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Mobilizing potential slack and firm performance: Evidence from French SMEs before and during the Covid-19 period

Abstract

No-debt SMEs have potential slack in that they can raise financial resources to face external shocks or explore new business opportunities. This study compares the performance implications of potential slack mobilization during and before the Covid-19 context by building on arguments from the behavioral theory of firms and corporate finance. The disruptions caused by the Covid-19 crisis theoretically amplify the stabilizing and adaptive functions of potential slack and thus represent an interesting and promising field of investigation. Based on a sample of French SMEs, the empirical results show that the mobilization of potential slack is positively associated with profitability during the Covid-19 crisis but not before it. Slack mobilization is negatively associated with profitability outside the Covid-19 period when SMEs mobilize important amounts of potential slack. Overall, this study sheds light on the process of slack resource mobilization by SMEs and the central moderating role of the economic environment.

Keywords

Potential slack, zero-debt firms, performance, SMEs

1. Introduction

How efficient firms use resources in excess of what is strictly required to operate (slack resources) is a longstanding and widely debated question in strategic management research. The seminal works of Penrose (1959) and Cyert and March (1963) proposed that slack resources serve stabilizing and adaptive functions that help firms deal with external shocks and explore additional, riskier business opportunities, thus highlighting the benefits of slack resources for

firm performance. In contrast, resource constraints argue that firms learn to operate efficiently under resource scarcity by developing alternative and innovative capabilities (Baker & Nelson, 2005; George, 2005). Thus, the abundance of slack could negatively affect performance through entrepreneurial laziness (Bradley, Wiklund, & Shepherd, 2011a). A broad empirical literature examines the relationship between holding slack resources and performance in the case of large, publicly listed firms (see the meta-analysis of Daniel et al., 2004) but also in privately held firms (George, 2005; Vanacker et al., 2017) and examines a variety of industrial, institutional, and economic contexts (Bradley, Shepherd & Wiklund, 2011b; Nason & Patel, 2016; Vanacker et al., 2017; Jung et al., 2020). However, a recent meta-analytical study by Carnes et al. (2019) shows that empirical results in the slack literature are mixed, with no clear-cut relationship between slack resources and firm performance. These authors suggest that more attention should be paid to contextualizing firms' strategic behavior and the slack mobilization process. As they emphatically noted (p.59), "without a clear specification of slack's utilization, our understanding of how and when slack affects performance will remain conflicted and limited."

Building on Carnes et al. 's (2019) proposition, we propose to push the literature on slack forward by investigating the relationship between the mobilization (instead of the presence) of potential slack (unused debt capacity) and firm performance. Furthermore, we contextualize the study of potential slack mobilization by considering the massive downturn caused by the Covid-19 pandemic that theoretically increases the buffering role of slack. Most studies on slack consider the relationship between the presence (or absence) of slack resources and firm performance, thus failing to capture whether, when, and how firms effectively use slack resources to explore business opportunities or absorb external shocks. As Sirmon et al. (2007) highlight, resources must be managed and leveraged adequately (and not only possessed) for firms to create value in a dynamic environment. In this study, we investigate the relationship between the mobilization of potential slack by small- and medium-sized enterprises (SMEs)

and profitability and the moderating role of the Covid-19 crisis. Specifically, we consider a population of SMEs with no financial debt, in which some SMEs decide to issue financial debt at some point (mobilization of potential slack), and examine the profitability of these firms after debt issuance. We examine two periods for potential slack mobilization: before and during the Covid-19 crisis. In doing so, we join the discussion on the mobilization of slack resources in turbulent contexts (Bradley et al., 2011b; Nason & Patel, 2016; Tognazzo et al., 2016; Jung et al., 2019) and bridge it with recent corporate finance research on zero-debt firms and financial flexibility (Strebulaev & Yang, 2013; Saona et al., 2020; Lefebvre, 2021).

Interestingly, corporate finance scholars increasingly recognize that firms' financial decisions are largely driven by a strong willingness to maintain financial flexibility (Graham, 2022). In particular, many firms adopt a zero-debt capital structure. This stylized fact challenges the predictions of theoretical models because zero-debt firms leave the tax benefits of debt on the table (Strebulaev & Yang, 2013). By definition, zero-debt firms have strong financial flexibility due to their unused debt capacity, which corresponds to potential slack in strategic management terms. However, financial flexibility or potential slack is useful only if properly mobilized. Crises like Covid-19 represent key periods to investigate whether firms mobilize slack and what impact this mobilization has on their performance because slack's stabilizing and adaptive functions are amplified. The worldwide economic downturn caused by the Covid-19 pandemic is massive (Shen et al., 2020; Hu & Zhang, 2021). Understanding how firms, especially SMEs, mobilized resources to survive appears to be essential to take stock of this crisis and carries potentially useful implications for policymakers, SME managers, and owners.

Our empirical results reveal that the mobilization of potential slack is negatively associated with profitability, except during the Covid-19 period, where potential slack mobilization is positively associated with profitability. Additional analysis suggests that both the amount and maturity of the financial debt of SMEs play a role in explaining profitability. This study

contributes to the literature in two ways. First, we contribute to the empirical literature on slack resources by studying potential slack mobilization by SMEs in different environments. The role of potential slack is crucial for SMEs, which are more vulnerable to external shocks and suffer from important resource constraints due to their small size (Aldrich & Auster, 1986) but are also notably resilient during crises (Gianiodis et al., 2022). Previous studies on small business management have considered the role of cash, debt, and human resources as slack resources (Bradley et al., 2011b; Vanacker et al., 2013; Tognazzo et al., 2016; Kiss et al., 2018; La Rocca et al., 2019) but not the mobilization of debt by SMEs. Thus, we fill an important gap by showing that mobilizing potential slack has different consequences on SMEs' profitability depending on the context during which potential slack is mobilized since we observe that the mobilization of debt is detrimental to SMEs' profitability outside of the Covid-19 context. In contrast, previous research reported a positive relationship between preserved debt capacity and SMEs' performance during the 2008 global financial crisis (Tognazzo et al., 2016).

Second, this study contributes to the financial literature on zero-debt firms. Recent research in finance has highlighted that a vast fraction of publicly listed (Strebulaev & Yang, Saona et al., 2020) and SMEs (Lefebvre, 2021) are zero-debt firms and thus have high potential slack due to their financial flexibility. Financial flexibility has recently been highlighted as a key factor in explaining corporate finance decisions and the gap between theory and practice in finance (Graham, 2022). To our knowledge, this study is the first to empirically explore the transition from no-debt status to debt status and its performance implications. Thus, we move away from the stream of discussion that views SMEs as (mostly) financially constrained (Berger & Udell, 1998, Beck et al., 2008) or discouraged borrowers (Calabrese et al., 2020) and bring new insights into the fact that an important fraction of SMEs has financial flexibility and can use it, especially in highly uncertain contexts.

During the Covid-19, Our results suggest that zero-debt SMEs that decide to issue debt adjust their capital structure in a way that is beneficial for firm performance and thus converge toward an optimal capital structure (Byoun, 2008; DeAngelo & Roll, 2015). Interestingly, our results show that zero-debt SMEs that decide to issue debt before the Covid-19 period experience a decline in performance. This observation is counterintuitive because the zero-debt capital structure is theoretically suboptimal, and debt issuance by zero-debt firms should reflect convergence toward an optimal capital structure. Thus, our results highlight the key moderating role of crises and financial flexibility in the capital structure adjustment process. By bridging the strategic management literature on potential slack resources and corporate finance literature on financing decisions, we also highlight the conceptual similarities and complementarities between these two research traditions.

2. Theoretical framework and hypotheses

2.1. Bridging the literature on slack resources and corporate finance theories

Multiple theoretical frameworks for strategic management, entrepreneurship, corporate governance, and corporate finance have discussed the value of slack. We already mentioned that the behavioral theory of the firm (Cyert & March, 1963) and Penrosean theory of growth (Penrose, 1959) have argued that slack is a valuable asset because of its flexibility and adaptability to organizations. In particular, available slack (cash in excess), the most fungible and versatile form of slack, is found to be particularly useful for facing economic downturns, calming internal organizational tensions, and facilitating the exploration of riskier business opportunities (Bourgeois, 1981; Mishina et al., 2004; Kim & Bettis, 2014). In contrast, agency theory views the detention of excess cash as a wasted resource or, worse, an indication of managerial opportunism (Jensen & Meckling, 1976). The accumulation of available slack is associated with the formation of a broad managerial discretionary space, which likely leads to

inefficient investment decisions (Jensen, 1986; Brush et al., 2000). According to agency theory, the presence of slack is associated with lower operating performance.

