

Corporate Governance, Financial Slack and Firm Performance: A Comparative Study between US and UK

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Abstract

This paper presents an empirical analysis of the relationship between financial slack and firm performance using a large panel data set of the U.S. and the U.K. firms. Conducting dynamic GMM regressions, the empirical analysis finds that there are the negative relationship between slack and performance in the U.S. and the positive relationship in the U.K. These empirical findings support the hypothesis that the relationship between slack and performance differs across corporate governance systems. The novelty of the paper lies in its demonstration of the conclusion on the role of corporate governance in the relationship between slack and performance as well as the fact that we could obtain the result by comparing the two countries—the U.S. and the U.K.—that have been regarded as belonging to a single corporate governance system.

Keywords: Corporate Governance, Financial Slack, Organizational Slack, GMM Regression

INTRODUCTION

The current study investigates the relationship between financial slack and firm performance and the moderating role of corporate governance on the relationship. While some empirical studies analyze the impact of slack on firm performance, there exists little

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systematic research on the effect of different corporate governance structures on the relationship between slack and performance.

Since the pioneering study of Berle and Means (1932), there has been growing literature on corporate governance. During the 1970s and 1980s, corporate governance research examines an individual governance mechanism focusing on U.S. corporations. Since the early 1990s, the research has begun to study the possible impact of differing institutional environments on the structure and effectiveness of corporate governance mechanisms, which seems to be triggered by the wave of globalization (for a survey, see Denis and McConnell 2003). It is now established that corporate governance systems differ substantially around the world. By using a large panel data set of the U.S. and the U.K., this study examines the relationship between slack and performance under different corporate governance systems in order to examine whether different corporate governance systems affect the relationship between slack and performance.

In the study, financial slack is regarded as a kind of organizational slack, widely discussed in the organization literature. Organizational slack is generally defined as the excess resources available to the organization, such as financial slack resources and slack in human resources. For example, organizational slack includes redundant employees, unused capacity, unnecessary capital expenditures, increases in the margins and revenues (Nohria and Gulati, 1996: 1246), dividends paid in excess of those required to keep stockholders, wages paid in excess of those required to maintain labor, and public services provided in excess of those required (Cyert and March 1963: 42). We discuss the effect of organizational slack on firm performance, and limit the empirical analysis to financial slack since other kinds of slack resources are difficult to measure accurately. Similarly, we employ return on assets (ROA) as a proxy for firm performance in the empirical analysis since it is relatively easy to measure accurately.

The word 'slack' often carries a negative nuance. For example, the basic reason for implementing organizational downsizing is to eliminate organizational slack and thereby improve firm performance. However, theoretical discussions do not unambiguously support such an idea. While many studies deal with the issues of organizational slack and its effect on firm performance, there seems to be no consensus on the directionality of the effect of slack on

performance. Theories based on agency costs tend to suggest the negative impact of organizational slack on firm performance, but traditional organization theories such as the behavioral theory of the firm argue for the positive association between slack and performance.

Accordingly, it is not theoretically obvious to determine whether the effect of organizational slack on firm performance is positive or negative, and thus this issue is best left to empirical work. Unfortunately, previous empirical studies show mixed evidence. A meta-analysis by Daniel et al., (2004) shows that previous empirical studies provide conflicting results. They examine 76 previous empirical findings and find the 51 positive, 13 negative, 11 mixed effects as well as one insignificant effect. It seems to be clear that organizational slack affects organizational performance, but the direction of the effect of slack on performance is still not obvious, theoretically and empirically.

In order to explain why existing evidence on the effect of organizational slack on firm performance does not deliver clear results, we focus on the possible moderating role of corporate governance system in the relationship between slack resources and organizational performance. The basic idea is that there exists the complex trade-off between the theoretically discussed costs and benefits of organizational slack and that which one is dominant can depend on the corporate governance system prevalent in the country. We compare the corporate governance systems of the U.S. and the U.K., and conduct an empirical analysis using extensive panel data of the U.S. and U.K firms to determine whether organizational slack have different roles depending on the corporate governance system of the country. In addition, since the inconclusiveness of the existing research might be due to technical limits of empirical studies, we try to overcome empirical problems by using a large data set and robust estimation techniques.

