

ORGANIZATIONAL SLACK AND FIRM PERFORMANCE DURING ECONOMIC TRANSITIONS: TWO STUDIES FROM AN EMERGING ECONOMY

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How does organizational slack affect firm performance? Organization theory posits that slack, despite its costs, has a positive impact on firm performance. In contrast, agency theory suggests that slack breeds inefficiency and inhibits performance. The empirical evidence, largely from developed economies, has been inconclusive. Moreover, little effort has been made to empirically test whether such an impact (positive or negative) is linear or curvilinear. This article joins the debate by extending empirical work to the largely unexplored context of economic transitions. Specifically, two studies, based on survey and archival data (N = 57 and 1532 firms, respectively), are undertaken in China's emerging economy. Our results suggest (1) that organization theory generates stronger predictions when dealing with unabsorbed slack, and (2) that agency theory yields stronger validity when focusing on absorbed slack. Furthermore, we also find that the impact of slack on performance is curvilinear, which resembles inverse U-shaped curves. Overall, our findings call for a contingency perspective to specify the nature of slack when discussing its impact on firm performance. Copyright © 2003 John Wiley & Sons, Ltd.

How does organizational slack affect firm performance? Organization theorists typically argue that, despite its costs, slack buffers a firm's technical core from environmental turbulence, and thus enhances its performance (Cyert and March, 1963; Pfeffer and Salancik, 1978; Thompson, 1967). In contrast, agency theorists often suggest that slack is a source of agency problems, which breeds inefficiency, inhibits risk-taking, and hurts performance (Fama, 1980; Jensen and Meckling, 1976). At present, evidence based on these two perspectives is still inconclusive, and the debate therefore calls for more conceptual and empirical probes.

One aspect that unites virtually all empirical studies (Bromiley, 1991; Cheng and Kesner, 1997;

Davis and Stout, 1992; Greenley and Oktemgil, 1998; Hambrick and D'Aveni, 1988; Nohria and Gulati, 1996; Miller and Leiblein, 1996; Reuer and Leiblein, 2000; Singh, 1986) is that they are all based on samples of firms in developed economies, which have to compete in both product and financial markets. Holding competition in product markets constant, financial markets in developed economies both compel firms to be efficient and provide an avenue whereby unwanted slack can be disposed of. However, throughout emerging economies, financial markets are underdeveloped, thus neither asserting strong pressures for firms to be efficient nor enabling the efficient sell-off of assets (Khanna and Palepu, 1997, 2000). On the other hand, during economic transitions, product market competition, participated not only by incumbent state-owned enterprises (SOEs) but also by entrepreneurial start-ups and foreign entrants, is heating up (Peng, 2000a, 2003).

Key words: transition economies; China; SOE; organizational slack; performance

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Therefore, the relationship between organizational slack and firm performance in emerging economies, under the condition of strong product market competition and weak financial market infrastructure, is even more ambiguous (Tan, 1996).

In this article, we join the debate by conducting two studies on competing hypotheses drawn from organization and agency theories grounded in the context of economic transitions. Specifically, we focus on SOEs in China, based on survey and archival data, to investigate whether organizational slack contributes toward or inhibits firm performance. Extending the literature, we also develop and test the perspective that the slack–performance relationship may be curvilinear as opposed to linear. Throughout the article, an effort is made to distinguish absorbed and unabsorbed slack.

Since SOEs throughout emerging economies are known to maintain a large inventory of organizational slack, their lackluster performance has often been attributed to their inefficiency associated with slack (Kornai, 1992; Majumdar, 1998; Peng and Heath, 1996). Consequently, there has been little hesitation for Western advisors to recommend that slack be eliminated (e.g., Sachs, 1993). However, very little empirical evidence exists to support this proposition. Therefore, in addition to testing two competing theories, our two studies also have the secondary benefits of empirically examining this widely believed but rarely tested proposition.

There are a number of compelling reasons why SOEs in China's emerging economy can be used as a test case. First, given the enormous size of the SOE sector,¹ it will be difficult to dismiss these SOEs as 'outliers' that can be ignored by researchers (Tan and Litschert, 1994; White, 2000). Second, because China shares an important common legacy with other emerging economies (e.g., those in Central and Eastern Europe), the Chinese experience can help answer critical questions such as the role of slack in restructuring SOEs elsewhere (Peng, 2000a, 2003). Finally, because of China's growing importance in the global economy, improved knowledge about Chinese firms has enormous practical implications for Western firms that have to compete or collaborate with them (Beamish, 1993; Child and Tse, 2001; Luo and

Peng, 1999; Tan, 2002; Yan and Gray, 1994). In sum, we believe that the Chinese context represents a 'viable research laboratory' (Shenkar and von Glinow, 1994: 56) in which to examine the link between organizational slack and firm performance during economic transitions.

THE ROLE OF ORGANIZATIONAL SLACK: THEORY AND EVIDENCE

Organization theory

Although Barnard (1938) had discussed the role of slack in his early work, the specific label of 'slack' had not been coined until March and Simon published their seminal book in 1958. Organization theorists in general treat the firm as an entity analogous to an organism that seeks survival as the ultimate goal (Cyert and March, 1963; Pfeffer and Salancik, 1978; Thompson, 1967). Therefore, organizational slack is necessary to help ensure the long-run survival of the firm. Accordingly, organizational slack is defined by Bourgeois (1981: 30) as:

A cushion of actual or potential resources which allow an organization to adapt successfully to internal pressures for adjustment or to external pressures for change in policy, as well as to initiate changes in strategy with respect to the external environment.

