

Financial Slack and Firm Performance during Economic Downturn

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Abstract

This paper examines whether financial slack has an impact on performance in the particularly hostile environment of an economic downturn. Organizational theory posits that the impact of high levels of slack on performance should be positive during such a time, as excess resources buffer the core of the firm from external shocks. Using the most recent economic downturn in Germany, the paper investigates whether firms that built up excess resources up until the onset of the crisis experience superior performance during the downturn. Financial slack is measured along the following dimensions: The proportion of current assets to current liabilities, the ratio of equity to total debt, and the ratio of general and administrative expenses to sales (SG&A). These proxies were measured over a period of four years prior to the crisis. Financial performance was then evaluated over the duration of the downturn. The results show that high pre-crisis levels of liquidity do not impact performance during a crisis. However, the findings support the view that high pre-crisis levels of debt have a negative impact on firm performance during the latest economic downturn. For slack stemming from the ratio of SG&A to sales, the association with performance was found to be positive, albeit at a declining rate. Both findings support the hypothesis that financial slack has value during an economic downturn. The originality of the approach lies in the evaluation of both linear and curvilinear performance effects of financial slack for German firms during an economic downturn.

Keywords: financial flexibility, financial slack, economic crisis, capital structure

Introduction

A key challenge of effective management is to apply a firm's available resources to minimize the impact of exogenous threats on the organization while attempting to capture the opportunities. In addition to considering the relative attractiveness of available financial instruments, corporate decision-making needs to strike a balance between, among others, the need for (future) adaptability and current and future performance. Different financial resource configurations arise as a result, and empirical studies find that firms use internally available cash, debt, or equity issues in a manner that varies greatly, even within one industry [1].

Such diversity is difficult to fit in with dominant theories on optimal choice of capital structure, as financial theory clearly cannot explain the cross-section of balance sheets found among firms. A potential explanation lies within firms' preference for financial flexibility. Surveys have found such flexibility to be of great concern to managers, as it secures the option of making future investments [2,3]. If the likelihood of significant future capital needs is sufficiently great, managers are

reluctant to borrow today [4]. Accordingly, the presence of excess resources—an important source of operational and financial flexibility—as an enabler of corporate financial performance has received ample attention in organizational literature. At the same time, empirical evidence on the relevance of financial flexibility is still scarce [5].

This study focuses on financial flexibility and whether it provides value to firms. Financial flexibility is understood as excess financial resources, such as debt capacity and cash reserves, also known as financial slack. Financial resources offer a high level of transferability to profit-yielding activities [6]. A firm that possesses such resources is having a range of options such as funding new profitable projects without the need to raise funds externally, leaving it in a better position than a firm locked into a single course of action [7]. As such, firms with high levels of financial slack may be able to enjoy greater flexibility in the application and adaption of their resources, widening the range of viable options available to management. In contrast, firms without such flexibility may face difficulties in responding advantageously to external changes in turbulent market conditions.

If financial flexibility gained through the presence of slack resources provides options for adapting to unanticipated changes, such flexibility should reach a higher value during times of increased uncertainty. The most recent economic downturn with tighter credit standards on the supply side and as a result, curtailed financing activity, represents a typical situation where the benefits of financial slack should attain a premium. This study puts this expectation to the test in a German context, examining whether German firms with high levels of financial slack outperformed their peers during the recent economic downturn. A confirmatory outcome would lend support to the notion that financial flexibility has value. In turn, this would partially explain why firms deviate from theories of optimal capital structure.

The findings show that pre-crisis high levels of available slack, operationalized as the current ratio, do not have a significant impact on firm performance during a financial crisis. However, low (high) levels of debt (potential slack) at the onset of the crisis as well as high levels of absorbed slack had a positive impact on firm performance during the crisis. This supports the hypothesis that financial slack has value.

The article relates to various other studies on financial slack, as the topic has gained popularity in recent years. Gamba et al. [8] model the effect of financial flexibility on firm value. Latham et al. [9,10] examine the impact of financial slack on the performance of U.S. software firms during the early 2000s recession. Meier et al. [1] examine whether U.S. companies that built up financial flexibility ahead of the most recent financial crisis experienced superior stock returns. The approach taken here is different in that three types of financial flexibility and their potential curvilinear associations with performance are considered. Also, to the best of our knowledge, the study is the first to empirically examine the value of financial slack during a crisis for German firms.

