



Research article

How does society satisfaction affect the capital structure of firms? A two-part fractional regression approach

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Abstract: This paper examined the influence of society satisfaction on the capital structure decisions of small and medium-sized enterprises (SMEs). Applying data from an online questionnaire, we captured the well-being and perceptions that individuals hold about their own quality of life through a latent variable measuring satisfaction with life. In addition, the study used a sample of SMEs from Portugal for the pandemic year of 2020. Using fractional regression models, our findings revealed a statistically significant relationship between society satisfaction and SMEs' leverage. Specifically, we showed that higher levels of satisfaction decrease debt levels among SMEs. However, further investigation, employing a two-part fractional regression model, showed that the overall negative effect is, in fact, only explained by the increasing propensity for firms to remain debt-free in the presence of greater levels of society satisfaction. Consequently, while society satisfaction appears to influence the decision to engage in debt financing, this does not significantly impact the amount of debt taken on by SMEs. In summary, this paper highlights the importance of society satisfaction to SME capital structure decision-making and contributes to a deeper understanding of the mechanisms driving SME financing decisions amidst socio-economic dynamics.

Keywords: capital structure; SMEs; society life satisfaction; two-part model; zero leverage

JEL Codes: C52, G32, I31

1. Introduction

There has been a great deal of study of a firm's capital structure since the irrelevance theorem of Modigliani and Miller (1958); nevertheless, six decades from the publication of this seminal work, financing decisions remain on the scientific community's daily agenda. This is confirmed by a simple search on the Web of Science bibliographic database, carried out on January 1st, 2022, for papers approaching the topic of "Capital structure" published during 2021 and resulting in a total of 2,593 documents. Despite being an established field with classical theories including trade-off theory, pecking order theory, and agency theory, all subject to intensive testing, gaps remain in the literature, motivating academicians to dedicate their time to this field. Recent trends have portrayed a notable phenomenon known as *zero leverage*, wherein firms maintain minimal or no debt in their capital structure. The interest in this field deepens due to the lack of theoretical support, especially because these firms might be losing value by not leveraging up (Strebulaev and Yang, 2013). A commonly identified gap in the capital structure literature, which now extends to the field of zero-leverage phenomenon, encapsulates the efforts to describe debt decisions resorting exclusively to the classical firm-specific determinants of capital structure, which have been widely investigated and promote similar conclusions across studies. Recognizing the limitations of only considering firm-specific determinants to study a firm's capital structure, more recent studies have explored the influence of contextual variables such as legal systems, macroeconomic shocks, and cultural indicators on debt-related decisions (El Ghouli et al., 2018; Nguyen and Phan, 2020). This expansion in the scope of research reflects a growing recognition of the need to identify less conventional determinants of capital structure to promote the continuous development of the theory (Nguyen and Canh, 2021). Following this trend, El Ghouli et al. (2018) studied the impact of a country's cultural indicators on firms' zero leverage, Ramalho et al. (2018) investigated the effect of geographical location on capital structure decisions, Nguyen and Phan (2020) considered the effects of carbon emission levels on firms' capital structure, and Nguyen et al. (2021) examined the effect of the education levels of entrepreneurs on the propensity for SMEs to take out formal credits. Thus, it may be important to consider determinants that, by affecting the society, may also influence a firm's capital structure decisions.

Although studies examining the influence of societal factors on capital structure decisions remain relatively scarce, they represent a promising avenue for advancing capital structure theory. A potential factor influencing a firm's financing decisions is the level of society satisfaction; however, the literature remains relatively silent about this relationship. We conjecture a potential effect of society satisfaction on a firm's capital structure because firms, as entities comprised of individuals, may incorporate influences from the prevailing social mood into their capital structure decision-making process. For instance, in societies with higher levels of life satisfaction, individuals may exhibit greater risk tolerance, which might feed into a greater willingness of firms to either take on more debt or pursue alternative financing strategies. Societies with higher levels of social satisfaction, i.e., overall satisfaction and prevailing happiness of individuals, may foster stronger relationships and trust among stakeholders, including suppliers, customers, employees, and investors. These positive social dynamics can enhance access to capital markets, lower the cost of capital, and boost the ability of firms to raise debt financing. Conversely, in societies with lower levels of social satisfaction, distrust and instability may hinder the ability of firms to either secure favorable financing terms or maintain an optimal capital structure.

Seeking to address the gap identified, this study aims to shed light on the relationship between social well-being, as measured by life satisfaction, and SMEs' financing decisions. Specifically, this study seeks to answer the following research questions: 1) Does society's life satisfaction impact SMEs decision to whether or not to resort to debt? and 2) Conditional on the decision of firms to obtain debt, does society life satisfaction affect the SME's debt level?

Therefore, the main purpose of this paper is to contribute to the understanding of how societal factors impact SMEs' financing decisions. While there is extant literature on the factors influencing the firms' financing decisions, such as the prevailing economic conditions or firm-specific characteristics, the incorporation of social well-being, as measured by life satisfaction, into the analysis represents a novel and innovative contribution. To this end, to assess human satisfaction, we use the results of an online questionnaire carried out during 2020 with the goal of capturing the well-being and perceptions that individuals hold about their own quality of life. After accessing 498 usable questionnaires returned by persons who agreed to participate in the study from across 38 Portuguese municipalities, we developed a latent variable measuring satisfaction with life (SLS), which we then applied to analyze the effects on SME capital structure. This approach ensures that our study reflects the diverse perspectives and experiences of individuals across different regions of the country, enhancing the representativeness of our findings. In parallel, we collected accounting and financial data for a sample of 9,486 SMEs from Portugal, for the year of 2020. In general terms, Portuguese firms are heavily dependent on bank debt (Demirguc-Kunt and Levine, 2004), which implies that any firms implementing zero-leverage policies will not be acting simply as a consequence of a financial system prone to firms eschewing debt. We focus on SMEs because, similar to other countries, they are the backbone of the economy in Portugal, accounting for 99.9% of the business community, employing 32% of the Portuguese population, and generating 60.4% of the total gross value added by firms (INE, 2021). Given their relevance, the sustainability, investment, and success of SMEs are essential to national economic development as well as to ensure the prosperity of the broader economic landscape. Moreover, the timing of data collection, coinciding with the beginning of the COVID-19 pandemic in 2020, represents a unique and additional opportunity to understand the relationship between society satisfaction and SME debt-related decisions within unprecedented economic challenges. The pandemic-induced disruptions, including extensive lockdowns, financial market volatility, and widespread economic uncertainty, provide a rich empirical context for examining the impact of societal well-being on financial decision-making.

Thus, our paper makes a threefold contribution to the great field of capital structure decision-making. To begin with, to the best of our knowledge, this is the first study to estimate the direct impacts of aggregated society satisfaction on the capital structure decisions of SMEs through an adjusted index for measuring satisfaction. Our study returns valuable insights into the complex dynamics shaping SME capital structure choices, while also generating implications for both policymakers and practitioners. Our findings confirm that population satisfaction did affect SME debt decision-making during the pandemic crisis in Portugal. Therefore, satisfaction potentially emerges as a new determinant of SMEs' capital structures. Secondly, for the literature on zero leverage, we demonstrate that society satisfaction raises the propensity of SMEs to adopt zero-leverage policies. Finally, the econometric method employed (the two-part fractional regression model)—that allows first to model the probability of an SME to use debt or not as a binary choice model (zero-leverage phenomenon) and then as a fractional regression model that explains the relative amount of debt issued, conditional upon the decision to issue debt—represent a methodological contribution to study capital structure decisions on SMEs.