In organization theory, slack has been suggested to perform four major functions. First, slack acts as an inducement, which represents 'payments to members of the coalition in excess of what is required to maintain the organization' (Cyert and March, 1963: 36). Second, slack can become a resource for conflict resolution. The upshot is that, with sufficient slack, there can be a solution for every problem. Third, slack may be employed as a buffer, which insulates the technical core of the organization from environmental turbulence. Finally, slack can be a facilitator of strategic behavior, which allows the firm to experiment with new strategies such as introducing new products and entering new markets (Thompson, 1967).

Especially during turbulent, 'rainy days,' slack enables the firm to 'hang in there' (Sharfman *et al.*, 1988). To be sure, organization theorists acknowledge that 'slack resources are an additional cost to the organization' and that an excessive level of

¹ During the time (the early 1990s) when our studies were undertaken, the over 110 million workers that Chinese SOEs employed (*Far Eastern Economic Review*, 1996: 63) represented approximately 10 percent of China's population and nearly 2 percent of the world population.

slack is untenable (Galbraith, 1973: 15). However, they generally believe that, given the complex trade-offs, the benefits of slack outweigh its costs, and that a zero-slack organization is not realistic. Accordingly, organization theory suggests that, before reaching an excessive level:

Hypothesis 1: Slack resources have a positive association with firm performance.

Agency theory

By painting an entirely different picture of the role of slack, agency theory literally turns the organization theory perspective 'upside down' (Davis and Stout, 1992). Agency theory explicitly rejects the view that the firm is an organism with human-like properties such as an interest in survival. Rather, according to Jensen and Meckling (1976: 311, original emphasis):

The firm is not an individual. It is a legal fiction which serves as a focus for a complex process in which the conflicting objectives of individuals are brought into equilibrium within a framework of contractual relations.

In essence, this view regards the firm as a nexus of contracts between principals and agents (Fama, 1980). Agency theorists challenge the very notion that maintaining slack can be good for the organization; rather, it will only be good for managers acting as agents (Jensen and Meckling, 1976). Since managers inherently have a set of goals, such as the pursuit of power, prestige, money, and job security, that are not always aligned with those of principals, managers may use slack to engage in excessive diversification, empire-building, and on-the-job shirking.² As a result, slack may become a source of agency problems, which breed inefficiency (called 'X-inefficiency' by Leibenstein, 1969). Accordingly:

Hypothesis 2: Slack resources have a negative association with firm performance.

Given such a pessimistic view of slack, agency theorists usually recommend that the level of slack be minimized. Conceptually, we may suggest that agency theory looks at the role of slack from the

principal's point of view, whereas organization theory has a clear managerial (agent) orientation. Given the *inherent* conflict of interest between principals and agents (Jensen and Meckling, 1976), it is not surprising that their views on the role of slack are in conflict.

Absorbed and unabsorbed slack

The inconclusive debate on the role of organizational slack calls for a specification on how it is conceptualized. 'Organizational slack' has been broadly conceptualized along at least two dimensions (Sharfman *et al.*, 1988). Tied up with current operations, *absorbed* slack, which amounts to excess costs in organizations, is not easy to redeploy. *Unabsorbed* slack, which corresponds to currently uncommitted resources, is more easily redeployed elsewhere, allowing for greater managerial discretion. Although absorbed and unabsorbed slack may have different implications for firm performance, 'an *a priori* theory about the differential effects of the two slack components is lacking' (Singh, 1986: 567). Therefore, most research is supposed to apply to both kinds of slack, which is an approach we follow in this article.

A curvilinear relationship

From an economic efficiency standpoint, it seems obvious that the argument 'the more slack, the better' contained in Hypothesis 1 needs to be qualified. There is little reason to believe that slack's performance-enhancing effect—if any—is linear. In other words, there must be a limit beyond which further 'hoarding' of slack may backfire. The relationship may well be an inverse parabola. Researchers have speculated that 'there is an optimal level of slack for any given firm. If the firm exceeds that level, performance will go down' (Sharfman *et al.*, 1988: 603; see also Bourgeois, 1981). However, this speculation has received little empirical attention. Although Bromiley (1991) hypothesizes that the slack–performance relationship may be U-shaped—high and low slack is associated with better performance and moderate slack may lead to poorer performance—his results do not support this hypothesis and instead find a linear, positive relationship between slack and performance. In the only empirical study which documents a curvilinear relationship, Nohria and

² Behavioral accounting researchers find that managers as agents are likely to build slack into budgets (Dunk and Nouri, 1998).

Gulati (1996), who use innovation as a dependent variable, report an inverse U-shaped relationship between slack and innovation: both too much and too little slack may be detrimental to innovation. In order for research on slack to advance, it is important to determine the optimum level of slack with better precision. Therefore, we propose:

Hypothesis 3: The relationship between organizational slack and firm performance is curvilinear such that too little and too much slack has a negative correlation with performance and that

a moderate level of slack has a positive correlation with performance.

Empirical evidence

Shown in Table 1, empirical research on the role of organizational slack is conflicting. For example, Davis and Stout (1992: 605) find an 'irony:' 'Large [U.S.] corporations that were most successful by the standards of organization theory [i.e., with more slack] were most likely to be taken over.' They conclude that maybe organization theory

