs of severe distress are perceptible only a couple of years before a company defaults. Moreover, predictions of the company's survival rest largely on whether these signs indicate temporary or permanent financial distress. The stages through which a financially distressed company passes overlap and cannot be clearly differentiated: what happens at a later stage flows from what happens at an earlier one, and early events cannot be divorced from later ones.

The characteristics of financial distress differ according to whether they are seen in the early or later stages of the process. Initially, the company undergoes a decline in sales, negative stock returns, less operating income, and worse customer feedback, including the loss of crucial clients. Moreover, financial and managerial information is generated too late, and there can be cash deficits and receivable collection issues (Opler and Titman, 1994). Moving on to the intermediate stage, the company is likely to see lower profitability, a worsening cash shortage as operating losses continue over a longer period, and impacts on dividend payments. It may have to ask for extra time to make debt payments or even break debt agreements, including to key suppliers. Finally, in the last stages of the process, a company finds itself operating at a permanent loss, with a ballooning cash deficit and multiplying violations of debt agreements, which may, ultimately, lead it to petition for bankruptcy. At this point, it becomes

almost impossible for creditors to recover what is owed, and there is an exodus of qualified staff.

Many financial actors have a stake in the development of financial bankruptcy prediction models, an area which has seen increasing interest in recent decades. As stated, financial distress is essentially dynamic in nature; hence, stakeholders ranging from regulators to practitioners and academics all need to run tests from time to time, not only to monitor performance and status but to iteratively improve the currently available models predicting financial distress and corporate failure. Since the scope of such models has expanded to areas including the activity of regulators and auditing firms, as well as professionals assessing the riskiness of portfolios and responsible for pricing credit derivatives and other fixed-income securities, the need for constant updating is given added importance (Gaughan, 2011).

The global financial crisis of 2007–2008, shone a spotlight on the inadequacy of risk management practices among lenders at all levels. All corporate investors, whether lenders or others, depend on receiving timely and reliable updates on the default risk probability of companies, as concerns both lending and derivative portfolios. In the case of banks, the internal rating systems necessary for effective corporate risk management rest on the construction of a range of probability-of-default models, tailored to reflect different corporate sub-populations and with the flexibility necessary to respond to changes at macro level and as data becomes available.

When research into failure prediction was first undertaken, researchers had no access to either computerized technology or the advanced statistical methods used today. The instrument used was a simple comparison of the values of financial ratios of failed and non-failed corporations. Beaver's seminal publication in 1966, in which he presented the univariate approach of discriminant analysis, changed the research landscape, which was further consolidated when Altman extended Beaver's approach to multivariate analysis. However, for the following two decades, failure prediction rested almost entirely on discriminant analysis and was thus limited by its reliance on assumptions which were frequently violated. The next important step forward in the field came when Black-Scholes and Merton introduced option pricing methodology into default prediction. Since then, financial failure prediction methods have begun to escape the restrictive assumptions of classical statistical models and, also influenced by the introduction of regulatory regimes like Basel II, to embrace more comprehensive non-parametric machine learning (ML) techniques.

Survival of SE's vs non-SE's

As described by Jace et. al. (2020), SE's may be seen as partway between for-profit and not-for-profit organizations. In general, they emphasize more on social endeavor than non-SE's entities. The latter mainly emphasize on financial success rather than social and environmental impact. In contrast, for SE's the main target concerns the creation of highest value in societal and environmental terms. The effectiveness is measured by combining financial and social success (Jace et. al., 2019). However, unlike not-for-profit organizations, SE's must participate in the market and prove that they are economically sustainable (Charles, 2019; Zhang and Swanson, 2014). Stevens et. al. (2015) through a broad field survey at tempted to disentangle the relation between the social and economic missions of social enterprises and concluded that there is an inverse relation i.e "higher levels of social mission imply lower levels of economic mission and vice versa".

Of course, it should be noted that the social enterprise, while applying its alternative principles, is part of the circular flow of income (commodity exchanges, cash flows) which exerts a constant pressure on its particular characteristics, resulting in the emergence of contradictions and internal conflicts, which undermine its cohesion. The aforementioned contradictions and conflicts become of a heighten importance when social enterprises (as well as workers cooperatives) try to insert and grow themselves in central sectors of the production process and not in outliers, which are not considered a priority for private investment and therefore the social enterprises' size can be quite limited. Given that a social enterprise which operates in a non-outlying sector of the production process remains relatively isolated (as in these sectors it is usually quite difficult to set up a social enterprise network, as priory mentioned), being an alternative way of organizing work, two fundamental and interdependent processes surface: the first concerns the enterprise's ability to survive as a distinct organizational form, for example if it can achieve a satisfactory level of financial and organizational efficiency, at least sufficient to maintain its viability in a rather hostile environment and the second concerns the ability, in case of survival, of maintaining its specific characteristics, for example avoid degenerating into a traditional enterprise form with a hierarchical structure, without full democratic employees' participation (Maroudas, and Rizopoulos, 2014).