The article is organized as follows: the theory and literature review on the link between financial flexibility and firm performance is presented in section 2. The following section 3 describes the methodology including data, sample selection, and empirical model. The fourth section presents the results before a conclusion is drawn.

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Received: April 15, 2018; Accepted: April 26, 2018; Published: April 30, 2018

Related Literature Review

Capital structure

Finding the optimal configuration of firm resource based through different means of financing constitutes a key challenge for managers. Financial theory posits two major theories on the optimal choice of debt versus equity [1]: The static trade-off theory and the capital structure irrelevance principle.

The static trade-off theory, which goes back to Kraus et al. [11], suggests that debt has an advantage over equity for corporate taxes, as interest payments are tax deductible. At the same time, debt comes with a disadvantage as it implies a probability of financial distress (bankruptcy costs and indirect costs of financial distress). The theory suggests that firms will use debt up to the point where the tax advantage and the disadvantage in the shape of bankruptcy costs balance out.

The capital structure irrelevance principle, developed by Modigliani et al. [12], implies that in the absence of tax and bankruptcy costs and assuming efficient markets, firms do not discriminate between financing sources. In the presence of taxes, firms are expected to use debt instruments, as interest payments are tax deductible. For this reason, debt should be preferred to equity.

These theories are contrasted by empirical evidence showing that the use of internally available cash, debt, or equity issues (or a combination thereof) deviates from the optimal choice of debt versus equity as given by theory [1]. On average, firms have been found to operate with less leverage than what could be expected based on the trade-off between tax shields and bankruptcy costs [5]. Gamba et al. [8] model the effect of financial flexibility on firm value and argue that firms may benefit from holding cash reserves in difficult times, as they enable firms to benefit from short-lived investment opportunities. Opler et al. [13] use similar arguments to explain why risky firms hold higher ratios of cash to non-cash assets. Marchica et al. [14] use a sample of UK firms and conclude that firms with below-target leverage make more and better investments.

Overall, empirical evidence has found reality to be deviating from the major theories on financial structure. As pointed out by Meier et al. [1] (2013), this does not indicate that the theories are valid, though they fail to explain the cross-section of capital structures that are observed empirically. A potential explanation for this phenomenon is firms' preference for financial flexibility. Survey findings by Graham et al. [3] imply that Chief Financial Officers (CFOs) in the U.S. rank financial flexibility as the single most important determinant of capital structure choice. Similar results were produced for European firms, with Bancel et al. [2] and Brounen et al. [15], reporting that managers rank financial flexibility as being a very important consideration when deciding on capital structure.

The perils and pitfalls of financial slack

Why do firms seem to value financial flexibility? Since financial resources offer a high level of transferability to profit-yielding activities [6], a firm that possesses such a resource cushion is assumed to be able to respond advantageously to unanticipated adverse changes in its environment, leaving it in a better position than a firm locked into a single course of action [7].

While this classification of slack is rather well established in literature, empirical evidence on its relevance for financial performance has still not reached a strong consensus. One possible reason is that financial slack is a multi-theoretic approach, and that the proposed effect of slack on the organization depends on how the different theories predict that managers will use slack resources [16].

Proponents of slack have identified four main functions of slack [17]: Firstly, according to the resource-based view, a firm with unused

or excess resources can leverage these in order to benefit from external opportunities, thereby fuelling firm growth [18,19]. Secondly, behavioral arguments suggest that slack positively impacts experimentation and risk taking, thereby facilitating innovation and change and creating competitive advantages [20,21,18]. Thirdly, firm behavioral theorists suggest that slack acts as a buffer between organizations and external contingencies, smoothing a firm's adaption to environmental change and thereby improving firms' long-term performance [22,23]. According to this view, firms insulate their technical cores with input and output buffers [24]. In case of environmental disruptions, the production process can resort to these buffers, limiting the need to respond otherwise to temporary changes. The slack resources thereby offer a margin of error [22]. Along these lines, organizational research therefore hypothesizes a positive impact of slack on the performance of firms, at least before slack reaches an excessive level. Finally, behavioral theory regards firms as coalitions of actors [25]. Within the organization groups of actors have different views on organizational problems, resulting in separate and often conflicting operational goals. When resources are scarce, organizational members spend time on forming coalitions to bargain for their share of the limited resources. If resources are more abundant—i.e., slack exists—the need for such political posturing is assumed to decrease. Researchers have therefore argued that the possession of organizational slack will alleviate intra-firm conflicts, as different parties can follow their own agendas [16].