Table 1. A summary of key previous studies

Study/sample	Slack measures	Results
<i>A. Studies supporting agency theory predictions</i>		
Davis and Stout (1992): 467 bids for large U.S. firms	Cash flow	Greater cash flow increases the risk of being taken over
<i>B. Studies supporting org. theory predictions</i>		
Singh (1986): 64 large U.S. and Canadian firms	Absorbed slack (selling, general, and administrative expenses and working capital) and unabsorbed slack (cash and securities)	A high level of absorbed and unabsorbed slack is related to good performance
Hambrick and D'Aveni (1988): 57 bankrupt firms and 57 matched surviving firms	Unabsorbed slack (equity-to-debt ratio and working capital as a percentage of sales)	Bankrupt companies have substantially less slack than surviving companies
Bromiley (1991): 288 U.S. firms	Available slack (current ratio), recoverable slack (selling, general, and administrative expenses divided by sales), and potential slack (debt-to-equity ratio)	Slack, particularly available and potential slack, increases performance
Miller and Leiblein (1996): Between 295 and 445 U.S. firms in four sample periods	Recoverable slack (accounts receivable/sales, inventory/sales, and selling, general, administrative expenses/sales)	Firm performance is strengthened by the presence of slack
Reuer and Leiblein (2000): 332 U.S. firms	Recoverable slack (accounts receivable/sales, inventory/sales, and selling, general, administrative expenses/sales)	Slack is negatively related to firms' downside risk
<i>C. Studies suggesting more complex contingencies</i>		
Nohria and Gulati (1996): 178 units of a Japanese multinational and 78 units of a European multinational	A single composite measure of slack based on two questionnaire items	There is an inverse U-shaped relationship between slack and innovation: both too little and too much slack may be detrimental to innovation
Cheng and Kesner (1997): 30 U.S. airlines	Available slack (current ratio), potential slack (equity-to-debt ratio), and recoverable slack (ratio of general and administrative expenses to sales)	Slack can have a positive or negative effective on firms' response to environmental shifts
Greenley and Oktengil (1998): 134 U.K. firms	Generated slack (6 measures) and invested slack (4 measures)	A positive relationship between slack and performance exists only for high-performance firms; it does not exist for low-performance ones

'is no longer tenable and ... it must adjust to the financial model of the corporation [based on agency theory]' (1992: 605). On the other hand, at least five studies support organization theory predictions. Specifically, Singh (1986), Bromiley (1991), and Miller and Leiblein (1996) find that a high level of slack is associated with good performance. Hambrick and D'Aveni (1988) report that bankrupt firms feature significantly less slack than the surviving firms, suggesting that slack may have helped firm survival. Reuer and Leiblein (2000: 209) note that slack is negatively related to firms' downside risk, thus implying that slack may reduce risk and enhance performance.

Neither supporting nor refuting these conflicting theories, other studies paint a more complex picture. In addition to the Nohria and Gulati (1996) study noted above, Greenley and Oktemgil (1998) report that a positive relationship between slack and performance only exists for high-performance firms, and that such a relationship is negligible for low-performance firms. Cheng and Kesner (1997) find that slack can have a positive or negative effect on firms' responses to environmental shifts. While Cheng and Kesner's findings 'raise doubts about the popular view which regards slack as an organizational cost to be eliminated' for some firms, they also note that 'the reverse may be true for other firms' (1997: 15). On balance, it seems that the empirical evidence is inconclusive.³

Despite their differences, virtually all studies have explicitly or implicitly relied on the existence of financial markets that provide an alternative to dispose of organizational slack. Whether such an alternative would work in an emerging economy such as China immediately becomes a huge question mark given the lack of effective financial markets to reallocate capital and dispose of slack there (Khanna and Palepu, 1997). As a result, extending this work to an emerging economy not only allows us to test these theories in a new empirical setting,

³ One may argue that even the literature *within* organization theory and agency theory is far from reaching a consensus (e.g., Cheng and Kesner, 1997). While we acknowledge the debate within each theoretical perspective, we believe that their differences are not as large as the differences between these two fundamentally opposite theories (e.g., Davis and Stout, 1992). Given the lack of research on the role of organizational slack in emerging economies, we focus on the larger theoretical differences between organization and agency theories (in other words, the *strong forms* of these two theories) in this article, and look forward to exploring the more subtle differences within each theoretical perspective in future research.

but also enables us to incorporate critical, societal- and institutional-level variables not considered in previous research (Hoskisson *et al.*, 2000; Peng, 2000a, 2003), which we turn to next.

ORGANIZATION SLACK DURING ECONOMIC TRANSITIONS

Soft budget constraint, just-in-case management, and organizational slack

A key feature of SOEs in emerging economies is the soft budget constraint, which refers to the phenomenon that SOEs are bailed out persistently by state agencies when revenues do not cover costs (Kornai, 1992). Although financial performance is not emphasized, fulfillment of the central economic plan, often measured in production quantity, is important. Given the prevailing 'economics of shortage' (Kornai, 1992), the pressure to meet the plan leads SOEs to hoard everything, from raw materials to human resources. Put another way, this is a system of 'just-in-case' management, as opposed to the lean, 'just-in-time' management now practiced throughout the West (Peng and Heath, 1996: 508). Such a 'just-in-case' system naturally ends up with a large amount of slack (Majumdar, 1998). Given SOEs' well-known performance problems, their organizational slack is often believed to lead to their inefficiency, resulting in calls for the elimination of such slack during the transition era (Sachs, 1993).

State-owned enterprises in transition

SOEs' environment has changed dramatically during the transitions. Product market competition has grown from virtually nonexistent to increasingly intense. Pushed by the government, which is increasingly interested in hardening SOEs' budgets, many SOEs are forced to reduce inefficiency (Tan and Litschert, 1994; Tan, 2001; White, 2000). Further, numerous entrepreneurial, private startups have grown to compete for a slice of the market share (Dawar and Frost, 1999). Moreover, a great number of multinationals have entered these emerging economies, asserting pressures on SOEs to either sink or swim in the emerging ocean of competition (Beamish, 1993; Luo and Peng, 1999; Tan, 2002; Yan and Gray, 1994).

Such transitions are not easy for SOEs (Child and Tse, 2001; Shenkar and von Glinow, 1994).