Although there is an extended research on bankruptcy/insolvency, it is mainly focused on purely for-profit entities. To name a few studies, Daily and Dalton (1994) or Platt and Platt (2012) have, among other studies, investigated the

relationship between board composition and corporate bankruptcy; Verwijmeren and Derwall (2010), find that employee well-being significantly reduces the probability of bankruptcy while Cenciarelli et. al., (2018), empirically investigate external auditor characteristics and the likelihood of bankruptcy for a sample of US public firms. Surprisingly and according to our knowledge there are no empirical papers on comparing SE's with non-SE's insolvency conditions probably because of the unavailability of required data.

Also, in addition to the lack of necessary data, at this point it should be noted that the widespread theory of property rights and generally the viewing of the company as a network of contracts, has emerged historically in the context of concerns regarding the effectiveness of the self-managed enterprise (and social enterprises and worker cooperatives in general), in relation to the capitalist enterprise. The attempt to assert the supremacy of the capitalist enterprise is quite clear in the theoretical model proposed by Furubotn and Pejovich (1973), according to which due to the structure of the property rights of a self-managed enterprise, not only trends to under- investment, but also the time horizon of its employees is typically short, while it is relatively obvious in the framework of the New Institutional Economics.

In this paper, our aim is to empirically investigate whether or not there are differential factors that affect the survival rates of SE's and non-SE's. In doing so we need to employ a matched sample of European comparable SE's and non-SE's with available financial statements data. Notwithstanding the necessity to achieve social goals, there are various reasons to suspect that the survival prospects might be different between social and non-social enterprises. Moreover, the fundamentals of SE's should probably be substantially different compared to non-SE's and therefore our main contribution here is to discover the direction and the magnitude of all influential variables.

Sample and variables

This study relies partly on the sample of bankrupt SE's from 3 European countries namely Italy, Belgium and Serbia used on the study of Jace et. al. (2020)[2]. The sample of bankrupt SEs is matched by size and sector with bankrupt

---

[2] Jace et. al. (2020), main criterion for selecting the aforementioned countries was the availability of data by Amadeus database where they collected the data. Amadeus categorize firms according to their national legal form. However, for the vast majority of countries there is no clear identification of a legal form that solely corresponds to the "social enterprise" type. Therefore Jace et. al. (2020), limit the sample to these countries because they display the social enterprises with a separate legal form. Thus, the authors

non-SEs from the aforementioned countries. Bankrupt SE's and non-SE's included are those labelled with this specific status in Amadeus. Table 1 presents the breakdown of the initial sample by country.

Table 1: Sample breakdown by country

year	Belgium	Italy	Serbia	Belgium	Italy	Serbia	
	Non-SEs			**SEs**			
2008	25	567		6	381		979
2009	26	634	29	4	417	30	1140
2010	32	701	30	5	439	29	1236
2011	40	780	7	6	468	5	1306
2012	51	851	9	6	471	7	1395
2013	56	903	87	6	477	77	1606
2014	67	957	77	4	416	66	1587
2015	72	1022	77	3	351	68	1593
2016	55	823	77	3	269	72	1299
2017	25	484	70	2	155	69	805
	449	7722	463	45	3844	423	**12946**

The vast majority of sample firms are located in Italy where social economy has for more than three decades expanded substantially. We should note that the shares of bankrupt SEs and non-SEs may not necessarily reflect the actual percentages prevailing into economies since we have excluded bankrupt non-SEs that are either large in size or belong to sectors that SEs are non-existent. Table 2 depicts the distribution of the sample according to the sector. More than half of the total sample belongs to the services sector followed by industrial firms.

---

avoid possible misclassifications (considering a non-SE as SE and vice versa) and make sure that other specific legal forms (closely related to social enterprises such as cooperatives, partnerships, non-profit organizations, charities, etc.) do not affect the obtained results given their exclusion.

Table 2: Sample distribution by sector

Sector	%
Manufacturing	32,6
Trade	12,7
Services	54,7
	100,0

Prior insolvency studies have applied a very large set of different financial ratios. However, although different ratios are numerous, they are often based on the same items of financial statements. In this study we employ the most representative financial ratios that have been found (Bellovary et. al. 2007) to play a significant role for the sustainability of firms (table 3).