The paper evolves as follows: in the next section, there is a literature review of capital structures and society satisfaction; Section 3 details the data and methodology before Section 4 presents the results with Section 5 featuring their discussion. Finally, Section 6 encompasses the conclusions.

2. Capital structure and human satisfaction: evidence and hypotheses

2.1. Capital structure of SMEs revisited

The classical capital structure theories used to study large firms also apply to explaining SME financing decisions, with leading roles in this field played by static trade-off theory and by pecking order theory (López-Gracia and Sogorb-Mira, 2008). The static theory suggests that firms adopt optimal debt levels for the maximization of firm value. This optimum level derives from balancing the benefits of debt (debt tax shields) and the costs raised by debt (financial distress and bankruptcy costs) (Modigliani and Miller, 1963; Kraus and Litzenberger, 1973). In recognition of the dynamic nature of firms activities, the literature evolved into a dynamic version that assumes that firms may be deviating from their target debt levels but do actively adjust to their targets by raising or retiring debt (Castro et al., 2016; Huang and Ritter, 2009). However, the literature also reports that the pecking order theory provides a more relevant explanation for the capital structure decisions taken by SMEs (Kumar et al., 2020). This theory considers that SMEs do not follow an optimal debt level and instead argues there are information asymmetries present between the firm and external creditors and/or investors, which produce consequences for the costs of different sources of financing (Myers, 1984; Myers and Majluf, 1984). Therefore, the pecking order theory establishes that firms adopt a hierarchy of financing sources according to their respective costs and tend to prefer internal over external funding sources. First, firms prefer internal sources of financing in the form of retained earnings. Second, when such internal funds are insufficient, firms resort to debt and finally raise external equity.

Typical studies on SME capital structure decisions examine the relevance of the aforementioned theories by analyzing the effects that different firm factors have on debt ratios (e.g., Palacín-Sánchez et al., 2013; Serrasqueiro and Nunes, 2012). The business sector represents another important determinant of SME capital structures, as the average debt ratio observed in the industry may serve as a benchmark for SME financial managers to establish a target debt ratio, financing needs, and asset structures. These decisions while differing between industries, are generally similar within specific business sectors (Di Pietro et al., 2018). Finally, studies have also considered country-specific factors as important determinants of SMEs' capital structures. In particular, the institutional context has gained increasing attention as a determinant of SMEs' debt ratios. Hence, the effect of a country's legal system, creditor and investor protection rights, the prevailing financial system and its overall development, as well as the level of regional development all influence SMEs capital structure decisions (Czerwonka and Jaworski, 2021; Palacín-Sánchez et al., 2013; Palacín-Sánchez and di Pietro, 2016; Jõeveer, 2013; La Rocca et al., 2010).

A more recent line of research related to firms' debt decisions focuses on the zero-leverage phenomenon, which refers to the considerable and increasing number of firms that remain debt-free (Strebulaev and Yang, 2013). The zero-leverage movement reflects an international trend affecting both large, listed firms and small private firms (Bessler et al., 2013; El Ghouli et al., 2018; Ramalho et al., 2018; Morais et al., 2021). Studies on this subject have adopted arguments from the financial constraints and financial flexibility approaches to explain zero-leverage policies. The financial constraints perspective argues that, rather than a financial decision, zero leverage arises from an imposition by

market actors that either refuse or impose severe terms on granting debt to firms (Bessler et al., 2013; Morais et al., 2020). This perspective assumes that, in the presence of adverse selection and moral hazard problems, the capital structure is not only determined by firm decisions (hence, the demand side) but primarily by creditors and their willingness to supply debt. Indeed, due to information asymmetries, lenders may not be able to assess the overall value of firms and the potential quality of their future investments (Stiglitz and Weiss, 1981). Thus, external finance becomes more difficult for more opaque and smaller firms that lack reputation in credit markets (Stiglitz and Weiss, 1981). Previous studies identify how smaller firms, with lower asset tangibility and facing greater credit constraints, display a greater propensity to have zero leverage (Dang, 2013; Bessler et al., 2013; Morais et al., 2021).

Regarding the financial flexibility perspective, this approach suggests that firms eschew debt by their own financing decision and not because of their inability to obtain external financing (Dang, 2013; Huang et al., 2017). Therefore, while the financing constraints perspective applies supply-side arguments to explain zero leverage, the financial flexibility theory approaches the demand side to justify zero leverage. Firms wishing for financial flexibility decrease their debt levels and accumulate cash to preserve their debt capacity to fund future investments even in the presence of information asymmetries (Ferrando et al., 2017; Gamba and Triantis, 2008). In fact, empirical evidence confirms that firms with greater profitability and cash holdings have a greater propensity toward zero leverage.

Focusing on these two core perspectives to explain the zero-leverage phenomenon, the financing constraints argument seems of even greater relevance to explain SME zero leverage, as small and informationally opaque businesses, with low levels of public support and lacking credit histories, are less likely to raise debt (Aristei and Angori, 2021; Schickinger et al., 2022).

Despite being rare, there are some studies examining the zero-leverage phenomenon in SMEs (Ramalho and da Silva, 2009; Ramalho et al., 2018). Similar to Ramalho and da Silva (2009) and Ramalho et al. (2018), we also investigate not only the factors affecting the decision of firms to resort or not to debt but also the factors affecting the proportion of debt used by firms that do use debt. In particular, Ramalho and da Silva (2009) used a sample of micro, small, medium, and large private firms to report that over 70% corresponded to debt-free firms. The authors applied a set of standard firm-specific factors to explain a firm's capital structure decisions. Ramalho et al. (2018) considered not only firm-specific factors to explain capital structure decisions but also contextual factors such as the firm's geographical location and the 2008 global financial crisis.

2.2. Society life satisfaction: definition and influence on firms

Studies about life satisfaction have gained prominence over the recent decades, which assume life satisfaction to reflect the contentment that someone feels when thinking about his/her life in overall terms, often being interlinked with financial resources. Frequently considered as a measure of well-being, life satisfaction measurements are more subjective and not strictly based on specific variables such as well-being. Maslow (1943) hierarchy of needs portrays the drivers of human behavior and what makes humans feel fulfilled. His hierarchical approach provided an understanding of the factors motivating behaviors. Furthermore, there are also several theories generating insights into the relationship between psychological factors and decision-making processes. Taking this into consideration, individual and collective well-being are expected to impact decision-making processes.