While some SOEs have reformed, transformed, and/or privatized themselves to list their shares on the new stock exchanges, the fledgling financial markets in emerging economies are typically underdeveloped, and thus are unable to force these firms to change their governance structures and enhance performance (Buck, Filatotchev, and Wright, 1998; Khanna and Palepu, 1997). For a majority of SOEs not listed on the stock exchanges, competitive pressures from financial markets are irrelevant, and their only significant constraint comes from product market competition. The question then becomes: how can SOEs transform themselves when facing increasingly strong product market competition but weak financial market pressures?⁴

One of the most important challenges is how to deal with organizational slack. While hoarding slack at the pre-transition level is certainly untenable, how much to cut and in what areas remain unsolved. Although some SOEs continue to hold a high level of slack, even for firms interested in reducing their slack, they may not be able to efficiently sell or lease these resources due to the underdeveloped financial markets. Many firms are thus forced to find productive ways to redeploy slack resources in order to remain competitive (Peng and Heath, 1996). Under these circumstances, an improved understanding of the relationship between organizational slack and firm performance during economic transitions is crucial.

OVERVIEW OF THE TWO STUDIES

Following a multimethod design (Tan, 1999), we undertook two empirical studies, which employed survey and archival data, respectively. While each method has its strengths (Boyd, Dess, and Rasheed, 1993), 'none is so perfect even in its area of greatest strength that it cannot benefit from corroboration by other methods' findings' (Brewer and Hunter, 1989: 51). Our purpose was to test hypotheses by triangulated cross-method comparisons, which require multiple sets of data speaking

⁴There are many other aspects of SOEs in China that are undergoing transitions, such as managers' incentive systems, the role of these firms in the society, and the weak legal frameworks governing them. Detailed discussions on these aspects would be beyond the scope of this empirical article. See Child and Tse (2001), Peng (2000a, 2003), Peng and Heath (1996), and Shenkar and von Glinow (1994) for more details.

to the same research question. Moreover, data must be collected from different sources 'with truly different methods that are employed independently of one another but that are focused as tightly as possible upon the particular question being investigated' (Brewer and Hunter, 1989: 83). We followed these principles in designing our studies.

STUDY 1: A MAIL SURVEY

Methodology

Study 1 was a survey in a single industry. An industry focus controls for possible extraneous variations found in multiple industries. We chose the electronics industry for three reasons. First, with substantial foreign investment and competition, this industry has faced greater environmental changes and competitive pressures (Naughton, 1997). As a result, the practice of hoarding slack resources is increasingly under scrutiny. Second, pre- and post-test interviews were conducted in this industry, allowing for a deeper knowledge base on the part of researchers. Finally, this industry has not only been extensively studied in the West but also in China (Naughton, 1997; Tan and Litschert, 1994), thus allowing for possible comparison with previous results.

A survey questionnaire was developed based on interviews with 30 SOE managers. It was first subjected to back-translation procedures to ensure validity, and was then pre-tested for face and construct validity. We first sent questionnaires to the president and planning director of every SOE in the electronics industry in Tianjin, a major industrial city in north China. We checked reliability using split half methods, which are an extension of inter-rater correlation, based on twelve double returns (i.e., two returned questionnaires from the same firm). All the Guttman split-half reliability indices were between 0.7 and 0.9. The results indicated that the questionnaire responses exhibited stability across key respondents in the same firm, and that each individual provided equally reliable assessment. Therefore, we only sent surveys to the company presidents of electronics SOEs in three other major cities in the region (Beijing, Shijiazhuang, and Tangshan).

The survey was conducted during 1991–92.⁵ We drew sample firms from a list maintained

⁵Since Chinese stock markets had barely been in operation since 1990, they basically had little impact on SOE behavior at that

by the electronics industry bureau of these cities using computer-generated random numbers. The randomly sampled SOEs ranged from around 100 to over 5000 employees. Altogether 120 questionnaires were distributed through mail and a usable sample of 55 cases (46%) was collected. We also checked nonresponse bias by following the techniques suggested by Armstrong and Overton (1977).⁶ Specifically, we divided the sample into four subgroups of equal size according to the sequence of receiving their responses, and compared the first and last groups using split-half reliability measures. The results exhibited stability and implied little nonresponse bias. The survey data also exhibited a high level of consistency with interview data.

Organizational slack

Since both absorbed and unabsorbed slack may affect firm performance, measures of slack need to capture both dimensions (Sharfman *et al.*, 1988). In addition to being extensively pre-tested, our measures extended the work of Cheng and Kesner (1997), Davis and Stout (1992), and Singh (1986) in that the measures of absorbed slack tapped into the hard-to-redeploy nature of such slack, whereas the measures of unabsorbed slack focused on the free cash flow at the discretion of the managers. Specifically, for *absorbed* slack, managers were asked to provide an assessment on a seven-point scale on whether the firm has been operating below engineered capacity. For *unabsorbed* slack, managers were probed, based on a seven-point scale, on (1) whether the firm's retained earnings have been sufficient for market expansion; (2) whether it has a pool of financial resources that can be used on a discretionary basis; and (3) whether it is able to secure necessary bank loans.

Firm performance

Managers were asked to identify their firms' relative performance, as compared with close competitors, based on (1) profitability (after-tax return

on assets) and (2) market position, on a five-point scale. Although financial and accounting data were not publicly available and none of these firms was listed on the stock exchanges, managers were able to compare their firms' relative performance with competitors using information supplied by the electronics industry bureau, a government agency supervising these SOEs. The bureau evaluates performance by appraising key indicators on an annual basis, and these appraisals and performance rankings are circulated among SOE managers in the same industry. Outstanding performance is publicized nationally through the media so that other firms can emulate these star performers. Most SOEs in our sample had emulation committees chaired by the respondents that met periodically to compare their performance with competitors based on these appraisals.