Other scholars contend that financial slack represents a competitive disadvantage. Organizational economists and agency theorists identify slack as a source of inefficiencies [26,27]. Firms are seen as entities with different degrees of resource constraints [28,16]. Due to these constraints, firms are likely to make better use of their resources than firms facing fewer restrictions [28,29]. By finding ways to stretch and leverage their available resources, firms become more efficient, thereby enhancing their performance [16]. Supporters of the agency view take a similar stand toward organizational slack, and are particularly concerned with its potential impact upon investment and financing decisions. Similar to Jensen's [30] free cash flow hypothesis (some conceptual differences between the two measures notwithstanding) financial slack is viewed as a source of resource misallocations and potential agency problems. Managers of a firm with free cash flow may be tempted to invest in negative net present value projects instead of distributing funds to shareholders. Likewise, over-investment may result from having too much financial slack, the presence of which makes it easier for managers to pursue self-serving projects that can jeopardize performance, such as maximizing expense accounts, building slack into budgets, or engaging in empire-building [31,32]. Due to these negative impacts on the organization, the optimal level of slack is zero [33,34]. A complete elimination of slack, however, seems illusory: Agency theorists argue that not only do managers accrue slack in situations beyond the principal's control; they will loathe revealing it [35].

The empirical research on the value of financial slack mirrors the contrasting treatments of the concept in literature: The majority of studies seem to find either a positive or a curvilinear relationship with financial performance. A meta-study by Daniel et al. [36] demonstrates this ambiguity, finding discrepancies among the 66 inquiries included. In response to these different views, recent research has examined the slack-performance relationship across different contingencies, arguing that both theoretical perspectives may be justified, albeit under differing circumstances. For example, Tan et al. [23] argue that companies exhibit agency problems when absorbed slack is abundant, while organizational arguments come to bear for available slack, explaining a positive relationship with performance. The question of how much of which kind of financial slack to hold in which environmental circumstances is central to such studies.

Financial slack in an economic downturn

Studies within financial management hold the position that

liquidity and adequate financing opportunities are particularly crucial to a company's survival and performance during an economic downturn [37,38,10]. This view is founded in the observation that an economic downturn usually brings about great changes to the aggregate liquidity. A crisis period is often preceded by a credit crunch—a period characterized by tight money and high real interest rates, occurring around a cyclical peak in productive activity [39]. Brought about by a mix of high loan demand and a strained funds supply, a credit crunch spans the final months of an expansion as well as the early months of an ensuing recession. Public and private equity markets typically dry up, meaning that finding financial support for investment projects becomes more challenging [40,41]. Such changes in the aggregate liquidity will impact the default risk of firms, as most companies are to some extent dependent on accessing external financing.

Acting as a rainy day fund with a high level of flexibility in its application, slack may therefore be of particular importance during an economic downturn. While some slack resources are not unique by themselves, unabsorbed slack such as cash could be used to acquire resources critical to competitive advantages [9]. Cheng et al. [22] therefore assert that “the presence of slack resources serves a positive role by helping firms withstand severe economic recession”. Latham et al. [9,10] examine the performance of U.S. software firms during the 2001 recession and subsequent recovery and conclude that slack can be beneficial to firm performance during recession. Using a sample of firms from Hong Kong and Singapore during the Asian economic crisis of the late 1990s, Wan et al. [42] examine the role of slack for performance. They assert that the arguments of organization theory on the effect of unabsorbed slack on performance are valid during periods of environmental jolt. Slack is assumed to be particularly salient during this time, as slack resources cushion the impact of environmental change and allow the firm to quickly capture new opportunities as they arise. Their findings support these hypotheses, with unabsorbed slack positively influencing performance during crisis.