Many studies analyzed the individual's or a population's income and life satisfaction (Diener et al., 1985; Diener et al., 1993; Roth et al., 2016). Accordingly, the literature reports that income and life

satisfaction correlate in within-country studies (Diener, 1984). Income levels, adequate financial management, advantageous financial positions, and employment and poverty status endow people with a greater sense of satisfaction (Meyer and Dunga, 2014; Sobekova, 2016). This is due to most interactions in society resulting from the maximization of personal benefits; individuals therefore tend to make efforts to maximize individual gains (Doron and Parot, 2007). Furthermore, excessive debt may negatively relate to life satisfaction (Brown and Gray, 2016). On the one hand, healthy financial behaviors positively relate to life satisfaction not only for individuals but also for collectives. On the other hand, life satisfaction is also associated with several impacts on collective patterns such as consumption, because people experience greater satisfaction when spending money on goods or services (Zhong and Mitchell, 2012). Most studies on life satisfaction refer to the psychology literature targeting only the general population level.

Life satisfaction in the context of firms has already attracted the attention of researchers. Research findings have recently demonstrated how family support holds positive associations with the life satisfaction of SME owners (Leung et al., 2020). El Shoubaki et al. (2022) reported that CEO satisfaction impacts product innovation led by family involvement. Furthermore, the literature reports that social support impacts SMEs through their owners. Nguyen and Sawang (2016) concluded in favor of a positive association between social support and the well-being of SME owners. Social support spans the social interactions that provide individuals with assistance or feelings of attachment to a person or group (Hobfoll and Stokes, 1988); as the impacts of social support depend on the characteristics of the recipient (Chay, 1993), we may infer the likelihood of SME owners being susceptible to influences from their surrounding societies.

Regarding the effect of human life satisfaction on the firms' capital structure, previous evidence reports that firms with higher levels of employee well-being prefer long-term debt over short-term debt (Boubaker et al., 2019), achieve better credit ratings, and reduce the probability of bankruptcy due to lower debt ratios (Verwijmeren and Derwall, 2010). Additionally, the literature also details how firms striving for the well-being of their employees tend to follow more conservative dividend policies and hold more cash (e.g., Holder et al., 1998; Ghaly et al., 2015).

Due to the subjective nature of life satisfaction, there is a lack of literature searching for the potential effects of human life satisfaction on firms' capital structure. Accordingly, the literature may have overlooked a major issue: how life satisfaction impacts firms' decisions, especially for SMEs that, given their smaller size, may closely interlink with the surrounding society. As stated by Wiklund et al. (2019), the surrounding community is important for firms but uncharted territory for research.

2.3. The effect of society life satisfaction on capital structure: to issue or not to issue debt

SMEs face one main decision related with debt financing: to issue or not to issue debt. This decision is explored by studies dedicated to examining the zero-leverage phenomenon, in particular the motives for not issuing debt. Some contextual factors have been linked to the zero-leverage phenomenon. For example, developed countries, market-based financial systems, and common law systems emerge as contexts favorable to raising the propensity of firms to adopt zero-leverage policies (Bessler et al., 2013; El Ghouli et al., 2018; Morais et al., 2021). In addition, the 2008 financial crisis positively influenced the zero-leverage phenomenon, particularly in market-based financial systems (Morais et al., 2021). Ramalho et al. (2018) report that family ownership decreases the propensity for zero long-term debt, while the geographical location, in a metropolitan or a rural context, seems

irrelevant to the probability of whether or not firms resort to debt. The culture of society has also emerged as playing a determinant role in the zero-leverage phenomenon, with El Ghouli et al. (2018) reporting that firms from countries with a greater cultural index of conservatism, assertiveness, and trust in individuals are more likely to employ zero-leverage policies.

However, little is known about the potential effects of society life satisfaction on SMEs' decisions over whether or not to use debt. As private income and life satisfaction correlate (Diener, 1984) and the financial situation and employment stability improve individual satisfaction (Sobekova, 2016; Meyer and Dunga, 2014), we conjecture that greater society life satisfaction increases the willingness of individuals to purchase services and goods, contributing to boosting private consumption. Accordingly, we may put forward two arguments regarding the potential effect of society life satisfaction on zero leverage. On the one hand, greater society satisfaction may promote SMEs' levels of investment to respond to the greater demand from individuals for services and goods. Hence, this increases the need for SMEs to raise debt whether for investment or simply to fund day-to-day activities. This argument is partially in accordance with the evidence of Boubaker et al. (2019), which found that employee well-being increases the firm preference for long-term debt financing. On the other hand, given the expectation of rising consumption levels in conjunction with society satisfaction, the cash flows of firms are also arguably expected to increase. Given that pecking order theory particularly applies to SMEs, any increase in internal liquidity may be interpreted as reducing the need to use debt. Hence, SMEs can deploy their cash flows as substitutes for debt (Morais et al., 2021). Given the greater preponderance of financing constraints on the debt decisions of smaller firms (Bessler et al., 2013), resulting from the severe conditions imposed by creditors on loans to most SMEs, we argue that society life satisfaction will contribute to firms avoiding having to resort to debt, hence contributing to increase the likelihood of SMEs having zero leverage. In accordance with that, we may formulate the following hypothesis:

H1: Higher society life satisfaction increases the propensity for zero leverage.

2.4. The effect of society life satisfaction on capital structure: how much debt to issue

Conditioned by the primary debt decision of SMEs (to issue or not to issue debt), a second decision may then become necessary: how much debt to issue. This second decision is clearly only necessary when SMEs have previously decided to issue debt. Therefore, given the existence of two different decisions, the motives for one decision may arguably differ from the other. In particular, Ramalho and da Silva (2009) show that some standard determinants of capital structure influence in opposite ways the decisions of firms about debt. Even for those determinants that have the same type of effects (positive/negative) over the use and proportion of debt, the authors show that their magnitude is different for each decision. For example, these authors found that while firm size increases the propensity of firms to take out long-term debt, conditional on the firm's original decision to acquire debt, it also decreases the proportion of debt used by firms. Therefore, we may expect that society life satisfaction, similarly to standard determinants of capital structure, has a diversified impact (different effects or magnitudes) on firms' debt decisions. Hence, we may hypothesize that:

H2: The determinants of whether or not to issue debt differ from the determinants of the level of debt contracted by leveraged firms.

Regarding the effects of society life satisfaction on the proportion of debt used by SMEs that decide to issue debt, the arguments are similar to those used in the subsection above to explain the

potential effect of society satisfaction on the decision over whether or not to issue debt. Thus, on the one hand, a greater society life satisfaction may contribute to higher debt levels to finance investments that SMEs may need to follow consumer's demand. On the other hand, according to the pecking order theory, the potential greater levels of cash flows generated by a greater society life satisfaction may increase private consumption, reducing the SME's need for high debt levels. Therefore, in the presence of high levels of society life satisfaction, SMEs may adopt lower debt ratios, deploying their expected higher internal levels of liquidity to fund their investments. According to the expected greater financing constraints suffered by smaller firms, we expect the second argument to prevail. Hence, the following hypothesis is postulated:

H3: Conditioned by the decision of SMEs to issue debt, society life satisfaction negatively affects debt levels.