Control variable

Our research design already controlled for industry and location (i.e., all sampled firms were in the same industry located in north China). In addition, respondents were also asked to identify the size of their firms as measured by the number of employees, using a seven-point scale, ranging from 1 (fewer than 99 employees) to 7 (more than 5,000 employees).

Reliability assessment

Previous research suggests that, in the absence of archival data, self-reported measures are acceptable and often equally reliable, provided that data reliability is examined (Boyd *et al.*, 1993; Dess and Robinson, 1984). Although SOE managers in China might be interested in reporting 'politically correct' behavior (i.e., painting 'rosy pictures'), it was unlikely that the bias was *systematic*. In other words, there was no evidence that our informants always over- or under-reported certain data by a consistent margin. In order to prevent hypothesis guessing (Cook and Campbell, 1979), we separated the questions about slack from those about performance in the survey to avoid any hint that we were looking for a relationship between the two constructs. In addition, previous research finds that under anonymity Chinese managers are more willing and more likely to provide accurate information (Luo and Peng, 1999; Peng and Luo, 2000; Tan and Litschert, 1994; Yan and Gray, 1994).

point, and none of the surveyed SOEs was publicly listed during 1991–92.

⁶ Armstrong and Overton (1977) suggest that 'subjects who respond less readily [e.g., defined as answering later, or as requiring more prodding to answer] are more like nonrespondents' (p. 397), and that 'the theoretical last respondent be used as a prediction for the nonrespondent' (p. 401).

We have reason to believe that our promise of confidentiality worked because survey responses were well distributed over the range of possible choices (see Nohria and Gulati, 1996: 1253). It follows, then, that our data collected anonymously may contain normal errors—just like any other data—but not systematically.

Moreover, we tested data reliability by using Cronbach's alpha, which was above the benchmark value of 0.7 considered adequate for internal consistency. The validity of the assumption of normality was tested using the Shapiro–Wilk *W*-test and the Kendall and Stuart's rule of thumb based on skewness and kurtosis. Results indicated that the normality assumption appeared to be valid when applied to the data at hand. Multicollinearity was diagnosed by examining the variance inflation factors (VIFs). The VIF values ruled out the

possibility that multicollinearity was a serious problem.

Findings

Descriptive statistics and regression results are shown in Tables 2 and 3, respectively. First, shown in the first column of Table 3, two measures of unabsorbed slack, namely discretionary fund and debt financing, were found to have a significantly positive impact on profitability, thus supporting Hypothesis 1. On the other hand, the measure of absorbed slack, excess capacity, had a significantly negative impact on profitability, thereby supporting Hypothesis 2. Next, we used market position as a performance measure. Shown in the second column of Table 3, all four measures of slack had a positive impact on firms' market position. Among

Table 2. Study 1: Descriptive statistics and Pearson correlation coefficients

	1	2	3	4	5	6
<i>Absorbed slack</i>						
1. Excess capacity						
<i>Unabsorbed slack</i>						
2. Retained earnings	-0.17					
3. Discretionary fund	0.01	0.71**				
4. Debt financing	0.03	0.66**	0.75**			
<i>Control variable</i>						
5. Size	0.07	0.44**	0.12	0.16		
<i>Performance</i>						
6. Profitability	-0.31**	0.50**	0.69**	0.62**	-0.05	
7. Market position	-0.02	0.54**	0.43**	0.43**	0.26*	0.03

* $p \leq 0.05$; ** $p \leq 0.01$

Table 3. Study 1: multiple regression results with standardized estimates

	Predicted sign H1/H2	(1) Profitability	Predicted sign H1/H2	(2) Market position
<i>Absorbed slack</i>				
Excess capacity	+/-	-0.339***	+/-	0.049
<i>Unabsorbed slack</i>				
Retained earnings	+/-	-0.104	+/-	0.434*
Discretionary fund	+/-	0.557***	+/-	0.043
Debt financing	+/-	0.286*	+/-	0.104
<i>Control variable</i>				
Size		-0.083		0.042
Adjusted R^2		0.618		0.309
F		16.194		4.469
$P \leq$		0.001		0.01
N		55		55

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

them, retained earnings had a significant impact at the $p < 0.05$ level, thus supporting Hypothesis 1 and rejecting Hypothesis 2. Overall, it seems that organization theory is more strongly supported than is agency theory.

At the same time, we believe that this study could be improved. Since both slack and performance can be measured in several different ways, it may be that associations between different measures take different forms, and that all measures of slack are not necessarily associated with all measures of performance (Greenley and Oktemgil, 1998: 383). Therefore, the validity of Study 1 may be improved by an alternative set of slack and performance measures. Procedurally, Study 1 would be vulnerable to all the standard criticisms leveled at survey research, such as common method variance, social desirability bias, nonresponse bias, and lack of generalizability. To check for potential common method bias, we split the sample into two halves, and ran the dependent variables from one half with the independent variables from another. The results were similar to the findings reported, thus indicating little common method variance. To address potential social desirability bias, respondents' anonymity was strictly guaranteed and respected. Our pre- and post-survey interviews suggested that the survey was not thought to be so sensitive that it would trigger a response that would present the respondent or the firm in a favorable light. Although we followed Armstrong and Overton's (1977) widely adopted method of checking nonresponse bias, we had no concrete information about nonrespondents. Finally, it was not clear, given Study 1's single-industry focus, how generalizable the results were. In summary, as an exploratory effort, Study 1 left room for further improvement, which culminated in our Study 2.