Corporate finance theories are rarely invoked in slack literature, although they can provide useful approaches for understanding slack formation. Suppose firms have access to external capital markets and assume capital markets are efficient. In that case, they do not need available slack (excess cash) or potential slack (unused debt capacity) because holding slack resources would be inefficient (Keynes, 1936; Almeida et al., 2004). Holding excess cash generates opportunity costs because cash is costly to raise, and stockpiling cash leads to opportunity costs. Adopting an underleveraged capital structure (unused potential slack) is suboptimal because of the tax benefits of debt issuance. Indeed, since financial expenses reduce taxes (unlike dividends), debt financing is less costly than equity financing, which should lead firms to issue debt (Kraus & Litzenger, 1973; Graham, 2000). However, financially constrained firms must maintain financial flexibility through a liquid balance sheet (having available, recoverable, and potential slack) to ensure a strong capacity to invest quickly in emerging business opportunities (Keynes, 1936; Almeida et al., 2004).

Nevertheless, corporate finance theories are largely challenged by empirical evidence (Graham, 2022). Both publicly listed and privately held firms hold much more cash and are less leveraged than financial models (Bates et al., 2009; Strebulaev & Yang, 2013). The stream of research initiated by Strebulaev and Yang (2013) explains this puzzle by showing that many firms are zero-debt firms that preserve their financial flexibility for future investments by adopting a no-debt capital structure and, in turn, have relatively high levels of cash holdings. Empirical studies report that up to 20 percent of all publicly listed firms are zero-debt firms (Dang, 2013; Saona et al., 2020). This observation is also valid for SMEs because established SMEs reinvest past profits to deleverage their capital structure (LaRocca et al., 2011; Lefebvre, 2021). There is relative consensus in current corporate finance research about the idea that firms

adopt a deliberately underleveraged capital structure to maintain a strong capacity to invest in future business opportunities (Graham, 2022). The study of firm financial flexibility largely builds on Myers' (1977) initial debt overhang discussion, in which firms face a trade-off between funding an observable business opportunity via debt immediately or preserving the debt capacity for the future and maybe a more interesting business opportunity, which largely echoes Keynes's (1936) initial argument.

The proximity between the study of financial flexibility in zero-debt firms in corporate finance on one side and research on the strategic value of slack resources, especially potential slack, is strong but has rarely been acknowledged. In its seminal paper on the definition and operationalization of slack measures, Bourgeois (1981, p.38) noted: "Although slack has been treated primarily as an independent variable in most of this discussion, to the extent that the dependent variable introduced as a product of slack are considered to be desirable by organizational operators, then slack should begin to be treated as a dependent variable .”Corporate finance research appears to provide a theoretical background for understanding the presence of potential slack within organizations (Bourgeois, 1981).

According to recent corporate finance studies, zero-debt capital structures reflect a strong willingness to maintain financial flexibility (Strebulaev & Yang, 2013; Lotfaliei, 2018; Lefebvre, 2021; Graham, 2022). We view this financial flexibility as a clear-cut expression of the availability of potential slack because zero-debt firms have, everything else being equal, a greater capacity to issue debt¹. Thus, we expect debt issuance by zero-debt firms to be positively associated with performance. Building on corporate finance literature on the financial flexibility of zero-debt firms, we expect debt issuance by (previously) zero-debt firms to be positively

¹ Depending on the severity of their financial constraints, firms that have only small amounts of debt may not be able to issue new debt while other, more indebted firms with fewer financial constraints could issue debt and thus have potential slack. Focusing on zero-debt firms helps ensure that we are comparing apples with apples. Of course, it remains possible that the zero-debt financial structure reflects financial constraints. We discuss this issue and propose a robustness test in section 4.4.2.

associated with performance. The mobilization of potential slack serves two functions: a stabilizing function (buffering capacity to absorb external shocks) and an adaptive function (exploring new, riskier business opportunities). Thus, firms decide to mobilize potential slack (issue debt) because they face an unanticipated event. Our argument differs slightly from the positive association between the simple possession of potential slack and firm performance.

Holding potential slack may be inefficient, as suggested by resource constraints or agency theory, but mobilizing potential slack is difficult. Because potential slack is costly, it seems unlikely that firms mobilize potential slack without first having made use of available slack (cash holdings). Thus, potential slack mobilization corresponds to contexts where firms face “major” unanticipated events, meaning a massive external shock or a business opportunity that requires important investments. In other words, firms must perceive a strong necessity/opportunity in their environment to mobilize slack (Bradley et al., 2011b; Carnes et al., 2019). These arguments explain why potential slack has been found to have the strongest effect on firm performance among all forms of slack (Daniel et al., 2004; Tognazzo et al., 2016). To the extent that firms’ managers understand such necessities and opportunities correctly, their decision to mobilize potential slack should be followed by greater performance. We thus propose that:

Hypothesis 1: There is a positive relationship between the decision to mobilize potential slack (borrowed money) and the performance of previously non-indebted SMEs.

2.2. Mobilizing potential slack during the Covid-19 crisis

Slack resources are especially valuable during crises because the benefits associated with stabilizing and adaptive functions of slack are amplified (Nason & Patel, 2016). Because crises represent major economic downturns, firms must deal with disruptions in supply-chain, customers’ and suppliers’ bankruptcies, and strong environmental uncertainty. These factors

enhance the buffering role of potential slack, suggesting that the value of mobilizing potential slack is higher during crises, especially for SMEs (Eggers, 2020). Indeed, the uncommitted financial resources that potential slack represents can be mobilized to survive when operating revenue declines. In simple terms, firms use potential slack resources to cover day-to-day expenses and avoid bankruptcy until most of the crisis ends. Simultaneously, crises offer opportunities. Firms can mobilize potential slack to invest in opportunities that emerge during a crisis and do so more quickly than firms that do not have potential slack. Evidence from the 2008 global financial crisis suggests innovation investment is a common corporate response to economic downturns in slack-rich firms (Zona, 2012). Firms, especially those that were small and privately held, strongly mobilized available credit lines to invest during the 2008 financial crisis (Campello et al., 2011).

Overall, the mobilization of potential slack resources appears to be central when firms strategically respond to crises through innovation and explore opportunities that would be considered excessively risky in other contexts (Parida & Örtqvist, 2015; Tognazzo et al., 2016; Eggers, 2020; Wenzel et al., 2020). Regarding the Covid-19 crisis, Klyver and Nielsen (2021) confirm that SMEs have been hit hard by the economic consequences of the pandemic and that their strategic reactions, although heterogeneous, commonly include innovation strategies. Thus, SMEs can mobilize potential slack to fuel these strategies.

From a theoretical corporate finance perspective, crisis contexts increase the debt overhang problem. Pre-crisis periods are characterized by high-leverage configurations for many firms that hamper investment and productivity in post-crisis periods (Reinhart & Reinhart, 2010). Firms that are highly indebted before a crisis have a higher cost of debt and greater likelihood of bankruptcy (Tsuruta, 2017). Thus, highly indebted firms can only invest in investment opportunities with a high expected return and not in all positive net present value opportunities during a crisis period (Demmou et al., 2021; Graham, 2022). Thus, highly leveraged firms are

constrained by their recovery strategies. By contrast, zero-debt firms have financial flexibility, and, in turn, a broader set of strategic recovery options are available. In one of the rare empirical studies dedicated to the role of potential slack for SMEs in crisis contexts, Tognazzo et al. (2016) show that potential slack was an important resilience factor for well-established Italian manufacturing SMEs in the aftermath of the 2008 financial crisis. Campello et al. (2011) make close observations by noting that smaller firms used their available credit lines during the 2008 financial crisis.

Both the presence and mobilization of available debt capacities appear to play a key role in firms' reactions to major economic downturns. Interestingly, Tognazzo et al. (2016) indicate that potential slack is not positively associated with sales growth but only with profitability. According to Tognazzo et al. (2016), the idea that SMEs mobilize potential slack for innovation purposes (such as R&D) during recessions is questionable. It is, therefore, possible that SMEs mobilize potential slack to "wait until the storm is passed" (buffering capacity of slack) instead of exploring new opportunities (innovative capacity of potential slack).