Table 3: Top variables in Bellovary et al. (2007)

Variable
Solvency ratio (SOLV)
Net income / Total assets = ROA
Current assets / Current liabilities = Current ratio (CR)
Working capital / Total assets (WC)
Retained earnings / Total assets (RETAIN)
Earnings before interest and taxes (EBIT) / Total assets (EBIT)
Sales / Total assets (SAL)
Liquid assets / Current liabilities = Quick ratio (QUICK)
Total debt / Total assets (LEV)
Current assets / Total assets (CA)
Net income / Net worth (NI)

Tables 4 and 5 below provide descriptive statistics and correlations respectively for the full sample and set of variables. All variables have been winsorized at 1% level. After exclusion of missing values and inactive firms (with zero sales) our final sample includes approximately 10.000 observations. It is worth noting that the mean value of earnings is negative no matter the measure used i.e ROA, EBIT, NI whereas the mean value of leverage is almost 50% indicating the distress conditions of sample firms.

Table 4: Descriptive statistics

Variables	n	Mean	Std Dev	Min	Max
SOLV	10807	21.6012	37.5625	-99	100
ROA	10677	-.0725297	.3561578	-3.967742	2.960784
CR	9906	1.445256	1.460346	.0010277	12.179885
WC	9673	.0938745	29.28188	-.1065111	.4407998
RETAIN	10237	-.009015	.093211	-.315427	.578217
EBIT	10670	-.0600778	36.469555	-4.02630	3.55101
SAL	10807	236.198	411.231	0	31.906.343
QUICK	9906	1.013003	3.113289	.0007610	11.77230
LEV	9785	.490092	3.014406	.000033	.987998
CA	9906	.2001653	5.009167	.0011713	.891825
NI	10643	-.054453	1.016243	-2.01188	2.236108

Methodology and Results

To identify the impact of aforementioned financial variables on solvency prospects of SE's versus non-SE's we exploit the following model:

$$SOLV = \beta_0 + XB_{,t} + \varepsilon_{it}$$

The dependent variable is solvency ratio as defined in Amadeus while the vector **X** includes the independent variables used extensively in prior literature as predictors of insolvency including the dummy variable the legal status i.e SEs vs non-SEs. The estimation is performed using the Generalized Method of Moments (GMM − Wooldridge 2002). This method does not make hypotheses for the distribution of residuals providing robust estimations of standard errors in the presence of autocorrelation and heteroscedasticity (in contrast to other methods as 2SLS and 3SLS). The large number of observations guarantees the credibility of the GMM. In addition, an advantage of GMM is that allowed the presence of HAC standard errors. However, the most significant advantage of GMM concerns its ability to sufficiently solve the problem of endogeneity (where the explanatory variables are related with other observed or unobserved variables that not incorporated in our model. This is crucial in our case where other financial variables may have impact in our independent variable) via the instrumental variables.

Table 5: Correlations[3]

Variable	1	2	3	4	5	6	7	8	9	10	11
SOLV	1	0.3296*	0.0856*	0.6082*	0.5467*	-0.4679*	0.1011*	-0.0043	0.0636*	-0.2943*	-0.2212*
ROA	0.3602*	1	-0.0092*	0.2188*	0.1784*	-0.1501*	0.0107*	-0.0239*	0.0173*	-0.1114*	-0.0689*
CR	0.1040*	0.0201*	1	0.2659*	0.2383*	-0.2809*	0.2959*	0.0192*	0.0486*	0.3059*	-0.2138*
WC	0.5380*	0.2262*	0.3495*	1	0.8567*	-0.8113*	0.0998*	0.0001	0.0965*	-0.3739*	-0.4743*
RETAIN	0.2508*	0.0946*	0.1667*	0.3620*	1	-0.8133*	0.1321*	0.0537*	0.1599*	-0.3835*	-0.2373*
EBIT	-0.3662*	-0.1347*	-0.2441*	-0.6017*	-0.3649*	1	-0.1159*	-0.0006	-0.0976*	0.4174*	0.5684*
SAL	0.0717*	0.0108*	0.1517*	0.0695*	0.0909*	-0.1210*	1	-0.0118*	0.0114*	0.0182*	-0.0462*
QUICK	-0.0076*	-0.0137*	0.0088*	-0.0025	0.1571*	-0.0006	-0.0147*	1	0.2766*	0.0213*	0.1138*
LEV	0.0714*	0.0315*	0.0580*	0.1065*	0.2128*	-0.0735*	0.0139*	0.0558*	1	-0.0078*	0.0272*
CA	-0.1238*	-0.0368*	0.2329*	-0.1643*	-0.0368*	0.0880*	-0.0110*	0.0077*	-0.0195*	1	0.2666*
NI	-0.1033*	-0.0361*	-0.0703*	-0.2318*	0.2687*	0.1473*	-0.0129*	0.1234*	0.0102*	0.2858*	1

Table 6 displays the determinants (coefficients and significance) of solvency ratio using the full sample. Model 1 includes only control variables; in Model 2 we add the non-SEs dummy variable and in Model 3 we add the interaction term between the non-SEs dummy variable and sales.