STUDY 2: AN ARCHIVAL EXPLORATION

Methodology

Study 2 is a multi-industry follow-up of Study 1. We collected data from the archives of the State Statistical Bureau (SSB) in Beijing. Because the vast majority of SOEs were not publicly listed, their financial statements were not publicly accessible. The only way to obtain fine-grained measures of slack was from the SSB. The SSB's industrial census covers all firms in China (except very

small family-run businesses), which are required by law to complete. The census typically captures approximately 95 percent of the total industrial output (SSB, 1996: 417). The SSB pays special attention to the quality of data. It uses a logic-testing method, which links related variables together to identify illogical data, and a historical method, which tracks a firm's historical pattern. It specifies more than 120 logic tests for major, nationwide surveys and more than 30 logic tests for industry-specific surveys. Any inaccuracy and deviation from accounting regulations would be strictly disciplined. Consequently, this is the most accurate and reliable archival data on Chinese firms. Data provided by the SSB has been used in research published in such leading journals as the *American Journal of Sociology* (Walder, 1995), *Journal of International Business Studies* (Pan, Li, and Tse, 1999), and *Quarterly Journal of Economics* (Chow, 1993). According to Chow⁷ (1993: 810), the SSB data are by and large internally consistent and accurate enough for solid empirical work.

Our sample represented approximately 10 percent of all large and medium SOEs in the country randomly taken from the archives, resulting in a database consisting of 1532 firms in multiple manufacturing industries across the country. To make the archival data comparable to our survey data to the extent possible, we drew the sample from the 1991–92 databases. Given that Study 1 was a cross-sectional survey, we added a lagged component to Study 2; that is, all the slack measures were taken from 1991 and all the performance measures were from 1992.

Organizational slack

While we continued to focus on both absorbed and unabsorbed slack, we used different measures than those used in Study 1. Because the data were from firms' audited accounting statements, we were able to obtain finer-grained measures of organizational slack than was allowed in Study 1. Three measures of slack were considered to be *absorbed*. First, major repair fund, designated for repairs of large equipment, typically has little alternative use other than its designated purpose. This is because in many cases machines are used well after they

⁷ Gregory Chow is the scholar who pioneered the use of the Chow test in social science research.

are fully appreciated, and repair costs are very high. Second, inventory fund, which has little alternative use, was also considered as absorbed slack. Finally, accounts payables are often used by managers as a way of delaying payments. Since delaying payments already committed can only buy time but cannot lead to other purposes, we considered them as a form of absorbed slack.

We also identified five measures of *unabsorbed* slack. First, we included depreciation fund as a form of unabsorbed slack. Although this fund is designated for capital investment, in practice it is often used to cover various unanticipated needs. Unlike in the West where machines are replaced after they are depreciated, Chinese firms typically continue to operate them even after these machines are fully depreciated, as long as they are still operable. Therefore, these resources are not tied with current production, and become unabsorbed slack. A second measure of unabsorbed slack is reserve fund, which is specifically designated for daily operation and is the most liquid resources managers can utilize. Third, loans can be used for discretionary purposes as unabsorbed slack. Fourth, sales expenses are a major source through which managers cover various payments (including possible gifts and bribes). Finally, retained earnings, over which firms have a great deal of discretion, are perhaps the strongest form of unabsorbed slack.

Firm performance

Given Study 1's inherent limitation of using self-reported, subjective performance measures, we sought to use an objective measure in Study 2. We chose firms' 1992 total pre-tax profits for two reasons. First, this is one of the most important measures of performance that managers focus on. Second, pre-tax profits, instead of after-tax profits, were used because different industries in China have different taxation rates; using after-tax profits might distort the actual profitability⁸ (Peng and Luo, 2000: 492).

⁸ Study 1 used after-tax profits because our interviews found that managers would be more willing to return the survey if information on after-tax profits was asked. Direct request of pre-tax profits might have triggered more nonresponse. In contrast, when filing out the SSB's industrial census, firms were *required* by law to provide pre-tax profits. For our purposes, the use of after- and pre-tax profits in both studies provided a triangulation of multiple sources of data on the same dependent variable, which is a sought-after feature in multimethod studies (Brewer and Hunter, 1989).

Control variables

In addition to firm size (measured by the total number of employees) controlled earlier, Study 2 also controlled firm age.

Findings

Correlation coefficients and regression results are presented in Tables 4 and 5, respectively. Shown in Table 5, the results continued to be mixed. Specifically, all unabsorbed slack, namely, the depreciation fund, reserve fund, loans, sales expenses, and retained earnings, had a significantly positive association with performance, thus supporting Hypothesis 1. On the other hand, two measures of absorbed slacks, namely, major repair fund and inventory fund, had a significantly negative impact on performance, thereby confirming Hypothesis 2. Another absorbed slack resource, accounts payable, showed an insignificant influence.

Overall, results from the archival data appeared to broadly converge with those from the survey data, and revealed that absorbed slack had a significantly negative impact on firm performance, whereas unabsorbed slack generally had an opposite, positive effect on performance. Across the two studies, among 11 coefficients which were found to be significant, three supported Hypothesis 2, while the other eight all supported Hypothesis 1.

Next, we proceeded to explore the curvilinear relationship between slack and performance. In Table 6, we entered absorbed slack and unabsorbed slack, both of which were standardized *z*-scores. We also created two squared terms from these two *z*-scores in order to test whether the cost of having slack eventually overwhelmed the performance gains. Both first-order effects of the slack variables had a positive impact on performance, yet the two squared terms showing the second-order effect exhibited a negative effect. The results then clearly indicate that, taken separately, both measures of organizational slack exhibited a curvilinear relationship with firm performance. With positive first-order derivatives and negative second-order derivatives, the functions would simulate the pattern of an inverse parabola. With a smaller second-order derivative, the absorbed slack (*X*) exhibited a much flatter arc than that for unabsorbed slack (*Z*). When put together, the *joint* effect of the two types of organizational slack on performance can