Of course, care must be taken when comparing past crises, such as the 2008 global financial crisis and the Covid-19 crisis. Despite some similarities, such as the sudden decline in stock market prices and global recessions, these two crises have different origins and consequences in real-world economies (KOF Bulletin, 2021). For instance, the origin of the Covid-19 crisis lies outside of the economic system. The lockdown periods observed during the Covid-19 crisis in multiple countries have resulted in a significant decline in the production of goods and services. By contrast, the 2008 crisis first affected financial activities and led to a credit crunch that ultimately affected the real-world economy. The speed at which public policies reacted and the nature of the measures taken were also not comparable, with a faster and stronger response from public authorities, at least in several Western European countries, during the Covid-19

crisis. In particular, credit availability was likely stronger during the Covid-19 crisis than during the 2008 financial crisis.

In France, the context of this study, firms could benefit from a public guarantee when applying for credit in commercial banks, a measure known as “Prêt garanti par l’état.” This factor is potentially problematic for our study because credit availability is likely to influence both the decision to mobilize debt and firm performance (if the cost of debt is lower). However, the ratio of SMEs that obtained credit to SMEs that applied for credit remained relatively constant between 2019 (pre-Covid-19) and 2020 (Observatoire du Financement des Entreprises, 2021). The cost of debt for SMEs remained relatively constant compared to the pre-covid period, with only modest decreases. In other words, although access to credit for SMEs improved slightly during the Covid-19 period, data at the macro level do not suggest that public support significantly modified financing conditions for SMEs².

Despite these reservations, it seems reasonable to assume that the crisis induced by the Covid-19 pandemic magnified potential slack's buffering and adaptive roles. We thus propose that:

Hypothesis 2: The positive relationship between the decision to mobilize potential slack (borrowed money) and SME performance is stronger during the Covid-19 crisis.

3. Methodology

3.1. Sample description

We collected accounting and financial information from the Amadeus database provided by Bureau Van Dijk. Amadeus is a well-known commercial database widely used in previous

² In the empirical analysis, we use performance measures that are not directly affected by financial expenses to mitigate this issue. In unreported results, we further include the observed cost of debt (financial expenses to financial debts ratio) in our estimations and obtained results similar to those obtained in this paper. The observed cost of debt had no statistically significant effect in our regressions.

research in finance and management and covers privately held and publicly listed European firms. We decided to collect data from a single country, France, for three main reasons. First, given our focus on borrowing decisions, the use of an international dataset would be problematic because national institutional factors facilitate or hamper access to credit for SMEs (Beck et al., 2008), and we consider out of the scope of the paper the study of institutional factors in SMEs' use of potential slack. Furthermore, past research shows that the performance impact of slack resources largely depends on the institutional context (Vanacker et al., 2017). Thus, a single-country study appears to be suitable. Second, France is an adequate field of research because it is a bank-oriented economy in the sense that public equity markets are less developed than those in the US or the UK (Belenzon et al., 2013). Therefore, French SMEs have few alternatives to bank financing. Third, Amadeus's coverage largely depends on national reporting requirements. It has been shown that Amadeus has poor coverage of very small firms, especially in countries with low reporting requirements (Kalemli-Özcan et al., 2019). France has relatively strong reporting requirements, which reduce the sample selection issues.

The data collection process is as follows: We collect information for all privately held French firms available in Amadeus from 2016 to 2020. Following Vanacker et al. (2017), we exclude firms operating in the finance and public sectors because the use of debt for these firms is based on considerations different from those for other industries. We also require firms to have available information on sales, total assets, and the number of employees to ensure that we can determine which firms are SMEs and which large firms. In the initial stage, our sample included 81,077 firms.

Next, we identify SMEs, which we define according to European Commission criteria. Firms are considered SMEs if (1) they have less than 250 employees and either less than 50M€ of sales turnover or less than 43M€ of total assets and (2) they are standalone firms in the sense

that they are not affiliated with a larger business group (European Commission, 2020). The second condition is especially important because firms affiliated with business groups have access to the group's internal capital market, which facilitates debt issuance (Belenzon et al., 2013). From the initial 81,077 firms, we identified 50,064 SMEs. The reduction in sample size is not surprising, given the ubiquitous nature of firms affiliated with business groups in France.

We then identify 23,889 zero-debt SMEs corresponding to 72,049 firm-year observations, representing 28.48% of all SMEs' observations. This figure is in line with previous work on zero-debt SMEs (Lefebvre, 2021).

Due to missing values for several variables used in the multivariate analysis, the sample used in the estimations includes 23,140 firms. Finally, the instrumental variables of the firm- and year-fixed effects models automatically drop observations corresponding to singletons. The final sample included 11,746 firms (zero-debt SMEs).

3.2. Variables

3.2.1. Dependent variable

We study the relationship between the decision to mobilize potential slack and firm performance; thus, firm performance is our dependent variable. We acknowledge that performance is a multi-dimensional concept. Given the magnitude of available performance measures, we follow previous works by Tognazzo et al. (2016) and Vanacker et al. (2017) in the slack literature and focus on financial performance. As most French SMEs are not publicly listed, market-based performance measures cannot be used. We measured firm performance as return on assets (ROA), defined as operating income divided by total assets, as our main dependent variable. In the robustness tests, we use gross profit, defined as sales less cost of sales divided by total assets, and the EBITDA on assets ratio as alternative measures of financial performance and obtain similar results (see Section 4.4).

3.2.2. Independent variable

We operationalize potential slack as a firm's capacity to issue debt. Previous studies typically operationalize potential slack as the equity-to-debt ratio because firms with a low equity-to-debt ratio have a greater borrowing capacity (Bromiley, 1991; Vanacker et al., 2017). The equity-to-debt ratio presents a major limitation because it excludes zero-debt firms. Furthermore, any cross-sectional measure of potential slack fails to capture whether firms use potential slack because it only reflects the presence of slack. To circumvent these issues, we create a dummy variable, "Raise debt dummy," that equals one if a firm has no short-term or long-term financial debt in a given year but has short-term or long-term financial debt in the following year and zero otherwise. By definition, this variable captures the fact that a firm with potential slack (zero-debt firm) decides to mobilize potential slack.

To test Hypothesis 2 regarding the moderating effect of the Covid-19 context on the relationship between mobilizing potential slack (issuing debt) and performance, we include in our estimations the interaction term between the "Raise debt dummy" and a dummy variable "Year 2020," which equals one if the observation takes place in 2020 and zero otherwise. The year 2020 marks the beginning of the Covid-19 crisis and its associated economic crisis. In other words, we use the "Year 2020" dummy as a moderating variable.

3.2.3. Control variables

We include several firm-, industry-, and regional-level variables to ensure that omitted variables do not drive the results of our estimations. We build on Vanacker et al. (2017) and Strebulaev and Yang (2013) to identify the control variables. At the firm level, we control for firm size (the natural logarithm of sales) and age (the number of years since firm creation). We also control for the tangibility of assets (tangible assets to fixed assets ratio), which is a natural proxy for fixed costs (Grau and Reig, 2020). Other slack forms should also be considered. In

particular, we control for available, recoverable, and human resource (HR) slack. Available slack is calculated as a firm's cash ratio (cash holdings and equivalents divided by total assets) that is less than the annual industry-mean cash ratio. Recoverable is operating working capital (inventories plus receivables less payables divided by sales) less than the annual industry-mean operating working capital. HR slack is the number of employees with a sales ratio less than the annual industry-mean number of employees with a sales ratio. We include the squared term for each slack variable because past research has highlighted the nonlinear relationship between slack resources and performance (Vanacker et al., 2017). We also include sales growth (annual percentage change in sales) and fixed asset growth (annual percentage change in fixed assets³) to account for firms' economies of scale and investments. The non-debt tax shield (NDTS) is also included as a control variable to account for endogenous fiscal considerations regarding the speed of depreciation, amortization, and the substitution effect with the debt tax shield (DeAngelo & Masulis, 1980; Michaelas et al., 1999). NDTS is the amortization and depreciation divided by total assets.

At the industry level, we controlled the mean industry ROA, calculated as the annual industry mean ROA (operating profit divided by total assets). We control for industry complexity using the Hirschman-Herfindahl index, which is the annual industry sum of the squared market share of each firm in a given industry (George, 2005). We also control for the mean size of firms in a given industry (mean of the natural logarithm of the volume of sales in a given industry) and the number of firms in a given industry (natural logarithm of the number of firms in a given industry). All industry-related calculations are based on four-digit NACE (Nomenclature of Economic Activities) codes equivalent to four-digit SIC (Standard Industrial

³ In unreported estimations, we add the annual amortization and depreciation expense in year t to the fixed assets in year t to calculate the annual growth rate in fixed assets. The results were similar.