On the whole, extant empirical research on slack during economic downturns, although still rather limited, posits a positive association between the different forms of pre-crisis slack and performance during the crisis.

The most recent historical economic crisis was of considerable amplitude and limited non-financial firms' access to capital. In the U.S., Ivashina et al. [43] found bank lending to large borrowers to drop by 47 percent at the most. Busch et al. [44], show a similar slowdown of bank lending for Germany, where strong negative loan supply shocks to non-financial corporations were observed during the first quarters of 2008. A small number of papers analyze the effects of the most recent financial crisis empirically, albeit mostly in a U.S. context. Campbello et al. [45] question 1,050 Chief Financial Officers (CFOs) in 39 countries to assess whether their firms are credit constrained during the global credit crisis of 2008. They find, among other results, that the inability to borrow externally restricted investment in attractive projects for 86 percent of U.S. CFOs. Similar findings were made for European survey respondents. Simutin [46] reports a positive relationship between corporate excess cash holdings and future stock returns. However, during market downturns, firms with more excess cash are found to have higher market betas and lower returns. While such firms invest more strongly in the future than their peers, this is not reflected in a stronger future profitability. Simutin [46] therefore concludes that “I find no relationship between excess cash and future profitability, hinting at a possibility of overinvestment by high excess cash firms”. Meier et al. [1] examine U.S. firms and the impact of the financial slack on stock returns during the economic crisis. They find no positive influence of high pre-crisis levels of cash, whereas high pre-crisis levels of debt impact firm value negatively.

In short, there is theoretical and some empirical support for the view that several of slack's proposed functions should come into their

own during an economic crisis. Accordingly, this article expects to find a significant association between slack before a crisis and performance during a subsequent economic downturn, either in the shape of a linear or a curvilinear relationship.

Methodology

To analyze the value of financial slack, three common dimensions of the financial slack concept are addressed. Building on the definition of a resource cushion, researchers have highlighted different dimensions of the financial slack concept, such as the accessibility of slack [47] or the amount of managerial discretion offered [48](Sharfman, Wolf, Chase, & Tansik, 1988). Different types of slack have resulted and, a wide array of financial ratios has been used in empirical studies to capture the phenomenon quantitatively. A comparison between the operationalization of slack used by e.g., George [16] versus Tan et al. [23] makes this issue transparent.

Out of all possible options, the most widely used classifications of slack seem to be available, absorbed and potential slack [22,36]. These three types of slack are differentiated between based on their “ease of recovery”. Extant literature most often defines available slack as the difference between available working capital and required working capital [49-52,17]. This difference is known as the current ratio, as is demonstrated in the overviews given by both Daniel et al. [36] where 14 out of 23 studies applied the current ratio to measure available slack—and Tan et al. [23]. To keep in line with previous inquiries and to facilitate cross-study comparison, this study also applies the current ratio, measured as current assets divided by current liabilities. Potential slack indicates the firm's ability to gain external resources [53]. It is common to capture this variable by using a leverage ratio; here, the ratio of equity to total debt is applied. Finally, Absorbed or recoverable slack is defined as excess resources tied up in salaries, overhead expenses and other administrative expenses, meaning that it requires some effort to access. This type of slack is commonly measured as the ratio of general and administrative expenses (SG&A) to sales [54,22,36,54-56].

The proxies are measured for a sample of German firms as an average over the four years prior to the crisis, from 2004 to 2007. The sample was drawn from German firms as most of the previous studies concerning financial slack and economic crises mentioned throughout this paper focus either on U.S. or Asian firms. Balance sheet and income statement information is taken from Orbis, and financial firms as well as firms operating in regulated industries are excluded, such as utilities. Furthermore, the sample is restricted to large private and publicly-listed firms with an annual turnover greater than €50 million¹. This yields a total sample size of 322 companies. A separate variable was added to control for industry effects.

In keeping with previous relevant research efforts, the choice of performance measure was narrowed down to accounting-based ratios [16,8,33,42,57]. Within this group of performance measures, Return on Assets (ROA), Return on Equity (ROE) and Return on Sales (ROS) are common. ROE was ruled out due to its sensitivity to capital structure differences. ROA and ROS were found to be highly correlated. However, given that one of the main variables in the analysis is assessed relative to sales to control for firm-specific variations due to size, regression equations using ROS as the dependent variable may be a mathematical artefact [58,59]. ROA was relied upon as performance measure and resources. It was measured as an average over the period of 2008 to 2010.² In addition, ROA during 2007 was added as a control variable.