Table 4. Study 2: descriptive statistics and Pearson correlation coefficients

	1	2	3	4	5	6	7	8	9	10
<i>Absorbed slack</i>										
1. Major repair fund										
2. Inventory fund	0.51**									
3. Accounts payable	0.43**	0.42**								
<i>Unabsorbed slack</i>										
4. Depreciation fund	0.93**	0.49**	0.53**							
5. Reserve fund	0.69**	0.61**	0.79**	0.73**						
6. Loan capacity	0.83**	0.59**	0.65**	0.82**	0.83**					
7. Sales expenses	0.40**	0.49**	0.40**	0.43**	0.61**	0.48**				
8. Retained earnings	0.41**	0.23**	0.82**	0.48**	0.64**	0.58**	0.23**			
<i>Control variables</i>										
9. Age	0.04	0.04	0.08**	0.04	0.06*	0.04	0.04	0.05		
10. Size	0.56**	0.38**	0.58**	0.61**	0.65**	0.61**	0.40**	0.49**	0.20**	
<i>Performance</i>										
11. Profitability (1992)	0.37**	0.27**	0.70**	0.45**	0.63**	0.57**	0.31**	0.78**	0.02	0.32**

All variables are 1991 data unless otherwise indicated.
* $p \leq 0.05$; ** $p \leq 0.01$

Table 5. Study 2: multiple regression results with standardized estimates

	Predicted sign (H1/H2)	Profitability
<i>Absorbed slack</i>		
Major repair fund	+/-	-0.304***
Inventory fund	+/-	-0.054***
Accounts payable	+/-	0.028
<i>Unabsorbed slack</i>		
Depreciation fund	+/-	0.206***
Reserve fund	+/-	0.217***
Loan	+/-	0.263***
Sales expenses	+/-	0.063***
Retained earnings	+/-	0.629***
<i>Control variables</i>		
Age		-0.277***
Size		-0.021***
Adjusted R^2		0.698
F		351.217
$P \leq$		0.000
N		1532

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

be best portrayed as the three-dimensional simulated surface depicted in Figure 1, thus supporting Hypothesis 3. Apparently, there is an optimal level of total organizational slack, as represented by the peak. Conditions both before and after reaching the peak seem to lead to low performance. It appears that within a certain range slack can be a source of competitive advantage, and that prior

Table 6. Study 2: curvilinear regression results

	Coefficients
Constant	0.023*
Absorbed slack	0.230***
Unabsorbed slack	1.024***
Absorbed slack (squared term)	-0.006***
Unabsorbed slack (squared term)	-0.029***
Adjusted R^2	0.799
F	1518.928
$p \leq$	0.000
N	1532

Note: All variables are standardized (z -score).
* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

$$Y = f(X, Z) = 0.023 + X - 0.006 X^2 + 1.024 Z - 0.029 Z^2$$

where: Y = Performance
X = Absorbed slack
Z = Unabsorbed slack

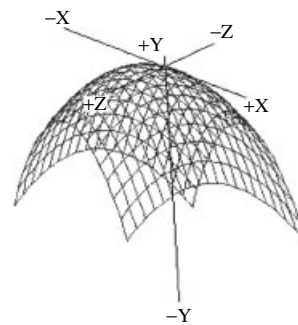


Figure 1. Curvilinear relationship between slack and performance

to and beyond the critical point slack becomes a value-destroying force. In summary, while our results falsified the conventional wisdom that 'the less slack, the better;' we also found evidence to refute the possibly misleading simplification that 'the more slack, the better.'

DISCUSSION

Contributions

Four sets of theoretical, empirical, and methodological contributions emerge. First, the two studies reported in this article are among the first to directly test competing hypotheses on the role of slack. Our findings help reconcile the debate not by finding that one theory is more superior than the other, but by specifying the circumstances under which each is likely to be supported. The findings across the two studies suggest (1) that organization theory is more insightful when the slack measures are *unabsorbed*, and (2) that agency theory is more significantly supported when the slack measures are *absorbed*. Therefore, theoretically, this article calls for better specification on the nature of slack (absorbed vs. unabsorbed) when advancing theory—in both developed and emerging economies—as opposed to simplified, one-sided arguments such as 'slack is good (or bad)' typically found in the literature. An integrative, contingency perspective on the role of organizational slack will be necessary.

Another theoretical contribution is our identification of a curvilinear relationship between slack and performance. Moving beyond Bromiley (1991), who hypothesizes but fails to find such a relationship, and Nohria and Gulati (1996), who document such a relationship between slack and innovation, our work, to the best of our knowledge, presents the first set of evidence on such a relationship between organizational slack and firm performance. We have advocated and documented a middle ground out of the intractable debate on the role of slack between organization and agency theories. Thus, the right question to ask is not whether slack is uniformly good or bad for performance, but rather, what range of slack is optimal for performance.

Empirically, this article brings the debate to the critical but under-explored context of economic transitions. The agency theory view on the role of

slack has not only been influential in the West, but has also played a major role throughout emerging economies such as China. In contrast, organization theory argues that slack may be especially helpful to maintain performance and ensure survival during the turbulent transitions. We believe that our findings are plausible in China due to a combination of strong product market competition and weak financial market infrastructure. Because of strong product market competition, absorbed slack unable to be productively deployed elsewhere is likely to contribute to inefficiency (Thurow, 1983). At the same time, firms' inability to raise external financing due to the weak financial market infrastructure—combined with the government's reluctance to provide soft budgets as before—results in a shortage of working capital (Chow and Fung, 1998). Thus, unabsorbed slack that can be readily deployed for other purposes is likely to be a valuable, unique, and hard-to-imitate capability that has strong performance implications (Barney, 1991). One may argue that an organization having some unabsorbed slack creates a dynamic fit with the institutional environment of economic transitions, leading to better performance (Peng, 2003; Zajac, Kraatz, and Bresser, 2000).