Classification) codes. We use all firms extracted from Amadeus (including large and business group-affiliated firms) to calculate the industry means.

At the regional level, we control economic and financial development⁴. We measured economic development as the natural logarithm of regional GDP per capita. Indeed, regional GDP per capita drives firms' financing needs (Palacín-Sánchez et al., 2013). Additionally, regional financial development is a known determinant of SMEs' propensity to mobilize debt (Fasano and Deloof, 2021). We measure regional financial development as the ratio of regional banking credit to national banking credit. Both regional variables were calculated using the two-digit NUTS codes. To limit the influence of outliers and extreme values, we winsorized all variables at the first and ninety-ninth percentiles. Appendix A summarizes the definitions of the variables used. The empirical model tested to investigate hypothesis 1 is as follows:

$$\begin{aligned}
 ROA_{i,t} = & \beta_0 + \beta_1 * Raise\ debt\ dummy_{i,t} + \beta_2 * Size_{i,t} + \beta_3 * Age_{i,t} + \beta_4 * \\
 & Tangibility_{i,t} + \beta_5 * Available\ slack_{i,t} + \beta_6 * Available\ slack_{i,t}^2 + \beta_7 * \\
 & Recoverable\ slack_{i,t} + \beta_8 * Recoverable\ slack_{i,t}^2 + \beta_9 * HR\ slack_{i,t} + \beta_{10} * \\
 & HR\ slack_{i,t}^2 + \beta_{11} * Sales\ growth_{i,t} + \beta_{12} * Fixed\ asset\ growth_{i,t} + \beta_{13} * NDT S_{i,t} + \\
 & \beta_{14} * Mean\ industry\ ROA_{j,t} + \beta_{15} * Industry\ complexity_{j,t} + \beta_{16} * \\
 & Mean\ industry\ size_{j,t} + \beta_{17} * Industry\ number\ of\ competitors_{j,t} + \beta_{18} * \\
 & Regional\ financial\ development_{k,t} + \beta_{19} * Regional\ GDP\ per\ capita_{k,t} + \theta_t + \gamma_i + \varepsilon_{i,t}
 \end{aligned}
 \tag{1}$$

where $ROA_{i,t}$ represents the return on assets for firm i in year t , $Mean\ industry\ ROA_{j,t}$ is the annual mean return-on-assets in industry j in year t , and

⁴ Data at the regional level come from INSEE (French Institute for Statistics and Economic Studies) and Bank of France.

*Regional financial development*_{k,t} is the annual financial development of region *k* in year *t*. θ_t and γ_i represent the year- and firm-fixed effects and $\varepsilon_{i,t}$ is the error term.

For hypothesis 2, the empirical model is:

$$\begin{aligned}
ROA_{i,t} = & \beta_0 + \beta_1 * Raise\ debt\ dummy_{i,t} + \beta_2 * Year\ 2020_t + \beta_3 * \\
& Raise\ debt\ dummy_{i,t} * Year\ 2020_t + \beta_4 * Size_{i,t} + \beta_5 * Age_{i,t} + \beta_6 * Tangibility_{i,t} + \\
& \beta_7 * Available\ slack_{i,t} + \beta_8 * Available\ slack_{i,t}^2 + \beta_9 * Recoverable\ slack_{i,t} + \beta_{10} * \\
& Recoverable\ slack_{i,t}^2 + \beta_{11} * HR\ slack_{i,t} + \beta_{12} * HR\ slack_{i,t}^2 + \beta_{13} * Sales\ growth_{i,t} + \\
& \beta_{14} * Fixed\ asset\ growth_{i,t} + \beta_{15} * NDTs_{i,t} + \beta_{16} * Mean\ industry\ ROA_{j,t} + \beta_{17} * \\
& Industry\ complexity_{j,t} + \beta_{18} * Mean\ industry\ size_{j,t} + \beta_{19} * \\
& Industry\ number\ of\ competitors_{j,t} + \beta_{20} * Regional\ financial\ development_{k,t} + \\
& \beta_{21} * Regional\ GDP\ per\ capita_{k,t} + \theta_t + \gamma_i + \varepsilon_{i,t} \quad (2)
\end{aligned}$$

3.3. Descriptive statistics

We present the descriptive statistics obtained for the variables previously defined in Table 1. Our population consists of two categories of SMEs: no-debt SMEs (SMEs with no financial debt during the period 2016-2020) and SMEs that had no financial debt in a given year and decided to issue debt afterward. The mean SME is 21 years old (median is 18), which is not surprising because most zero-debt SMEs are relatively old (Lefebvre, 2021). The mean SME has a sales turnover of 1.81M€ (median is 1.73M€), indicating that most of our sample firms are very small. For the mean firm, tangible assets represent 56.4% of fixed assets (median, 62.5%). With respect to available slack, the mean level is 4.9%, but the median is -2.4%, so some firms concentrate on a lot of available slack while others lack it. With respect to debt issuance, we observe that 23.6% of our observations correspond to SMEs that had no debt in a given year and decided to issue debt during the next year. Thus, an important fraction of zero-debt SMEs mobilizes potential slack by issuing financial debt. The mean ROA is 7.4% (median

6.1%), which is in line with previous studies on slack that considered privately held firms (Vanacker et al., 2017). Appendix B presents descriptive statistics by industry.

[Insert Table 1 here]

3.4. Econometric approach

We use the instrumental variables of firm- and year-fixed effects regressions as our estimation approach. Using firm- and year-fixed effects ensures that unobserved time-invariant heterogeneity and macroeconomic factors are considered. Furthermore, instrumental variables limit the risk of unobserved factors driving our independent variable. Specifically, we use the mean proportion of SMEs that decide to issue debt in a given year and a given four-digit NACE industry while being previously no-debt SMEs following Gogineni et al. (2021). The rationale is that some industries are more capital-intensive than others and that being a no-debt firm is likely driven by industry standards or requirements. Thus, the mean proportion of zero-debt SMEs in a given industry can influence the decision of a given SME to issue debt but is unlikely to impact firm performance. Appendix C presents the results of the first-stage estimations used in the instrumental variable regressions to show that the independent variables we use correlate with our instruments.

4. Results

4.1. Preliminary results

We begin the empirical analysis by comparing SMEs that mobilize debt versus SMEs that remain debt-free using standard difference-in-means tests to gain a first look at our hypotheses. Table 2 presents the test results. On average, SMEs that mobilize potential slack are less profitable, larger, older, and hold more tangible assets, less available slack, more recoverable slack, and less HR slack. Importantly, we find no support for Hypothesis 1 at this stage since

the mean ROA is higher for non-debt SMEs than for SMEs that mobilize slack and issue debt. The results contradict our predictions.

[Insert Table 2 here]

Next, we examine the correlations between our variables in the correlation matrix displayed in Table 3. ROA is negatively correlated with the “Raise debt dummy,” which is not in line with Hypothesis 1. Mobilizing potential slack via debt issuance is positively correlated with firm size, age, and tangibility, which is consistent with the idea that older and larger firms, as well as firms with more tangible assets, are less informationally opaque and can thus more easily raise debt (Berger and Udell, 1998). We calculated variance inflation factors (VIF) to test for multicollinearity. The highest VIF was 4.30, and the mean VIF was 1.81, below the commonly accepted level of 5, above which multicollinearity is an issue.

[Insert Table 3 here]

4.2. Main results

Table 4 presents the results of the instrumental variables of firm- and year-fixed effects regressions. It is important to note that observations corresponding to singletons are dropped by the instrumental variable estimator, reducing the sample size from 42,790 to 31,533 firm-year observations. In Model 1, we include only the control variables. We observe that size is positively associated with profitability, whereas asset tangibility is negatively associated with profitability. Available slack is also positively correlated with profitability (although with decreasing returns), which is consistent with previous studies (La Rocca et al., 2019). In Model 2, we add the “Raise debt dummy” independent variable, and the coefficient of the “Raise debt dummy” is positive as expected and statistically significant. In Model 3, we add the interaction term between the “Raise debt dummy” as the independent variable and the year 2020. In Model 3, the “Raise debt dummy” coefficient is negative and not statistically significant ($p=0.106$);

thus, mobilizing potential slack is not correlated with profitability. This runs against Hypothesis 1 because we expected a positive relationship between slack mobilization and performance. Interestingly, the interaction term between the “Raise debt dummy” and 2020 is positive and statistically significant ($p < 0.001$). The sum of the “Raise debt dummy” coefficient and the interaction term is positive and statistically significant (coefficient = 0.196, $p < 0.001$). In other words, mobilizing potential slack in 2020 positively correlates with firm performance. This observation supports hypothesis 2. These results are economically meaningful. Mobilizing potential slack in 2020 is associated with a 19.6% increase in the ROA ratio.