Model 1, exhibits that in general even for financially distressed firms growth is a vital sign (the coefficient of sales is positive and significant). On the contrary, following prior capital structure literature, leverage ratio seems to have a negative effect on solvency ratio (negative and significant coefficient) whereas remaining variables show the anticipated effect. Models 2 and 3 highlight the impact of legal form on solvency prospects. The dummy variable receives in both cases a negative and statistically significant coefficient, but the variable SEs*sales receives a positive coefficient indicating that the drop of sales after a certain level causes the solvency ratio to deteriorate, i.e to decline. In our opinion this is the most notable results of this study.

---

[3] The table presents the Pearson correlation coefficients (lower diagonal) and Spearman (up diagonal) between the regression variables for the all the firm-year observations used in the hypothesis's tests. The symbol * indicates a statistically significant correlation at the 5% level. See Table 3 for variables definitions.

Table 6: Determinants of survival

| | Solvency | | |
| | GMM | GMM | GMM |
	Model 1	Model 2	Model 3
SEs		− 1.081	− 1.132
		[0.007]	[0.005]
SEs × Sales			0.011
			[0.006]
Sales	0.012	0.013	0.018
	[0.006]	[0.007]	[0.007]
ROA	0.101	0.108	0.104
	[0.042]	[0.038]	[0.041]
CR	0.169	0.162	0.167
	[0.042]	[0.042]	[0.042]
WC	0.025	0.026	0.030
	[0.011]	[0.011]	[0.011]
RETAIN	0.018	0.020	0.018
	[0.009]	[0.009]	[0.009]
EBIT	0.047	0.042	0.045
	[0.013]	[0.013]	[0.014]
QUICK	0.027	0.027	0.027
	[0.025]	[0.025]	[0.025]
LEV	-0.011	-0.017	-0.014
	[0.047]	[0.047]	[0.047]
CA	0.013	0.027	0.018
	[0.047]	[0.047]	[0.047]
NI	0.011	0.017	0.014
	[0.047]	[0.047]	[0.047]
constant	20.059	23.017	21.014
	[0.000]	[0.001]	[0.001]
No. of observations	9673	9673	9673
No. of firms	1249	1249	1249
R2	16.3%	19.0%	25.4%

Conclusion

In this study using a broad dataset of comparable social and non-social enterprises we investigated the determinants of their survival prospects. To our knowledge this is the first study to examine this issue under the SEs vs non-SEs framework. Results reveal that there are indeed differences on the impact that various financial characteristics have on overall solvency ratio. For example, we find that for SEs the growth of sales has the most important role for their

sustainability, while for non-SEs leverage seems to play an equally significant role for their survival.

Limitations of this study represent opportunities for future research. First, our study has focused on determinants of solvency prospects among SEs and non-SEs using a limited set of financial variables. Future research is needed to examine different variables groups to further understand how solvency differences emerge and evolve over different stages of company development. New studies may also investigate survival conditions in different countries to probe the influence of a broad set of institutional factors in affecting social enterprises' solvency.

References

Altman, E.I. and Hotchkiss, E. (2005), *Corporate Financial Distress and Bankruptcy: Predict and Avoid Bankruptcy, Analyze and Invest in Distressed Debt,* 3rd Edition, John Wiley & Sons, New Jersey.

Arando, S., Gago, M., Podivinsky, J.M. and Tewart, G. (2012), Do labour-managed firms benefit from agglomeration?, *Journal of Economic Behavior & Organization*, 84: 193-200.

Bellovary, J.L., Giacomino, D.E. and Akers, M.D. (2007), A review of bankruptcy prediction studies: 1930 to present, *Journal of Financial Education*, 1 (1): 3-41.

Beaver, W. (1966), Financial Ratios as Predictors of Failure, *Journal of Accounting Research*, vol. 4: 71-111.

Cenciarelli, V., Greco, G. and Allegrini, M. (2018), External audit and bankruptcy prediction, *Journal of Management and Governance*, 22: 1–28.

Charles, G. (2019), Sustainability of Social Enterprises Involved in Waste Collection and Recycling Activities: Lessons from Tanzania, *Journal of Social Entrepreneurship,* forthcoming.