3. Data and methodology

This paper explores the impacts of society satisfaction as a determining factor for SME leverage. As stated above, the focus on SMEs stems from their major importance to the Portuguese economy in contributing approximately 60% of the total gross value added by companies (INE, 2021), mirroring trends observed in other countries. To achieve this, we sourced the accounting, financial, and economic data on SMEs from the SABI (Analysis System of Iberian Balance Sheets) database produced by Bureau Van Dijk and jointly managed by this company and Informa, S.A. We collected this data for the year of 2020. The decision to analyze only one year interlinks with one of the main innovations of the study, which encapsulates proposing a latent variable for society satisfaction based on population surveys. Hence, the questionnaire-collected data refer only to the year 2020.

We followed the European Commission's recommendation (2003/361/EC) and classified firms as SMEs when meeting at least two of the following criteria: (i) less than 250 employees, (ii) assets of under 43 million euros, and (iii) an annual turnover under 50 million euros. Additionally, we excluded utilities and financial SMEs from our sample due to the regulations imposed on these firms that influence their capital structures. Furthermore, we also excluded SMEs lacking any industry code, with missing data or data errors. Hence, the final sample covered 9,486 SMEs. Regarding the satisfaction with life scale (SLS) data, 498 persons across 38 Portuguese municipalities answered an online questionnaire containing five items. The questionnaire ensures its scientific validity and representativity by applying a two-step strategy that requests stakeholders to identify the main indicators for consideration in a subsequent populational study. Additionally, a similar number of responses were ensured across the different national regions of the country in terms of age groups and gender, among other aspects.

Table 1 sets out the definition of the variables deployed in this paper. Our dependent variable is leverage (LEV), which derives from the book leverage ratio defined by total debt divided by total assets (Serrasqueiro et al., 2016). The SLS is our explanatory variable, and the remaining variables stem from the control variables deployed in the regression models. In order to control for non-observed specific effects, all models include industry dummy variables (based on the 1-digit NACE code).

Due to the need to process the questionnaire data prior to accessing the impacts of satisfaction with life in the SMEs leverage, the methodology spans two subsections: (i) developing the SLS latent variable; (ii) modeling the impacts of satisfaction with life on SME levels of leverage.

Table 1. Definition of the variables.

Variable	Definition
<i>Dependent variable</i>	
Leverage	Total debt divided by total assets
<i>Explanatory variable</i>	
SLS	Latent variable of satisfaction with life scale
<i>Standard firm-level determinants of capital structure</i>	
Cash holdings	Ratio of cash and cash equivalents to book assets
Non-debt tax shields	Ratio of depreciation and amortizations to book assets
Profitability	Ratio of earnings before interests, taxes, and depreciation (EBITDA) to book assets
Liquidity	Ratio of current assets minus current liabilities to book assets
Tangibility	Ratio of fixed assets to book assets
Size	Logarithm of total book assets
<i>Additional control variables</i>	
Turnover growth	Turnover growth rate in 2020
Capital expenditure growth	Capital expenditure growth rate in 2020

3.1. Satisfaction with life scale

The satisfaction with life measurement scale adopted the Portuguese version of the SLS (Diener et al., 1985) applied by Minas (2020). As stated by Minas (2020), the purpose of this scale involves analyzing the subjective well-being and perceptions that individuals hold about their own quality of life. The higher the value, the higher the satisfaction with life.

To measure the unobserved SLS concept, we estimated a latent variable through path modeling according to standard linear structural equation modeling (SEM), deploying five items observed in the questionnaire. As described by Mueller and Hancock (2019), SEM provides an analytical process involving model conceptualization, parameter identification and estimation, data-model fit assessment, and potential model re-specification. To achieve this, we applied the Stata SEM package. Given our SLS builds on previous work (see Diener et al., 1985; Minas, 2020), we applied confirmatory factor analysis to the five theory-based SLS constructs. Thus, this defines just which constructs are appropriate to include in the model and how they respectively interrelate. The model correspondingly displays the following structure.

The model's factor scores provide an assessment of the validity of each individual construct. An individual construct is classified as reliable when its factor loading is superior or equal to 0.7 and statistically significant. The procedures also estimate the overall goodness of fit (GOF) for the model, given that any model closely fits the data whenever there is acceptance of the null hypothesis. However, as the GOF likelihood ratio incorporates a chi-square test and is sensitive to sample size, we also estimate four fit indexes to evaluate our model fit. The design of the fit indexes adapted to the sample size problems and distributional misspecification associated with the conventional GOF (Bentler and Bonett, 1980). In short, to evaluate the GOF, we estimated: (i) the GOF likelihood ratio of the model, (ii) the root mean squared error of approximation (RMSEA); (iii) the comparative fit index (CFI); (iv) the Tucker-Lewis index (TLI); and (v) the standardized root mean squared residual (SRMR). Acceptable models return RMSEA results below 0.08. Furthermore, the CFI and TLI should come in

over 0.9 to rank as evidence of acceptable fit (Schumacker and Lomax, 2016). In addition, an SRMR reading of up to 0.05 suggests a close-fitting model, and between 0.05 and 0.10 an acceptable fit level (Pituch and Stevens, 2016). After confirming the validity of the constructs and the overall GOF, we estimated the SLS values.

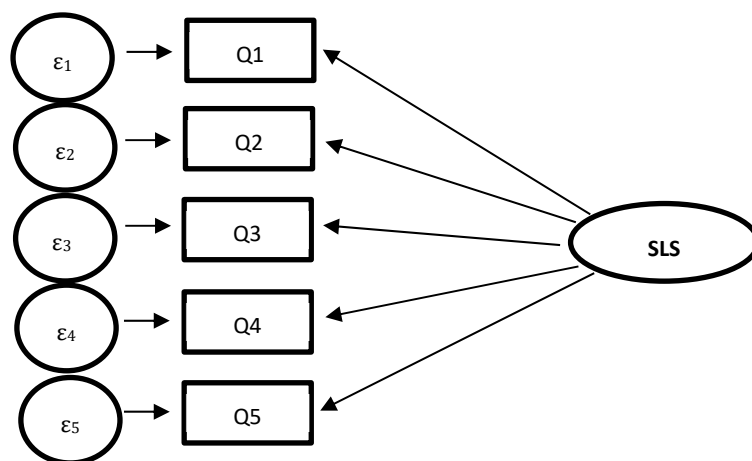


Figure 1. Path modeling of SLS. Q1–Q5 represent specific questions posed to the population regarding their satisfaction with life. These questions serve as constructs for the latent variable, SLS. Additionally, ϵ_i represents the error terms in the model.

The questions leading to the constructs are the following:

Q1 - My life resembles, in almost everything, what I wanted it to be.

Q2 - My living conditions are very good.

Q3 - I am satisfied with my life.

Q4 – So far, I have achieved the most important things that I wanted in my life.

Q5 - If I could start my life again, I would change almost nothing.

Table 2 reports the correlations between the five constructs.

Table 2. Correlation matrix for the SLS constructs.

	Q1	Q2	Q3	Q4	Q5
Q1	1	-	-	-	-
Q2	0.6047***	1	-	-	-
Q3	0.5773***	0.6740***	1	-	-
Q4	0.5335***	0.5804***	0.6077***	1	-
Q5	0.5932***	0.5576***	0.5978***	0.5592***	1

Note: *** indicates statistical significance at 1% level.