[Insert Table 4 here]

4.3. Additional results

The results of previous studies were mixed. We hypothesized a positive relationship between potential slack mobilization and performance and observed no statistically significant relationship outside the Covid-19 period. In this section, we thus seek to refine our analysis to gain additional empirical insights into the relationship between potential slack mobilization and performance. Specifically, we investigate two dimensions of potential slack mobilization: (1) whether SMEs mobilize a modest or an important fraction of their borrowing capacity, and (2) whether SMEs mobilize short-term or long-term debt.

In Table 5, we run our instrumental variable regressions on two subsamples depending on the magnitude of debt issuance for debt-issuing SMEs. We use the same instrumental variables as in the previous section. In Model 1, we consider a sample made of non-debt SMEs and SMEs that issue debt and reach a debt-to-total assets ratio below the median of debt-issuing SMEs (median is 5.28%). In Model 2, we consider a sample made of non-debt SMEs and SMEs that issue debt and reach a debt-to-total assets ratio above the median of debt-issuing SMEs. Model 1 show no statistically significant relationship between mobilizing a modest fraction of potential

slack and performance. However, issuing a modest fraction of debt in the 2020 Covid-19 context was associated with a strong increase in the ROA ratio. We interpret this result as evidence that when SMEs issue a limited amount of debt, they mostly use potential slack in a stabilizing manner to absorb external shocks. This behavior produces strong results during the Covid-19 crisis but no visible results in other periods.

The results of Model 2 are as follows. Issuing substantial financial debt is negatively associated with SME performance, except during the Covid-19 period. These results suggest that when SMEs mobilize potential slack, the quantity of slack raised is an issue and that SMEs struggle to efficiently allocate large financial resources raised through debt.

[Insert Table 5 here]

With respect to the role of debt maturity, we adjust our model as follows. In Model 1 of Table 6, we create a dummy variable that equals one if a firm had no financial debt in a given year but issued short-term financial debt (maturity shorter than a year) one year later and zero otherwise. In Model 2 of Table 6, we create a dummy variable that equals one if a firm had no financial debt in a given year but issued long-term financial debt (maturity longer than a year) one year later and zero otherwise. In both models, we let the dummy variables interact with the variables interact with variable “Year 2020”. We also adjust our instruments and use the industrial and regional mean fraction of SMEs that issue short-term and long-term debt as instruments. The results of Model 1 show that short-term issuing is negatively associated with performance ($p=0.080$). The interaction term between the “Raise short-term debt dummy” and the “Year 2020” is positive and statistically significant ($p=0.013$), and the sum of the interaction term and the “Raise short-term dummy” is statistically significant (coefficient=0.083, $p=0.058$). In other words, issuing short-term debt will positively impact firm performance by 2020. The results of Model 2 show that issuing long-term debt is negatively associated with profitability,

but in 2020, the relationship is positive and statistically significant. In other words, a positive relationship exists between the issuance of long-term debt and SMEs' performance in 2020⁵.

[Insert Table 6 here]

4.4. Robustness tests

In this section, we present the results of two robustness tests conducted to assess the credibility of our findings. Specifically, we used alternative performance measures and matching strategies.

4.4.1. Use of alternative performance measures

As mentioned in Section 3.2.1, we use two alternative measures of profitability: gross profit (cost less cost of sales divided by total assets) and the EBITDA on assets ratio. This is important for two reasons. First, since we use an accounting-based profitability measure as our dependent variable, it is important to assess the sensitivity of our results to changes in the value creation measure. Gross profit is calculated before the impact of payrolls; EBITDA is calculated after payrolls but before the impact of depreciation and amortization. Operating income (used in ROA) takes into account all operating expenses. The variables we use as numerators of our profitability measures consider various aspects of firm performance and decisions about costs. Second, providing the results obtained with other profitability measures used in past research facilitates knowledge accumulation by ensuring the comparability of our results with previous findings. We present the results obtained with gross profit (Model 1) and the EBITDA on assets ratio (Model 2) in Table 7, which are comparable to those obtained with ROA, both in terms of

⁵ We checked these estimations by introducing a one-year lag between the dependent variable (ROA) and the independent and control variables. The results were similar in the case of debt mobilization and long-term debt mobilization but did not hold in the case of short-term debt mobilization.

coefficient signs, statistical significance, and economic significance. Thus, our results were not affected by choice of a particular performance measure.

In unreported results (available upon request), we also used sales growth as an alternative dependent variable to check whether potential slack mobilization is used to fuel growth. We consistently observe that debt issuance is positively and statistically significantly correlated with sales growth in 2020 but not in prior years. We view this result as a potential channel (sales growth) that explains how SMEs that mobilize their unused debt capacity obtain higher profitability.

[Insert Table 7 here]

4.4.2. Sampling strategy

In this section, we address important empirical issues. So far, we have only considered non-debt SMEs that either remained non-debt over the considered period or issued debt after being debt-free. One could argue that SMEs are debt-free for two different reasons: some SMEs decide to remain debt-free to have potential slack, and others face strong financial constraints and cannot raise debt. If the first category of SMEs (unconstrained debt-free SMEs) has ex-ante (before mobilizing slack by issuing debt) a higher level of profitability than the second category of SMEs (financially constrained SMEs), then our results can be affected by a “reverse causality” issue.

To help mitigate this issue, we use a propensity score-matching algorithm to create a subsample of SMEs with comparable observable characteristics ex-ante, and thus, the same degree of financial constraints (or lack thereof) and, eventually, the same potential slack. Propensity score matching techniques are suitable for assessing causal impacts in non-experimental studies like ours (Dehejia & Wahba, 2002). Specifically, we first use a logistic regression where the dependent variable is the “Raise debt dummy” to predict the probabilities

(propensity scores) that an SME is debt-free in a given year and mobilizes slack in the next year. We use the same set of covariates in the logistic regression as the one we used in our instrumental variables estimations and include industry dummies and a set of regional dummies based on NUTS 2-level codes. The predicted positive probabilities of the logistic regression model were used as propensity scores to match the SMEs. We obtain a sample of SMEs with the same capacity to mobilize potential slack, some of which use this capacity ex-post, while others do not. We then run instrumental variable regressions on the matched subsample. Table 8 presents the results. The “Raise debt dummy” coefficient remains negative and not statistically significant. The interaction term between the “Raise debt dummy” and 2020 is still positive, with an associated p-value of 0.028. Thus, debt issuance positively correlates with firm profitability in the Covid-19 context. However, we do not confirm that issuing debt in previous years is negatively associated with firm profitability.

[Insert Table 8 here]

5. Conclusion

5.1. Discussion of the results

Maintaining financial flexibility by accumulating potential slack resources to deal with environmental uncertainty is critical in firms’ decision-making processes, especially regarding capital structure and investment decisions (Strebulaev & Yang, 2013; Nason & Patel, 2016; Graham, 2022). We explore the relationship between the mobilization of potential slack and SMEs’ profitability. We propose that mobilization of potential slack is positively associated with profitability, reflecting potential slack's stabilizing and adaptive functions.

In contrast to past findings for large firms (Daniel et al., 2004) and SMEs (Tognazzo et al., 2016; Tsuruta, 2017), our results provide limited support for this view. We observe that potential slack mobilization is generally not statistically significantly associated with

profitability and, more specifically, that the mobilization of a large fraction of potential slack (high levels of debt) is negatively associated with SMEs profitability. We understand these results as evidence that SMEs efficiently use potential slack as long as they do not deplete it. Arguments in the behavioral theory of firms stress that potential slack is useful for exploring new and risky business opportunities (Bromiley, 1991; Bradley et al., 2011b; Vanacker et al., 2017). However, this should not be done to the detriment of current activities. If SMEs mobilize a large amount of potential slack for exploring new projects, current activities may be neglected, and overall profits could decline. There seems to be a limit to the number of potential slack SMEs that can be successfully mobilized. Note that we did not examine whether and how SMEs that mobilized potential slack invested in the financial resources they raised, so we can only speculate about how potential slack resources were used.