¹ According to the Basel Capital Accords, a SME is defined as a company with reported sales of less than €50 million (Basel Committee on Banking Supervision, 2013) [64].

² Any precise dating of economic downturns poses a challenge. According to The Centre for Economic Policy Research (CEPR), the Eurozone economic crisis began in first quarter of 2008 (2014) [65].

In a second step, the association between the independent and the performance variable was examined using heteroscedastic regression analysis. As the variables included in the analyses represent accounting or financial ratios, extreme values that shift the variables' distribution away from the normal distribution are more likely to occur. The accounting construction of the numerator and denominator in the case of financial ratios is responsible for such extreme values, and the departure of financial ratios from normality is well-documented [60-62]. Both accounting and statistical literature have suggested the t distribution provides a good fit to ratios [63]. The t distribution has more probability in the tails than the normal distribution, meaning that it accommodates the fact that extreme values are more likely to occur for ratios. Using the t specification to model a regression is therefore a quite widespread way of making an analysis more robust and of modelling possible heteroscedasticity, which is a common occurrence in cross-sectional regressions.

Results

Table 1 provides descriptive statistics and correlations for the variables used in the analysis. As the table suggests there were no high correlations between the study variables and the two performance measures. In addition, collinearity diagnostics were run, finding no statistically significant issues with values of Variance Inflation Factors (VIF <.2 or >10). As such, multicollinearity was not a problem in the study. The variable of available slack was transformed using power transformation to reduce skewness, as its standard deviation diverges rather strongly from the mean.

Table 2 offers the results from the three-step hierarchical regression analysis. Profitability was regressed on all explanatory variables after controlling the industry dummy and past growth, as reported in Table 2. The log likelihood associated with the entry of the main effects and the quadratic terms is significant at the .05 level or better in all three models.

S.No.	Variables	Means	S.D.	1	2	3	4
1	Potential Slack	46.3	24.9				
2	Absorbed Slack	0.3	0.2	0.360**			
3	Available Slack	71.5	557.6	0.412**	0.095		
4	Previous Performance	53.7	126.8	0.038*	-0.311**	0.097	
5	Performance in downturn	6.2	10.5	-0.059	-0.197**	0.042	0.641**

Table 1: Descriptive statistics and correlations.

N=322

**p<0.01, two-tailed. *p<0.05, two-tailed

	Model 1	Model 2	Model 3
Control Variables			
Previous Performance	0.77 (0.03)***	0.82 (0.03)***	0.82 (0.03)***
Industry dummy	0.03 (0.03)	0.02 (0.03)	0.01 (0.03)
Main Variables			
Potential Slack		-0.05 (0.01)***	-0.06 (0.01)***
Absorbed Slack		2.54 (1.30)*	5.31 (1.51)***
Available Slack		-1.12 (1.00)	-0.95 (0.95)
Squared Variables			
Potential Slack ²			0.00 (0.00)***
Absorbed Slack ²			-4.97 (2.12)*
Intercept	-1.33 (1.13)	-0.55 (1.25)	-0.72 (1.21)
log(L)	-1034.375	-1026.46	-1015.68
LR		15.834**	37.398***

Table 2: Regression results.

Note: Coefficients are unstandardized. Standard errors in brackets.

P<0.10, *p<0.05, **p<0.01, ***p<0.001

As indicated by Model 1, while no predictions were made for the impact of the control variables onto performance, past performance played the role it was expected to. The adverse impact of environmental hostility presents a greater threat to firms which might already be struggling. The industry dummy was not significantly associated with performance at the time of an economic downturn.

Model 2 reports the results for the effects of the main explanatory variables. With the exception of available slack, all are highly significant. The findings suggest that the presence of absorbed slack is positively associated with performance (p < .05), while potential slack exhibits a negative association with performance (p < .001), which corresponds to a positive relationship between performance and debt levels. The linear model therefore suggests that firms with high levels of absorbed financial resources and debt perform better than their peers during an economic crisis.