The correlations between 0.53 and 0.67 support the existence of relationships among the questions; furthermore, given there are no correlations over 0.8, there is no expectation of multicollinearity problems. Table 3 presents factor loadings, variances, and overall fit indices to evaluate the global fit for the model. As stated above, we estimated the GOF likelihood ratio of the model, the RMSEA, the CFI, the TLI, and the SRMR.

Table 3. Factor loadings and variances for error terms and fit statistics.

Item	Factor loading	Std. Dev.
SLS		
Q1	1	-
Q2	1.029***	0.059
Q3	1.050***	0.061
Q4	0.959***	0.061
Q5	1.203***	0.075
<i>Variances</i>	<i>Coefficient</i>	<i>Std. Dev.</i>
var(e.Q1)	0.469	0.036
var(e.Q2)	0.346	0.029
var(e.Q3)	0.321	0.028
var(e.Q4)	0.451	0.034
var(e.Q5)	0.690	0.053
var(SLS)	0.580	0.063
<i>Fit statistics</i>	<i>Coefficient</i>	
Likelihood Ratio	15.001**	
RMSEA	0.063	
CFI	0.992	
TLI	0.983	
SRMR	0.016	

Notes: *** and ** indicate statistical significance at 1% and 5% levels, respectively.

All of our confirmatory factor analyses return factor loading coefficients above 0.7, thus attaining statistical significance level at 1% level (see Table 3). The Q1 path coefficient is set at 1. The factor loadings of constructs are 1.029, 1.050, 0.959, and 1.203 for Q2, Q3, Q4, and Q5, respectively. Accordingly, we were able to validate the five factors as individual constructs of SLS. The individual variances between the constructs and the error terms vary between 0.321 and 0.690, representing the fraction of the variance not explained by the latent variable. The overall variance in SLS, our latent variable, reaches close to 0.6, suggesting that our factors explain 60% of overall variance in the observed variables. Values closer to 1 suggest that the extracted factors explain more of the variance in the individual items (Pallant, 2016).

Statistical significance at the 5% level of goodness of fit (likelihood ratio) classes as an indicator of poor model fit. However, this test may only be capturing minor misspecifications and, for that reason, we estimated the RMSEA, CFI, TLI, and SRMR indexes. The RMSEA fit index of 0.063, the CFI and TLI indexes of over 0.9, and the SRMR index of 0.016 all support a good fit. Taking this into consideration, we considered the model as close-fitting and then extracted the SLS latent variable and matched it with each of the firms in our sample, keeping their respective municipality.

3.2. The two-part fractional regression model

Considering how most factors influencing SMEs' decisions over whether or not to contract debt may differ from those influencing the amount of debt issued in terms of their effects (at least in terms of their

magnitude), we apply a framework that approaches these two debt decisions independently. First, SMEs decide on whether or not to issue debt and, conditional on the decision to contract debt, SMEs must then decide how much debt to issue. It is also important to recall how this process is not under the control of any single decision-maker (the SME), as creditors also decide whether or not they want to grant debt to the firm (see inter alia Morais et al., 2020). Therefore, applying a simple model to examine debt decisions would not be the most appropriate choice in this case. Hence, the two-part fractional regression models (2P-FRM), proposed by Ramalho and da Silva (2009), despite several econometric advantages over linear models for explaining leverage ratios (for example, accounting for the binary nature of debt ratios between 0 and 1), has only been sparingly used to model SMEs capital structures, with a rare example being Ramalho et al. (2018). Empirically, this method extends the Papke and Wooldridge (1996) fractional regression model (FRM) and has the great advantage of assuming that the factors explaining the decision of SMEs over resorting or not resort to debt may differ from the factors that determine how much debt firms take on when they do make that option. Hence, we follow Ramalho and da Silva (2009) and deploy a model that recognizes how these two decisions need to be approached independently.

The first step of the 2P-FRM specifies a binary outcome model for explaining the probability of whether or not SMEs acquire leverage, as follows:

$$LEV^* = \begin{cases} 0 & \text{for } LEV = 0 \\ 1 & \text{for } LEV \in (0, 1] \end{cases} \quad (1)$$

Then,

$$Pr(LEV^* = 1|X) = Pr(LEV \in (0, 1]|X) = F(X\theta), \quad (2)$$

where θ is a vector of variable coefficients and $F(\cdot)$ is the cumulative logistic or normal distribution function. The resulting model is estimated by maximum likelihood. The second step of the 2P-FRM addresses the positive values of LEV . Accordingly, this specifies a $G(\cdot)$ function as follows:

$$E(LEV|X, LEV \in (0, 1]) = G(X\gamma), \quad (3)$$

where,

$$E(LEV|X) = E(LEV|X, LEV = 0) \cdot Pr(LEV = 0|X) + E(LEV|X, LEV \in (0, 1]) \cdot Pr(LEV \in (0, 1]|X) \quad (4)$$

and given that,

$$E(LEV|X, LEV = 0) \cdot Pr(LEV = 0|X) = 0 \quad (5)$$

then,

$$E(LEV|X) = E(LEV|X, LEV \in (0, 1]) \cdot Pr(LEV \in (0, 1]|X) = G(X\gamma) \cdot F(X\theta) \quad (6)$$

Quasi-maximum likelihood serves to estimate $G(X\gamma)$ and with the two components calculated separately (Ramalho and da Silva, 2009). Both $G(\cdot)$ and $F(\cdot)$, that are the first and second steps in the 2P-FRM, respectively, can apply logit and probit functional forms (Papke and Wooldridge, 1996; Ramalho and da Silva, 2009) and alternative forms such as the loglog and complementary loglog (cloglog), as discussed by Ramalho et al. (2011). To test the $E(LEV|X)$ specification, we apply the RESET test to analyze the functional form of the conditional mean and the goodness-of-functional-forms (GOFF1 and

GOGG2), as proposed by Ramalho et al. (2011), and the P-test to test alternative specifications that test each specification against all other specifications (Davidson and MacKinnon, 1981).

4. Results

4.1. Descriptive statistics

Table 4 sets out the descriptive statistics.

Table 4. Descriptive statistics.

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Leverage	9486	0.156	0.231	0.000	0.999
SLS	9486	0.075	0.185	-0.490	0.313
Cash holdings	9486	0.277	0.263	0.000	0.989
Non-debt tax shields	9486	0.038	0.078	0.000	0.910
Profitability	9486	0.039	0.722	-8.762	0.793
Liquidity	9486	0.260	1.051	-6.028	1.000
Tangibility	9486	0.229	0.263	0.000	0.999
Size	9486	5.049	1.701	0.008	10.667

Notes: Obs. means observations number. Std. Dev. means standard deviation. Min. means minimum. Max. means maximum.

With 9,486 observations for all variables, the descriptive statistics reveal no major outliers. The mean leverage is 0.156. The sample concurs with the literature arguing that smaller firms are more prone to adopting lower debt levels whether due to financial constraints (Hadlock and Pierce, 2010) or due to a decision to remain debt-free. Even in the Portuguese case, where bank lending prevails, there is a propensity for SMEs to have reduced levels of leverage. Regarding the SLS variable, the higher the latent variable, the higher the perception of life satisfaction. Our sample returns a mean SLS of 0.075 with a relevant standard deviation of 0.185 revealing some degree of heterogeneity in the SLS levels across Portuguese municipalities.