Our second hypothesis proposes that the value of mobilizing potential slack is stronger in the Covid-19 context. Our results strongly support this hypothesis regardless of the magnitude and maturity of the debt issued by SMEs. Thus, we confirm the results of Tognazzo et al. (2016), who observe that holding potential slack was beneficial for SMEs' performance during the 2008 crisis. Of course, we do not suggest that the process through which debt issuance translates into performance is the same for each debt in the Covid-19 context. Some SMEs adopt innovative strategies and use long-term debt to explore new business opportunities during a crisis.

In contrast, others can adopt persevering strategies by mobilizing short-term debt (Wenzel et al., 2020). Persevering means maintaining activities almost as usual and is useful in contexts characterized by day-to-day uncertainty, which was certainly the case during the first year of the Covid-19 crisis. Short-term debt could be useful in smoothing the daily consequences of an economic crisis while "waiting for a better day." By highlighting that the mobilization of potential slack is beneficial for SMEs' performance only during a crisis, these results contribute to recent developments in slack-based research on the contextualization of the relationship

between slack and performance (Nason & Patel, 2016; Vanacker et al., 2017; Carnes et al., 2019; Bentley & Kehoe, 2020). SMEs mostly benefit from their potential slack resources when their environment becomes turbulent, a result that extends the findings of Bradley et al. (2011b), who closely observe available slack.

From a corporate finance perspective, the decision to mobilize debt is an adjustment to the firm's capital structure. Transaction and adverse selection costs prevent firms from converging quickly towards target debt ratios, and these costs are higher for firms with below-target debt levels, such as zero-debt firms (Byoun, 2008; Aybar-Arias et al., 2012; Dang & Garrett, 2015). Our results are consistent with the idea that these transaction costs were lower during the Covid-19 period, thus facilitating debt issuances and convergence to optimal capital structures. However, this is not true outside the crisis context and indicates that firms that decide to issue debt nevertheless experience a decline in profitability. Thus, the zero-debt capital structure could reflect an optimal capital structure outside crisis contexts for SMEs.

5.2. Limitations and perspectives

Our study has limitations that open avenues for future research. We use secondary data in this study, so we can only speculate on the strategic channels through which SMEs use (or keep) the money they raise by mobilizing potential slack. Future research could thus survey SMEs' owners and managers to establish more clearly how various forms of potential slack were raised during the Covid-19 and crisis, what strategies they developed with potential slack, and what performance they achieved in doing so. Confronting the theory and practice of financial decisions is essential, given the gap between them (Graham, 2022). In the case of SMEs, few studies have explicitly examined the practice of financial decisions. It would be highly

interesting to obtain more information on this topic to extend the research on the practical use of slack resources by SMEs.

Second, we focused on France, and our results may not be generalizable to other contexts. The strength of formal institutions, access to credit, and development of the banking system affect the ability to accumulate and use potential slack (Beck et al., 2008; Vanacker et al., 2017). France is a developed and bank-oriented economy, so the validity of our results in other countries is not straightforward. In particular, the benefits of potential slack are less clear for SMEs that benefit from government support (Guo et al., 2020). Thus, future research could fruitfully investigate the process of potential slack mobilization in other countries.

5.3. Practical implications

Our results have practical implications for managers of SMEs. Past research has shown that SMEs accumulate cash holdings to deal with economic uncertainty and highly competitive environments and are right to do so (Bradley et al., 2011b; La Rocca et al., 2019). However, maintaining high cash holdings is expensive. Our results show that SMEs' managers could adopt a strategy of potential slack resources that relies on preserving a strong borrowing capacity, reducing the amount of cash holdings kept in the firm. SMEs' managers are often reluctant to issue debt because of their perception of the high costs of debt, but this bank-aversion could lead them to inadequately consider slack resources (Howorth, 2001; Beck et al., 2008).

Thus, SMEs' managers can explicitly develop a slack allocation strategy that relies on both cash holdings (available slack) and debt capacity (potential slack). We can only suggest that SMEs' managers dedicate more time and effort to elaborating an explicit "slack strategy" that incorporates both sources of slack (potential and available) and directions for the use of slack. SMEs need not only to view slack as a buffer against risk but also as a tool to explore new

business opportunities, especially in a crisis context. The fact that we observe a positive impact of long-term debt on profitability (assuming long-term debt is associated with long-term business opportunity investment) during the Covid-19 period suggests that potential slack mobilization for opportunity exploration and exploitation is an effective strategy.

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Table 1. Descriptive statistics

Variables	Mean	Standard deviation	Minimum	25th percentile	Median	75th percentile	Maximum
Firm ROA	0.074	0.198	-0.624	0.000	0.061	0.154	0.767
Raise debt dummy	0.236	0.425	0.000	0.000	0.000	0.000	1.000
Firm size	7.502	1.670	3.892	6.256	7.458	8.726	11.071
Firm age	21.359	14.472	3.000	10.000	18.000	29.000	63.000
Firm tangibility	0.564	0.365	0.000	0.200	0.625	0.937	1.000
Firm available slack	0.049	0.263	-0.335	-0.145	-0.024	0.198	0.858
Firm squared available slack	0.071	0.133	0.000	0.007	0.025	0.070	0.737
Firm recoverable slack	-0.010	0.226	-0.624	-0.108	-0.026	0.054	0.940
Firm squared recoverable slack	0.051	0.175	0.000	0.001	0.007	0.027	0.932
Firm HR slack	-0.001	0.085	-0.068	-0.004	-0.002	0.001	0.028
Firm squared HR slack	0.007	0.539	0.000	0.000	0.000	0.000	0.007
Firm sales growth	0.058	0.394	-0.686	-0.098	0.013	0.125	2.153
Firm fixed asset growth	0.269	1.190	-0.765	-0.143	-0.016	0.146	7.200
Firm NDTs	0.029	0.038	0.000	0.006	0.015	0.036	0.200
Mean industry ROA	0.068	0.040	-0.091	0.046	0.073	0.092	0.157
Industry complexity	0.084	0.115	0.003	0.018	0.040	0.111	0.573
Industry mean size	2.619	0.761	1.099	2.000	2.562	3.155	4.558
Industry number of competitors	6.264	1.334	2.639	5.407	6.295	7.365	8.469
Regional financial development	0.155	0.139	0.008	0.037	0.065	0.330	0.338
Regional GDP per capita	10.610	0.411	10.127	10.294	10.410	10.992	12.559

N=43,579

Table 2. Comparison between debt-issuing SMEs and non-debt-issuing SMEs

Variables	Non-debt-issuing SMEs		Debt-issuing SMEs		Difference in means	t-statistics	p-value
	Mean	N	Mean	N			
Firm ROA	0.081	33,301	0.054	10,278	0.027	12.143	0.000
Firm size	7.449	33,301	7.674	10,278	-0.226	-11.995	0.000
Firm age	21.226	33,301	21.790	10,278	-0.564	-3.454	0.000
Firm tangibility	0.558	33,301	0.583	10,278	-0.025	-6.188	0.000
Firm available slack	0.058	33,301	0.022	10,278	0.035	11.930	0.000
Firm recoverable slack	-0.012	33,301	-0.003	10,278	-0.009	-3.538	0.000
Firm HR slack	-0.001	33,301	-0.001	10,278	0.000	0.502	0.616
Firm Sales growth	0.055	33,301	0.070	10,278	-0.015	-3.351	0.001
Firm Fixed asset growth	0.168	33,301	0.598	10,278	-0.430	-32.397	0.000
Firm NDTS	0.027	33,301	0.033	10,278	-0.006	-15.118	0.000