Daily, C. M. and Dalton, D. R. (1994), Bankruptcy and corporate governance: The impact of board composition and structure, *Academy of Management Journal,* 37: 1603-1617.

Dow, G. (2003), *Governing the Firm: Workers Control in Theory and Practice*, Cambridge (U.K.), Cambridge University Press.

Furubotn, E. and Pejovich, S. (1973), Property Rights, Economic Decentralization and the Evolution of the Yugoslav Firm, 1967-1972, *Journal of Law and Economics,* 16: 275-302.

Gaughan, P. A. (2011), *Mergers, Acquisitions and Corporate Restructuring,* 3rd Edition, John Wiley and Sons Inc., New York.

Hashi, I. (1997), The Economics of Bankruptcy, Reorganisation and

Liquidation, *Russian and East European Finance and Trade,* 33(4): 6-34.

Inekwe, J., Jin, Y., Valenzuela, M.R. (2018), The effects of financial distress: Evidence from US GDP growth, *Economic Modeling,* 72: 8–21.

Jace, K., Tsagkanos A. and Koumanakos D. (2019), Asymmetric effects on the development of social enterprises: Factors and effects, *World Review of Entrepreneurship, Management and Sustainable Development*, 15 (5): 575-588.

Jace, K., Koumanakos D. and Tsagkanos A. (2020), Bankruptcy Prediction in Social Enterprises, *Journal of Social Entrepreneurship,* doi: 10.1080/19420676.2020.1763438

Kahl, M. (2002), Economic Distress, Financial Distress and Dynamic Liquidation, *The Journal of Finance,* 57(1): 135-168.

Liu, J. (2004), Macroeconomic determinants of corporate failures: evidence from the UK, *Applied Economics*, 36(9): 939-945

Liu, J. (2009), Business failures and macroeconomic factors in the UK, *Bulletin of Economic Research,* 61(1): 47-72.

Maroudas, L. and Rizopoulos, Y. (2014), La question de la dégénérescence dans les coopératives de production, *Recma : Revue internationale de l'économie sociale,* No 334 :70-84.

Maroudas, L. and Rizopoulos, Y. (2017), Coopératives de production : Agglomération et gouvernance élargie *versus* dégénérescence ?, *Entreprise & Société,* 1 (2): 103-126.

Matenda, F., Sibanda, M., Chikodza, E. and Gumbo V. (2021), Bankruptcy prediction for private firms in developing economies: a scoping review and guidance for future research, *Management Review Quarterly*, https://doi.org/10.1007/s11301-021-00216-x

Menzani, T. and Zamagni, V. (2010), Co-operative networks in the Italian economy, *Enterprise and Society,* 11 (1): 98-127.

Merton, R. (1974), Theory of Rational Option Pricing, *Bell Journal of Economics and Management Science,* 4 (1): 141-183.

Novkovic, S. and Holm, W. (2012) Co-operative Networks as a Source of Organizational Innovation, *International Journal of Co-operative Management*, 6 (1): 51-60.

Opler, T. C. and Titman, S. (1994), Financial Distress and Corporate Performance, *The Journal of Finance*, 49(3): 1015-1040.

Pencavel, J. (2001), *Worker Participation: Lessons from the Worker Co-ops of the Pacific Northwest,* New York (NY): Russell Sage Foundation.

Perold, F. A. (1999), *Long Term Capital Management,* Case Study, Harvard Business School, 9-200-007.

Pérotin, V. (2006), Entry, exit and the business cycle: are cooperatives different?, *Journal of Comparative Economics,* 34: 295-316

Platt, H. and Platt, M. (2012), Corporate board attributes and bankruptcy, *Journal of Business Research*, 65: 1139-1143.

Stevens, R., Moray, N. and Bruneel, J. (2015), The social and economic mission of social enterprises: Dimensions, measurement, validation, and relation, *Entrepreneurship Theory & Practice,* 39: 1051-1108.

Verwijmeren, P. and Derwall, J. (2010), Employee Well-Being, Firm Leverage, and Bankruptcy Risk, *Journal of Banking and Finance,* 34: 956-964.

Whitaker, R. B. (1999), The Early Stages of Financial Distress, *Journal of Economics and Finance,* 23(2): 123-133.

Wooldridge, M. J. (2002), *Econometric Analysis of Cross Section and Panel Data,* The MIT Press.

Wruck, K. H. (1990), Financial Distress, Reorganization and Organizational Efficiency, *Journal of Financial Economics,* 27: 419-444.

Zhang, D. and Swanson, L. (2014), Linking Social Entrepreneurship and Sustainability, *Journal of Social Entrepreneurship*, 5(2): 175-191.