Table 5 presents the Pearson pairwise correlation coefficients between the independent variables. The correlations between the variables are always below 0.5, which, coupled with the variance inflation factor (VIF) results below 5 in all cases, suggests that multicollinearity is not a problem.

Table 5. Pearson correlation matrix and variance inflation factor (VIF).

Variables	Leverage	SLS	Cash holdings	Non-debt tax shields	Profitability	Liquidity	Tangibility	Size	VIF
Leverage	1.0000								
SLS	-0.0416***	1.0000							1.00
Cash holdings	-0.2402***	0.0506***	1.0000						1.22
Non-debt tax shields	0.1127***	-0.0195*	-0.0493***	1.0000					1.14
Profitability	-0.0271***	0.0046	0.0537***	0.0585***	1.0000				1.25
Liquidity	-0.0122	0.0026	0.1435***	-0.1240***	0.4183***	1.0000			1.32
Tangibility	0.2988	-0.176*	0.3614***	0.2688***	0.0077	-0.1796***	1.0000		1.34
Size	0.1801***	-0.0085	-0.2557***	-0.1094**	-0.1604***	0.1553***	0.2492***	1.0000	1.21

Notes: ***, **, and * indicate statistical significance at 1%, 5%, and 10 % levels, respectively.

4.2. Regression results

As previously stated, in order to choose between FRM and 2P-FRM and the optimal functional forms, we performed the specification tests presented in Table 6. Panel A presents the specification tests for the FRM models and Panel B for the 2P-FRM models.

The results in Table 6 allow us to choose the best specification to test the impacts of SLS on SMEs' leverage. Validating the FRM function form takes place by estimating the RESET test by accepting the null hypothesis for four specifications: (i) logit, (ii) probit, (iii) log-log, and (iv) clog-log. However, the GOFF1 and GOFF2 tests display a preference for the probit and log-log specification, due to the non-rejection of the null hypothesis, over the logit and clog-log specification. Additionally, by contrasting their respective P-test results with the other specifications, probit emerges as preferable to the other specifications except for log-log; log-log itself is preferable to all other specifications due to their non-rejection of the null hypothesis at the 1% statistical significance level. Accordingly, we took both the probit and log-log specifications as our preferred options. Regarding the first part of 2P-FRM, the P-test does not clearly reveal any preferred specification. However, we opted for logit and probit as both surpassed the RESET result; the logit specification also surpassed the GOFF1 test and the probit specification surpassed the GOFF2 test by not rejecting the null hypothesis. In the second part of 2P-FRM, only the log-log specification surpassed the RESET test by not rejecting the null hypothesis.

Table 7 details the results that allow us to test the hypotheses regarding the effect of society satisfaction on capital structure. As explained, for the one-part model, we apply the probit and log-log specifications while deploying logit and probit specifications for the first part of 2P-FRM and log-log specification for the second. For each model, we present the regression coefficients, their respective statistical significance level, total observations, and pseudo-R2.

Table 6. Specification tests for FRM and the first and second components of 2P-FRM.

Panel A: Specification tests one-part model (FRM)				
	Logit	Probit	Log-Log	Clog-Log
RESET	0.149	0.070	0.056	0.018
GOFF1	1.803	0.784	-	4.614**
GOFF2	2.763*	0.084	0.012	-
<i>P-tests:</i>				
H1: Logit	-	-0.414	0.822	5.593***
H1: Probit	3.632***	-	-0.656	5.935***
H1: LogLog	4.106***	3.982***	-	5.815***
H1: ClogLog	-2.938***	-1.106	1.499	-
Panel B: Specification tests two-part model (2P-FRM)				
First part				
	Logit	Probit	Log-Log	Clog-Log
RESET	1.595	0.781	19.694***	64.167***
GOFF1	0.432	4.195**	-	92.454***
GOFF2	8.545***	0.307	28.613***	-
<i>P-tests:</i>				
H1: Logit	-	3.377***	5.645***	7.821***
H1: Probit	-4.014***	-	3.584***	7.182***
H1: LogLog	2.951***	6.114***	-	7.955***
H1: ClogLog	-1.697*	-0.717	4.771***	-
Second part				
	Logit	Probit	Log-Log	Clog-Log
RESET	7.800***	6.076**	2.593	2.956*
GOFF1	9.085***	6.231**	-	6.827***
GOFF2	8.606***	6.083**	2.321	-
<i>P-tests:</i>				
H1: Logit	-	0.052	-1.716*	7.088***
H1: Probit	0.874	-	-2.152**	6.685***
H1: LogLog	5.563***	5.917***	-	8.984***
H1: ClogLog	-0.517	-0.259	0.652	-

Notes: ***, **, and * indicate statistical significance at 1%, 5%, and 10 % levels, respectively.

Table 7. Estimation results for FRM and 2P-FRM.

	FRM		2P-FRM		2P-FRM
	one-part model		Part I: binary model		Part II: fractional regression model
	Probit	Log-Log	Logit	Probit	Log-Log
Leverage					
SLS	-0.123** (0.052)	-0.097** (0.044)	-0.453*** (0.127)	-0.283*** (0.076)	0.007 (0.049)
Cash holdings	-0.676*** (0.054)	-0.490*** (0.040)	-1.294*** (0.099)	-0.761*** (0.059)	-0.358*** (0.050)
Non-debt tax shields	0.924*** (0.212)	0.924*** (0.212)	3.876*** (0.427)	2.102*** (0.249)	0.741*** (0.129)
Profitability	-0.106*** (0.038)	-0.122*** (0.033)	-0.194*** (0.047)	-0.090*** (0.026)	-0.507*** (0.070)
Liquidity	0.100** (0.044)	0.062** (0.026)	0.264*** (0.043)	0.108*** (0.022)	0.098*** (0.024)
Tangibility	0.734*** (0.052)	0.621*** (0.043)	0.959*** (0.110)	0.548*** (0.065)	0.640*** (0.042)
Size	0.059*** (0.007)	0.053*** (0.006)	0.460*** (0.017)	0.273*** (0.010)	-0.069*** (0.007)
Constant	-1.420*** (0.045)	-0.983*** (0.037)	-2.249*** (0.097)	-1.310*** (0.057)	0.034 (0.047)
Industry dummies	Yes	Yes	Yes	Yes	Yes
Observations	9486	9486	9486	9486	5080
Pseudo-R2	0.136	0.132	0.207	0.204	0.136

Notes: Robust standard errors in parentheses. ***, **, and * indicate statistical significance at 1%, 5%, and 10 % levels, respectively.

Beyond the RESET tests in Table 6 providing no evidence of functional form misspecification, Table 7 details low, but usual, values for the pseudo-R2 in cross-sectional studies. Both specifications applied in model Part I return consistent results, with the coefficient signals and statistical significance quite similar across both specifications. There are similar outcomes from the logit and probit specifications applied in the first part of 2P-FRM (binary model) with the signals and significance levels for all coefficients rigorously the same. Beyond robustness, this evidence also endows confidence in interpreting our results.