Table 3. Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1 Firm ROA																				
2 Raise debt dummy	-0.06																			
3 Firm size	0.05	0.06																		
4 Firm age	-0.05	0.02	0.29																	
5 Firm tangibility	0.04	0.03	0.04	0.01																
6 Firm available slack	0.29	-0.06	-0.20	-0.02	0.09															
7 Firm squared available slack	0.23	-0.01	-0.16	-0.06	0.07	0.74														
8 Firm recoverable slack	0.00	0.02	-0.05	0.07	0.00	-0.14	-0.11													
9 Firm squared recoverable slack	-0.12	-0.01	-0.09	0.00	-0.04	-0.08	0.00	0.48												
10 Firm HR slack	-0.04	0.00	-0.07	-0.01	-0.01	-0.01	-0.01	0.00	0.07											
11 Firm squared HR slack	-0.02	0.00	-0.03	-0.01	-0.01	-0.01	0.00	0.01	0.05	0.89										
12 Firm sales growth	0.20	0.02	0.07	-0.12	0.02	0.12	0.15	-0.03	-0.02	-0.03	-0.02									
13 Firm fixed asset growth	0.06	0.15	-0.03	-0.07	0.06	0.07	0.07	-0.02	0.00	0.00	0.00	0.15								
14 Firm NDTs	-0.09	0.07	-0.12	-0.08	0.26	-0.03	0.02	-0.05	-0.03	0.01	0.01	0.10	0.03							
15 Mean industry ROA	0.24	-0.06	-0.04	-0.08	-0.01	0.03	0.03	0.00	-0.09	0.00	-0.01	0.11	0.03	-0.13						
16 Industry complexity	-0.02	-0.03	0.04	0.00	0.00	-0.02	-0.01	-0.01	0.06	-0.01	0.02	0.01	-0.01	0.00	-0.12					
17 Industry mean size	-0.05	0.02	0.41	0.16	0.09	-0.04	-0.07	0.00	-0.01	0.01	0.00	0.00	-0.01	-0.02	-0.23	0.10				
18 Industry number of competitors	0.02	0.03	-0.18	-0.15	-0.05	0.02	0.04	0.01	-0.06	-0.01	-0.02	0.00	0.02	0.00	0.18	-0.48	-0.25			
19 Regional financial development	-0.01	-0.02	-0.01	-0.02	-0.14	-0.01	0.03	0.00	0.03	0.00	0.01	0.01	-0.01	-0.04	0.03	-0.03	-0.10	0.07		
20 Regional GDP per capita	-0.01	-0.03	0.00	-0.01	-0.11	0.00	0.02	0.00	0.03	0.00	0.01	0.02	0.00	-0.03	0.03	-0.02	-0.08	0.04	0.74	

N=43,579. Correlation coefficients larger than 0.01 in absolute value are statistically significant at the 0.05 level.

Table 4. Firm- and year-fixed effects instrumental variables estimations of the relationship between potential slack mobilization and firm performance

ROA is the dependent variable	Model 1		Model 2		Model 3	
	Coef.	St. Error	Coef.	St. Error	Coef.	St. Error
Raise debt dummy			0.055 **	0.022	-0.055	0.034
Year 2020	0.148	0.104	0.003	0.018	-0.033	0.025
Raise debt dummy * Year 2020					0.251 ***	0.059
Firm size	0.093 ***	0.007	0.092 ***	0.007	0.101 ***	0.007
Firm age	0.001	0.005	-0.003	0.006	-0.001	0.007
Firm tangibility	-0.018 ***	0.008	-0.023 ***	0.009	-0.020 **	0.009
Firm available slack	0.198 ***	0.012	0.195 ***	0.012	0.164 ***	0.014
Firm squared available slack	0.052 **	0.021	0.044 **	0.021	0.047 **	0.022
Firm recoverable slack	0.142 ***	0.012	0.136 ***	0.012	0.126 ***	0.013
Firm squared recoverable slack	-0.058 ***	0.014	-0.055 ***	0.014	-0.046 ***	0.014
Firm HR slack	-0.024	0.058	-0.022	0.059	-0.017	0.060
Firm squared HR slack	0.005	0.006	0.004	0.006	0.004	0.006
Firm sales growth	0.053 ***	0.005	0.055 ***	0.005	0.055 ***	0.005
Firm fixed asset growth	-0.001	0.001	-0.003 **	0.001	-0.002	0.001
Firm NDTs	-0.282 ***	0.092	-0.328 ***	0.095	-0.303 ***	0.096
Mean industry ROA	0.741 ***	0.068	0.786 ***	0.070	0.921 ***	0.082
Industry complexity	0.059	0.041	0.064	0.042	0.051	0.043
Industry mean size	-0.021 **	0.009	-0.023 ***	0.009	-0.024 **	0.009
Industry number of competitors	-0.023	0.026	0.012	0.008	0.014	0.009
Regional financial development	-0.779 *	0.431	-0.765 *	0.443	-0.896 *	0.487
Regional GDP per capita	0.002	0.003	0.002	0.003	0.002	0.003
Firm- and year-fixed effects	YES		YES		YES	
Number of observations	43,579		31,533		31,533	
F-statistics	87.03 ***		80.44 ***		73.33 ***	
Stock-Wright statistics	-		6.97 ***		37.27 ***	
Kleibergen-Paap weak identification test	-		143.35 ***		96.17 ***	

This table presents the results of instrumental variables firm- and year-fixed effects regressions of firm performance on the mobilization of potential slack. The annual mean proportion of SMEs that decide to issue debt in a given industry and in a given region are used as instruments. All the variables are defined in appendix A. Standard errors are robust and clustered at the firm-level. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.1 levels respectively.

Table 5. Comparison between SMEs issuing below-median and above-median levels of debt

ROA is the dependent variable	Model 1		Model 2	
	Coef.	St. Error	Coef.	St. Error
Raise debt dummy	-0.043	0.101	-0.267 **	0.123
Year 2020	0.182	0.129	0.086	0.123
Raise debt dummy * Year 2020	1.243 **	0.528	0.454 ***	0.138
Firm size	0.094 ***	0.012	0.105 ***	0.009
Firm age	0.024	0.024	-0.001	0.010
Firm tangibility	-0.025 *	0.015	-0.007	0.012
Firm available slack	0.290 ***	0.041	0.148 ***	0.017
Firm squared available slack	-0.047	0.058	0.067 ***	0.024
Firm recoverable slack	0.148 ***	0.019	0.137 ***	0.014
Firm squared recoverable slack	-0.050 **	0.022	-0.052 ***	0.015
Firm HR slack	-0.039	0.080	-0.019	0.060
Firm squared HR slack	0.005	0.009	0.004	0.006
Firm sales growth	0.047 ***	0.007	0.054 ***	0.006
Firm fixed asset growth	0.000	0.002	0.003	0.003
Firm NDTs	-0.114	0.140	-0.099	0.134
Mean industry ROA	1.137 ***	0.226	0.862 ***	0.081
Industry complexity	0.038	0.066	0.041	0.046
Industry mean size	0.007	0.018	-0.028 ***	0.010
Industry number of competitors	-0.042	0.032	-0.018	0.031
Regional financial development	2.548 *	1.524	-1.469 **	0.571
Regional GDP per capita	0.003	0.005	-0.001	0.004
Firm- and year-fixed effects	YES		YES	
Number of observations	28,027		27,611	
F-statistics	29.270 ***		58.220 ***	
Stock-Wright statistics	41.660 ***		33.930 ***	
Kleibergen-Paap weak identification test	6.394 **		33.338 ***	

This table presents the results of instrumental variables firm- and year-fixed effects regressions of firm performance on the mobilization of potential slack. Model 1 includes no-debt SMEs and SMEs that issue debt below the industry median debt-to-assets ratio. Model 2 includes no-debt SMEs and SMEs that issue debt above the industry median debt-to-assets ratio. The annual mean proportion of SMEs that decide to issue debt in a given industry and in a given region are used as instruments. All the variables are defined in appendix A. Standard errors are robust and clustered at the firm-level. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.1 levels respectively.