This picture is nuanced by Model 3, which considers possible quadratic effects. While available slack remains insignificant throughout, the quadratic terms of absorbed and potential slack are both highly significant (p < .05 and p < 0.001, respectively). For absorbed slack, the quadratic term has a negative coefficient, while the single term is positive, meaning that the negative effect dominates at low levels of absorbed slack, while the positive effect dominates at high levels. This results in a concave or inverse-shaped U. The turning point lies at 86 percent, which is more than a standard deviation from the mean. Since the median is slightly lower than the mean in this case, for most firms in the sample, the association with performance is therefore positive, but at a declining rate.

In the case of potential slack, the single term is negative with a positive quadratic term. This means that at low levels of potential slack, the negative effect will dominate, while at higher levels, the positive primary effect takes over. This produces a convex or U-shaped relationship. The turning point lies at 64 percent, which is well within the relevant range of the variable (between 2 and 97 percent). This means that high (low) levels of debt (potential slack) are negatively associated with performance, while low (high) levels of debt (potential slack) exhibit a positive association with performance during an economic downturn.

Discussion and Conclusion

Overall, the findings lend support to the central proposition that the financial slack has value in difficult market conditions. The financial flexibility offered by higher levels of financial slack showed a strong impact on performance during an economic downturn, as uncertainty was at its highest. The lack of a significant association between available slack and performance is consistent with recent findings of Meier et

al. [1], who find excess cash and cash equivalent resources to have no impact on firm value during the most recent financial crisis. Simutin [46] reports similar results. Combined, such findings support the notion that the impact of slack on performance may not always be potent, justifying a contingency approach.

None of the aforementioned studies examine the possibility of non-linear effects during a declining economic environment. Studies that do identify a non-linear relationship between financial slack and performance have found the shape of the association to be inverse curvilinear [16,17,56]. In this case, the relationship between potential slack and performance was found to be U-shaped. Two aspects modify what appears to be a counterintuitive result. Firstly, the previous studies examine the slack-performance association in environments of higher munificence, while this study argues that the relationship will depend upon the circumstances. Secondly, the finding of a U-shaped association between potential slack and performance empirically supports Bromiley's [51] commonly cited theory that firms with a medium level of slack will be stuck in the middle. Available resources in the form of slack can constitute a strategic advantage, as a firm with slack can utilize opportunities not available to firms without such resources. Alternatively, a firm with low levels of slack may miss out on such opportunities and will seek to improve performance through improved management, leading to cost reductions and in turn higher performance. Bromiley [51] was one of the first to detect a curvilinear relationship between slack and performance, holding that either action—taking advantage of opportunities via slack or managing more carefully due to a shortage of slack—should result in performance improvement. This seems to be the case for the sample firms during the economic crisis. An additional interpretation of this finding would be that a threshold to potential slack exists [17]. Performance only improves as long as the level of financial slack held by a firm exceeds a certain threshold. If this is not the case, no financial slack would be preferable.

The inverse curvilinear relationship identified between absorbed slack and performance is in line with behavioral arguments of slack, which relate higher levels of slack to the beneficial effects of experimentation, risk taking, and coalitions among managers. Previous inquiries have also found organizational theory to have higher validity when dealing with absorbed slack. In their meta-study, Daniel et al. [36] found a positive impact of absorbed slack on performance. Miller et al. [66] sampled between 295 and 445 U.S. firms in four periods and found firm performance to be strengthened by the presence of recoverable slack. Tan et al. [23] examine Chinese state enterprises in 1991-92 and concluded that organization theory generates stronger predictions when dealing with unabsorbed slack.

Although hardly a unique resource, slack may play an important role in firm performance and add to the explanatory power of resource-based arguments. The results reflect that different types of slack may exhibit different associations with performance. To enhance performance, balancing the types of financial slack is therefore a prerequisite, and both low- and high-discretion slack should be optimized. Combined, these findings make it clear that the relationships between slack and performance are heterogeneous, justifying an analysis according to type of slack. Furthermore, the impact of slack on performance may not always be as potent at all times, favoring a contingency approach.

It is likely that the impact of slack on performance will vary across industries. Although the present analysis controlled for industry effects, further studies might focus on several types of slack within a single industry.

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