The FRM model reports SLS as a negative and significant coefficient, implying that the level of society satisfaction negatively influences SMEs' capital structures. Thus, any increase in the levels of society satisfaction decreases SMEs' debt ratios. While this in itself adds to the literature, the results presented by 2P-FRM allow us to identify how this overall negative effect of society satisfaction on capital structure, contrary to our expectations, stems from only one decision about debt. In particular, the SLS variable returns a negative and significant coefficient in the first part of 2P-FRM (decision on whether or not to issue debt) but obtains a non-significant coefficient in that model's second part (decision on how much debt to raise). The negative SLS coefficient in the model's first part (binary) implies that society satisfaction negatively affects SMEs' decisions to resort to debt. Hence, the greater the levels of society satisfaction, the lower the propensity of SMEs to obtain debt financing, contributing to increasing the SMEs' zero-leverage phenomenon. Regarding the model's second part,

which includes only those firms that do make a recourse to debt, the non-significant coefficient for SLS demonstrates that society satisfaction does not impact the level of debt acquired by these leveraged SMEs. This interesting finding conveys how greater levels of society satisfaction motivate SMEs to remain debt-free but do not have any effect on the debt ratios of leveraged SMEs. Therefore, these results also demonstrate the richness of the 2P-FRM estimates over simple one-part results. Indeed, the negative effect of society satisfaction on SMEs' capital structures, captured by one-part models, arises only as a consequence of the increasing propensity for SMEs to become debt-free.

The remaining results generally coincide between the one-part and two-part models. The variable *size* represents the exception. In particular, one-part models report a positive effect of SMEs' size on their capital structures, implying that larger SMEs are more prone to incurring higher debt ratios. However, the 2P-FRM reports that while firms' size increases the propensity for SMEs to decide to acquire debt (the positive and significant coefficient of *size* in the first-part model), for firms deciding to contract debt, size then decreases debt levels (negative and significant coefficient of *size* in the second-part model). Therefore, larger firms are more prone to acquiring debt than their smaller counterparts, but these firms then present lower levels of debt than their smaller peer SMEs.

4.3. Robustness tests

Considering that this analysis took place in a year of pandemic crisis, where society faced several months of lockdowns that may have contributed to lowering private consumption and triggering falls in firm investment needs, this may explain why firms remain debt-free during this period. Therefore, to assess the robustness of the results above, we added some additional control variables to the models serving as proxies for firm activities and investment variations in the year of the pandemic crisis. Thus, in Table 8, we add the variables *turnover growth* and *capital expenditures growth*. We selected the same optimal functional forms for the FRM and 2P-FRM models as in the previous section.

Table 8 reports how our results remain robust following the inclusion of controls for variations in a firm's turnover and investment. In particular, the models seem robust and stable given that: (i) the optimal functional form of the models returned was the same as in the narrow models; (ii) the coefficient signals did not change; and (iii) the statistical significance of the independent variables remained the same. Therefore, the overall negative effect of society satisfaction on capital structure is, indeed, only explained by the negative effect that society satisfaction has on SMEs' decisions to resort to debt. Once again, society satisfaction with life does not seem to impact the level of debt contracted by leveraged SMEs. Regarding the additional control variables, *turnover growth* and *capital expenditures growth*, both display non-significant coefficients and do not affect SMEs' leverage decisions: neither the decision whether or not to hold debt nor the amount of leverage they should hold when deciding to acquire debt.

Table 8. Robustness tests incorporating the additional control variables.

	FRM		2P-FRM		2P-FRM
	One-part model		Part I: Binary model		Part II: Fractional regression model
	Probit	Log-Log	Logit	Probit	Log-Log
Leverage					
SLS	−0.122** (0.052)	−0.960** (0.044)	−0.451*** (0.127)	−0.281*** (0.076)	0.004 (0.049)
Cash holdings	−0.675*** (0.054)	−0.489*** (0.040)	−1.289*** (0.099)	−0.758*** (0.059)	−0.360*** (0.050)
Non-debt tax shields	0.920*** (0.213)	0.920*** (0.213)	3.878*** (0.428)	2.093*** (0.249)	0.808*** (0.134)
Profitability	−0.105*** (0.038)	−0.121*** (0.034)	−0.190*** (0.047)	−0.090*** (0.026)	−0.537*** (0.073)
Liquidity	0.100** (0.044)	0.062** (0.026)	0.261*** (0.043)	0.107*** (0.022)	0.104*** (0.023)
Tangibility	0.733*** (0.052)	0.621*** (0.043)	0.960*** (0.110)	0.549*** (0.065)	0.645*** (0.042)
Size	0.060*** (0.007)	0.053*** (0.006)	0.460*** (0.017)	0.273*** (0.010)	−0.067*** (0.00)
Turnover growth	0.003 (0.001)	0.002 (0.001)	0.006 (0.003)	0.004 (0.002)	−0.001 (0.002)
Capital expenditures growth	0.000 (0.010)	0.000 (0.008)	0.000 (0.019)	0.000 (0.011)	0.031** (0.013)
Constant	−1.420*** (0.046)	−0.985*** (0.037)	−2.233*** (0.099)	−1.300*** (0.058)	0.008 (0.048)
Industry dummies	Yes	Yes	Yes	Yes	Yes
Observations	9486	9486	9486	9486	5080
Pseudo-R2	0.134	0.132	0.207	0.205	0.138

Notes: Robust standard errors in parentheses. ***, **, and * indicate statistical significance at 1%, 5%, and 10 % levels, respectively.

5. Discussion

This paper focuses on the life satisfaction of surrounding societies as a new determinant of SMEs' capital structures. As stated by Nguyen and Canh (2021), there is a need to deploy contextual factors to promote the continuous development of this research field. Accordingly, our results confirm the significant effect of life satisfaction of society on the capital structures of Portuguese SMEs. Furthermore, this study also provides confirmation on how to measure society satisfaction with life by analyzing the Portuguese case. Overall, our latent SLS variable copes with the results obtained by Minas (2020), given that the study applied constructs that remain crucial to measuring SLS. Indeed, it is also quite interesting that these constructs do not appear to have changed even when faced with the COVID-19 pandemic crisis, thus satisfaction with life did not severely shift through the pandemic crisis, at least for a while.

The evidence for how satisfaction with the surrounding society influences SMEs' financing decisions stems from applying either a one-part FRM or a 2P-FRM. The FRM reports how greater SLS lowers SME debt levels, while the 2P-FRM shows that this overall negative effect is due to the increasing propensity for firms to remain debt-free in the presence of greater levels of society satisfaction. This finding receives support from the arguments that greater levels of society satisfaction increase private consumption (e.g., Zhong and Mitchell, 2012; Leelakulthanit, 2020) and may contribute to the higher cash flow levels that then reduce the need for SMEs to resort to debt financing. Furthermore, this result also supports the literature arguing that the pecking order theory is the most relevant theoretical perspective for explaining SMEs' capital structure decisions (Kumar et al., 2020). Regarding the zero-leverage literature, our findings seem to support the financial flexibility arguments that firms raise their internal liquidity levels to preserve their debt capacity for financing eventual future investment opportunities (Dang, 2013; Huang et al., 2017). Therefore, in the presence of greater society satisfaction levels, zero-leverage seems to be a financing decision taken by the firm and not only as a consequence of the financial and legal systems prevailing in countries or regions (Bessler et al., 2013; El Ghouli et al., 2018; Morais et al., 2021). Overall, this result provides support to our hypothesis H1. Clearly, the literature should not overlook the origins of the society satisfaction variable. This stems from particular questions that pinpoint whether a population is content with the current situation and would not change it in any way. Accordingly, this would expect there to be no incentives for taking decisions in a different direction unless there is a higher marginal benefit from the new decision.