Finally, from a methodological standpoint, this article contributes to the literature by demonstrating the power of two independent studies addressing the same research question using different data sets. Although each previous study relies on either survey or archival methods, none has employed both methods in the same study. While each of these methods has advantages and drawbacks, the convergence of findings from both methods suggests that our results may be more plausible than those obtained from either method (Brewer and Hunter, 1989).

In summary, this article contributes to the literature by *theoretically* arguing for a better specification of the nature of slack (absorbed vs. unabsorbed) when engaging in the debate on the role of slack, *empirically* addressing this issue within the context of economic transitions, and *methodologically* employing both survey and archival methods to obtain convergent results.

Practical implications

The implications for practitioners, policy-makers, and foreign advisors in emerging economies such as China are twofold. First, absorbed slack does

appear to inhibit firm performance, thus calling for more productive use of these resources. The second and perhaps more interesting implication is that possession of unabsorbed slack may be beneficial.

While these implications may not be novel to SOE practitioners in emerging economies, the implications for foreign entrants can be profound. An increasing number of foreign investors have entered emerging economies in search of joint venture partners and acquisition targets. Armed with the conventional wisdom which suggests that 'the less the slack, the better,' foreign entrants tend to avoid SOEs with seemingly excessive slack. Even when teaming up with some SOEs, foreign entrants typically like to slice them, and form joint ventures with—or acquire—the relatively 'efficient' part which does not have much slack. However, such a strategy, without identifying whether such slack is absorbed or unabsorbed, may backfire.

Our findings suggest that while absorbed slack should be avoided, some unabsorbed slack may be highly beneficial. The case of a well-known joint venture, Beijing Jeep, can serve as a case in point here (Peng, 2000b; Tan, 1997). This venture was established by American Motor Corporation (inherited by Chrysler later and Daimler-Chrysler more recently) and Beijing Auto Works, a major SOE. The American partner formed the joint venture only with the 'efficient' part of the SOE and did not want to bother with the slack-laden part. However, when the venture was almost insolvent due to an unexpected lack of foreign exchange in 1986, it was the SOE's efforts to draw upon its unabsorbed slack, a 'hidden' discretionary fund, that saved the venture. The money was supposed to go to the government, but was siphoned off into a secret fund maintained by the SOE. As a result, this infusion of funds kept the venture afloat during the crisis.

Therefore, for foreign entrants, our findings suggest a departure from the widely accepted conventional wisdom. Specifically, they should study potential partners more carefully. Instead of just focusing on reported levels of efficiency and performance, which tend to reveal absorbed slack, foreign investors should also attempt to uncover and evaluate their prospective partners' unabsorbed slack, because such slack may be indicative of great future performance potential.

Limitations and future research directions

Although, as the largest emerging economy, China has attracted significant research attention recently (Hoskisson *et al.*, 2000), future researchers need to explore the generalizability of our findings by conducting studies in different institutional environments (e.g., Chile, Hungary, India). Even within China, we need to caution that our findings probably only captured one snapshot during the evolution of China's SOE reforms (the early 1990s). While some issues confronting Chinese SOEs may be unique (e.g., managerial incentive to hoard slack), others may be relevant for non-SOEs as well (e.g., social networks and diffusion of the slack-hoarding behavior) (Peng and Luo, 2000). Therefore, careful studies comparing and contrasting how slack affects strategy and performance among collective-, private-, and foreign-owned firms will be necessary (Peng, 2003; Tan, 2001, 2002).

Moreover, while our empirical context is grounded in an emerging economy context, our theoretical and empirical approach is not. Therefore, continued research attention on firms in developed economies is also warranted. Our prediction is that, in the short run, our findings are likely to hold as long as the sampled firms operate in an institutional environment broadly similar to that confronting China's SOEs, that is, strong product market competition but weak financial market infrastructure. In the absence of accessible financing and, consequently, strong governance from financial markets, firms may benefit from unabsorbed slack such as discretionary fund, which is essentially free cash flow. In the long run, however, as financial markets and legal systems are more strengthened, firms holding free cash flow may find it difficult to perform well due to increasing governance pressures (Brush, Bromiley, and Hendrickx, 2000).

CONCLUSION

Overall, we suggest that although both organization and agency theories are insightful to help us probe into the relationship between organizational slack and firm performance during economic transitions, neither of them offers a complete picture. As a result, our findings call for a contingency perspective to specify the nature of slack when discussing its impact on firm performance. One of

the hallmarks of provocative research is that it generates more questions for continued research than it answers. While our two studies partially falsify the conventional wisdom that slack at Chinese SOEs always inhibits efficiency and performance, we are left with the daunting challenge of specifying the optimal level and distribution of slack (absorbed vs. unabsorbed). Given the lack of research attention on firms in emerging economies, we believe that future work on the dynamics of the slack–performance link—a key debate in the strategy, economics, and organizations literature—during economic transitions will prove to be crucial not only for scholars, but also for practitioners, investors, policy-makers, and foreign advisors.

ACKNOWLEDGEMENTS

This research was supported in part by grants from Creighton University, Peking University, and the Chiang Ching-kuo Foundation (North America) to the first author, and grants from the Hong Kong Research Grants Council, the OSU CIBER, and Center for East Asian Studies to the second author. Earlier versions were presented at the Chinese University of Hong Kong, Hong Kong Baptist University, Hong Kong Polytechnic University, Peking University, and the University of Hawaii. We thank all seminar participants, T. Buck, C. Chen, R. Chen, J. Cheng, T. Chi, D. Jensen, J. Lang, M. Leiblein, Y. Lu, K. Meyer, R. So, R. Veliyath, A. Yan, E. Zajac (editor), and *SMJ* reviewers for helpful comments and suggestions, and D. Tan and Y. Zhou for research assistance.

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