Table 6. Comparison between SMEs issuing short-term debt and long-term debt

ROA is the dependent variable	Model 1		Model 2	
	Coef.	St. Error	Coef.	St. Error
Raise long-term debt dummy			-0.137 *	0.079
Raise short-term debt dummy	-0.055 *	0.030		
Year 2020	0.130	0.111	0.084	0.108
Raise long-term debt dummy * Year 2020			0.373 ***	0.100
Raise short-term debt dummy * Year 2020	0.138 **	0.055		
Firm size	0.096 ***	0.007	0.101 ***	0.007
Firm age	0.002	0.006	0.000	0.008
Firm tangibility	-0.018 **	0.008	-0.017	0.011
Firm available slack	0.186 ***	0.013	0.167 ***	0.014
Firm squared available slack	0.055 ***	0.021	0.055 **	0.021
Firm recoverable slack	0.139 ***	0.012	0.129 ***	0.013
Firm squared recoverable slack	-0.055 ***	0.014	-0.046 ***	0.014
Firm HR slack	-0.027	0.057	-0.003	0.062
Firm squared HR slack	0.005	0.006	0.002	0.006
Firm sales growth	0.053 ***	0.005	0.054 ***	0.005
Firm fixed asset growth	-0.001	0.001	-0.001	0.002
Firm NDTs	-0.263 ***	0.094	-0.300 ***	0.100
Mean industry ROA	0.788 ***	0.073	0.855 ***	0.076
Industry complexity	0.063	0.042	0.041	0.043
Industry mean size	-0.018 **	0.009	-0.032 ***	0.010
Industry number of competitors	-0.021	0.027	-0.013	0.026
Regional financial development	-0.718	0.444	-1.113 **	0.492
Regional GDP per capita	0.003	0.003	0.000	0.003
Firm- and year-fixed effects	YES		YES	
Number of observations	31,533		31,533	
F-statistics	78.190 ***		71.180 ***	
Stock-Wright statistics	6.970 **		37.210 ***	
Kleibergen-Paap weak identification test	75.659 ***		28.905 ***	

This table presents the results of instrumental variables firm- and year-fixed effects regressions of firm performance on the mobilization of potential slack (short term debt in model 1, long term debt in model 2). The annual mean proportion of SMEs that decide to issue debt in a given industry and in a given region are used as instruments. All the variables are defined in appendix A. Standard errors are robust and clustered at the firm-level. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.1 levels respectively.

Table 7. Results of the robustness tests that use alternative performance measures

Dependent variables	Model 1 (Gross profit)		Model 2 (EBITDA on assets ratio)	
	Coef.	St. Error	Coef.	St. Error
Raise debt dummy	-0.205 ***	0.060	-0.061 *	0.033
Year 2020	0.153	0.183	0.129	0.111
Raise debt dummy * Year 2020	0.399 ***	0.104	0.263 ***	0.059
Firm size	0.151 ***	0.015	0.100 ***	0.007
Firm age	-0.021 *	0.011	0.002	0.008
Firm tangibility	-0.006	0.017	-0.018 *	0.009
Firm available slack	0.343 ***	0.028	0.162 ***	0.014
Firm squared available slack	0.232 ***	0.045	0.045 **	0.021
Firm recoverable slack	0.202 ***	0.023	0.121 ***	0.013
Firm squared recoverable slack	-0.054 **	0.026	-0.044 ***	0.014
Firm HR slack	0.184	0.172	-0.018	0.061
Firm squared HR slack	-0.011	0.019	0.003	0.006
Firm sales growth	0.180 ***	0.011	0.054 ***	0.005
Firm fixed asset growth	0.014 ***	0.003	-0.002	0.001
Firm NDTs	2.828 ***	0.212	0.757 ***	0.100
Mean industry profitability	0.880 ***	0.057	0.916 ***	0.082
Industry complexity	0.231 ***	0.087	0.046	0.043
Industry mean size	-0.043 **	0.019	-0.023 **	0.009
Industry number of competitors	-0.026	0.046	-0.024	0.027
Regional financial development	-1.812 **	0.903	-0.889 *	0.487
Regional GDP per capita	0.004	0.005	0.002	0.003
Firm- and year-fixed effects	YES		YES	
Number of observations	31,474		31,533	
F-statistics	116.970 ***		74.430 ***	
Stock-Wright statistics	17.780 ***		38.270 ***	
Kleibergen-Paap weak identification test	89.301 ***		95.628 ***	

This table presents the results of instrumental variables firm- and year-fixed effects regressions of firm performance on the mobilization of potential slack with alternative performance measures. Model 1 uses the gross profit as dependent variable and model uses the EBITDA on assets ratio as dependent variable. The annual mean proportion of SMEs that decide to issue debt in a given industry and in a given region are used as instruments. All the variables are defined in appendix A. Standard errors are robust and clustered at the firm-level. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.1 levels respectively.

Table 8. Results obtained on the matched sample

ROA is the dependent variable	Model 1	
	Coef.	St. Error
Raise debt dummy	-0.070	0.046
Year 2020	-0.104 *	0.054
Raise debt dummy * Year 2020	0.246 **	0.112
Firm size	0.118 ***	0.015
Firm age	0.005	0.005
Firm tangibility	-0.019	0.022
Firm available slack	0.129 ***	0.034
Firm squared available slack	0.063	0.052
Firm recoverable slack	0.101 ***	0.035
Firm squared recoverable slack	-0.012	0.040
Firm HR slack	-0.130	0.196
Firm squared HR slack	0.348	0.237
Firm sales growth	0.028 **	0.012
Firm fixed asset growth	-0.003	0.003
Firm NDTs	-0.540 **	0.223
Mean industry ROA	1.046 ***	0.196
Industry complexity	0.114	0.128
Industry mean size	-0.028	0.022
Industry number of competitors	0.021 *	0.013
Regional financial development	-2.810 **	1.225
Regional GDP per capita	-0.010	0.007
Firm- and year-fixed effects		YES
Number of observations		5,751
F-statistics	16.310 ***	
Stock-Wright statistics	7.520 **	
Kleibergen-Paap weak identification test	20.293 ***	

This table presents the results of instrumental variables firm- and year-fixed effects regressions of firm performance on the mobilization of potential slack on a sample of matched debt-issuing SMEs and no-debt SMEs. The annual mean proportion of SMEs that decide to issue debt in a given industry and in a given region are used as instruments. All the variables are defined in appendix A. Standard errors are robust and clustered at the firm-level. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.1 levels respectively.

Appendix A. Variables definition

Variables	Definition	Role	Used in
ROA	Operating income divided by total assets	Dependent variable	Main results
Gross profit	Sales less cost of sales divided by total assets		Robustness tests
EBITDA on assets ratio	EBITDA divided by total assets		Robustness tests
Raise debt dummy	Dummy that equals to one if a firm issues debt while being a ZDF in the previous year	Independent variable	Main results
Raise long-term-term debt dummy	Dummy that equals to one if a firm issues short-term debt while being a ZDF in the previous year	Independent variable	Additional results
Raise short-term debt dummy	Dummy that equals to one if a firm issues long-term debt while being a ZDF in the previous year	Independent variable	Additional results
Year 2020	Dummy that equals to one if a firm-year observation is made in 2020 and zero otherwise	Moderating variable	Main results
Firm size	Natural logarithm of sales revenue	Control variable	Main results
Firm age	Number of years since firm creation	Control variable	Main results
Firm tangibility	Ratio of tangible assets to total fixed assets	Control variable	Main results
Firm available slack	Cash holdings divided by total assets less the annual industry-mean cash holdings to total assets	Control variable	Main results
Firm recoverable slack	Working capital (inventories plus receivables less payables) divided by sales less the annual industry-mean working capital to sales	Control variable	Main results
Firm HR slack	Number of employees divided by sales less the annual industry-mean number of employees to sales	Control variable	Main results
Firm sales growth	Annual percentage change in sales	Control variable	Main results
Firm fixed asset growth	Annual percentage change in fixed assets	Control variable	Main results
Firm NDTs	Depreciation and amortization divided by total assets	Control variable	Main results
Mean industry ROA	Annual industry-mean ROA	Control variable	Main results
Industry complexity	Annual industry-sum of firms squared market share	Control variable	Main results
Industry mean size	Annual industry-mean firm size	Control variable	Main results

Industry number of competitors	Natural logarithm of the annual industry-mean number of competitors	Control variable	Main results
Regional GDP per capita	Annual GDP per capita at the two-digit NUTS codes level	Control variable	Main results
Regional financial development	Annual fraction of regional banking credits to national credits at the two-digit NUTS codes level	Control variable	Main results

Appendix B. Descriptive statistics by industry

Industry	Number of firm-year observations	Mean sales turnover (in K€)	Mean total assets (in K€)	Mean number of employees	Mean ROA	Proportion of ZDF that issue debt
Agriculture	337	1192.891	1620.487	16.780	0.028	0.240
Mining	212	3472.896	4780.058	19.953	0.055	0.236
Manufacturing	5,856	3291.560	2333.181	39.422	0.067	0.240
Transportation and utilities	3,262	2666.297	1629.581	36.158	0.058	0.234
Construction	7,090	1208.833	689.679	19.240	0.107	0.260
Trade	14,294	2332.202	1130.061	16.184	0.071	0.226
Services	12,528	1167.292	914.105	22.207	0.070	0.232