The results produced by the second part of the 2P-FRM model demonstrate how not all the standard determinants of capital structure influence debt decisions in the same direction. For example, similar to Ramalho and da Silva (2009), while a firm's size increases their propensity to acquire debt, conditional on the firm's decision to first contract debt, the firm's size decreases the proportion of debt acquired by SMEs. The lower propensity for smaller firms to take on debt aligns with the financing constraints arguments (e.g., Morais et al., 2021) while, as suggested by Ramalho and da Silva (2009), the negative effect of size on the relative amounts of debt contracted may derive from the transaction costs incurred by debt issuance, potentially resulting from minimum bond amounts in debt issues. These results render support to our hypothesis H2.

For those SMEs that already make recourse to debt financing, our results establish that their decisions on the amount of debt are not influenced by society satisfaction with life. Therefore, similar to firm size, SLS also displays different effects on SME debt decisions. Contrary to our expectations, the potentially greater private consumption brought about by higher levels of society satisfaction does not contribute to reduced debt ratios. Arguments in favor of a positive effect of SLS on debt ratios also do not attain significance. Thus, one possible explanation for this result stems from the greater level of financing constraints incurred by SMEs due to issuing or retiring debt and/or equity becoming more expensive in keeping with the higher interest rates demanded by creditors and/or investors (Öztekin and Flannery, 2012). Another explanation for this outcome arises from the pandemic context faced during 2020. SMEs may opt to preserve their financing position and ensure only the internal funding necessary to maintain their daily activities instead of issuing or paying additional debt as a consequence of higher or lower levels of society satisfaction. Hence, these findings reject hypothesis H3.

Results about remaining standard determinants of capital structure show that greater levels of cash holdings and profitability decrease the likelihood of SMEs to contract debt and, when the SME decide to use debt, both variables contribute to a decrease in the amount of debt issued. This result is in accordance with the financial flexibility perspective arguments, in which firms prefer to preserve

debt capacity by remaining debt-free and to build up financial slack to be able to invest when good growth opportunities arise (Dang, 2013; Morais et al., 2020). These effects are also in accordance with the pecking order theory, which states that SMEs prefer to use internal than external forces to finance their activities (Ramalho and da Silva, 2009). An unexpected result is the positive effect of liquidity on SMEs' decision to resort to debt and on debt levels. Indeed, considering that the variable cash holdings already control for the most liquid asset used by firms, liquidity may act as a moderator in this context, mitigating the anticipated negative impact and thereby manifesting a positive effect on leverage. This observation prompts a deeper exploration into the nuanced dynamics at play, particularly warranting investigation as additional years of data become available. Similar to Ramalho and da Silva (2009), tangibility has a positive effect on SMEs' decision to resort to debt and on debt levels presented by SMEs that decide to use debt. This result confirms the arguments that SMEs with higher levels of asset tangibility have lower costs of financial distress and bankruptcy, given that, in case of bankruptcy, these assets retain their value. Simultaneously, these assets can be used as collateral for debt, increasing the propensity for creditors' willingness to grant debt to these firms (Morais et al., 2020). Finally, the positive effect of non-debt tax shields on both SME's debt decisions can be explained by the fact that we use as proxy for the variable the ratio of depreciation and amortizations to book assets; indeed, leveraged firms have more tangible assets, consequently having higher depreciation and amortization costs, making it difficult to isolate the effects of non-debt tax shields and fixed assets (e.g., Dang, 2013; Morais et al., 2020).

6. Conclusions

This paper analyzed the impacts of satisfaction with life of the surrounding society on SMEs' capital structures. To perform this analysis, we utilized the results of an online questionnaire with a total of 498 usable questionnaires from across the 38 Portuguese municipalities, which allowed for measuring the satisfaction with life of people in each municipality. We collected SMEs' financial and accounting data from the SABI database. Correspondingly, we obtained a final sample of 9,486 SMEs from those 38 Portuguese municipalities.

We encountered lower debt ratios in our descriptive analysis (mean debt ratio of 0.156), corroborating the arguments that smaller firms face a greater propensity for financial conservatism due to difficulties in accessing debt financing.

Using fractional regression models (one-part models), we may report evidence that satisfaction with life in the respective surrounding society constitutes a determinant factor for SMEs' capital structures. While this result already provides an interesting contribution to the literature, the finding obtained from applying two-part fractional regression models—that the effect of society satisfaction on capital structure is explainable by only one decision on debt—generates an even more prominent addition to the literature.

In particular, one-part models report that society satisfaction decreases SMEs' debt levels, while two-part models identify how this overall negative effect is only explained by the increasing propensity for firms to remain debt-free in the presence of greater levels of society satisfaction. Thus, society satisfaction does not seem to generate any influence on the amounts of debt incurred by leveraged SMEs.

Therefore, these results also confirm the advantages of applying two-part over one-part models. In particular, the two-part fractional regression model distinguishes between the scope for whether or not an SME acquires debt as a binary choice model and, in the second phase, explains the relative

amount of debt issued, conditional upon the decision to issue debt. We confirm that the factors explaining decisions to resort to debt differ from the factors determining the amount of debt issued.

In conclusion, this paper provides the literature with new evidence by relating life satisfaction and SMEs' capital structures. In short, satisfaction with life in the surrounding society may serve as a new determinant of SMEs' capital structures and directly influence their decisions over whether or not to resort to debt.

In addition, the paper also provides some important information for practitioners. For SMEs, government entities, and private institutions, this conveys the understanding that subjective factors do influence the capital structures of firms. Accordingly, the effectiveness of SME financial incentives may decrease. This requires consideration and analysis of the need to change the Portuguese SME paradigm, where, on one hand, there is a clear trend to follow zero-leverage policies but, on the other hand, traditional national country growth appears to benefit from the banking system (Marques et al., 2013), with SMEs generating 60.4% of the total gross value added of companies. Furthermore, the effectiveness of SMEs' financial incentives for business innovation and entrepreneurship, qualification and internationalization and research and technological development is questionable given those incentives come largely through interest-free or low-interest loans.

Indeed, our results clearly raise some future questions. Is the non-propensity to leverage of SMEs hampering Portuguese growth? Or, alternatively, is self-investment by SMEs as much or even more efficient than investment through leverage? In short, if self-investment is the way to go, then this needs reflecting in terms of investment policies, and their efficiency levels needs monitoring.

Use of AI tools declaration

The authors affirm that no artificial intelligence (AI) tools were used in the creation of this work.

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Conflict of interest

All authors declare no conflicts of interest in this paper.

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