The rest of the paper is structured as follows. We first discuss the corporate governance systems of the two countries—the U.S. and the U.K.—to gain some insight about the potential difference of institutional settings of the two countries. In the next section, we set forth the contrasting theories of the relationship between organizational slack and firm performance. Then, the data and the empirical methods used in the study are described. Next, the empirical findings and the interpretation of the findings are

presented. Finally, a conclusion is provided addressing the potential difference between the U.S. and the U.K. corporate governance systems and its role in the relationship between slack and performance. Future research possibilities are also presented.

RESEARCH SETTING

Are there differences between the U.S. and the U.K. regarding corporate governance? This question seems to have received almost no attention in corporate governance research since the U.S. and the U.K. have been regarded as having the same (or similar) corporate governance structure. In general, the comparative studies of corporate governance distinguish between the shareholder-centered model and the stakeholder-centered model. The former, which is exemplified by the U.S. and the U.K., includes strong shareholder rights, dispersed ownership focusing on short-term market values, arm's length creditor financing through equity, and active markets for corporate control. The latter, which is found in continental European countries and Japan, includes strong stakeholder rights, concentrated ownership focusing on long-term social values, long-term relational debt finance, and weak markets for corporate control. Thus, corporate governance researchers put focus on the difference between the Anglo-American shareholder model and the European stakeholder model. Their interest is not in the difference between the Anglo-American countries. Most corporate governance research regards the U.S. and the U.K. corporate governance systems as a single model. In this context, the differences between the U.S. and the U.K. have not been taken seriously.

Nevertheless, there exist a few studies that address the difference between the two Anglo-American countries. Toms and Wright (2005) compare the U.S. and the U.K. systems of corporate governance in the period 1950-2000 and conclude that there are differences of corporate governance systems between the two countries and that the differences are largely due to the differing roles of economic institutions in the process of industrialization. They claim that while large firms in the U.S. exert concentrated economic power which causes conflicts between accountability and efficiency, British capital leaves the country because of lack of opportunity to develop large-scale businesses and thus domestic firms in the U.K. should

depend on a network- and alliance-style economic system.

Aguilera et al. (2006) identify the differences between the U.S. and the U.K. regarding corporate social responsibility (CSR), and suggest that the differences in CSR reflect the differences in the corporate governance arrangements in the two countries. They argue that dominant institutional investors in the U.K. tend to focus on long-term values rather than on short-term earnings, and that, in contrast, the U.S. is dominated by institutional investors with the short-term outlook. Williams and Conley (2005) also explore the difference between the U.S. and the U.K. and argue that the unified Anglo-American model may be breaking down as a result of CSR advocates' actions and governments' and companies' reactions. They conclude that the U.S. corporate governance remains focused on shareholder model, while the U.K. seems to be moving toward the stakeholder model.

Combining these studies, we propose that the U.S. corporate governance system is characterized by large-scale corporations with a short-term orientation whereas the U.K. system is characterized as a network system with a relatively long-term orientation. Large-scale corporations with a short-term orientation are likely to be related to a setting in which agency problems do matter, while the network system with a long-term orientation can be more related to a setting in which managerial initiative is important. This is also confirmed by some other observations. For example, most large U.K. companies follow a dual leadership pattern and split the roles of CEO and the chairman of the board (Higgs 2003: 23). They typically separate legal responsibility for running the company between managers and the board. On the contrary, in most U.S. companies, the CEO is also the chairman of the board, which may imply concentrated power and ineffective monitoring, and the ownership is more dispersed than the U.K. (Aguilera et al. 2006: 148-149). These can imply the importance of agency problems in the U.S. and of managerial initiative in the U.K.

We suggest that these differences in corporate governance systems might cause the difference in the relationship between slack resources and firm performance, which is the focus of the following sections.

HYPOTHESIS DEVELOPMENT

This section presents the competing theories of organizational slack and develops the hypothesis that corporate governance systems can affect the relationship between slack resources and firm performance. Before going into more detail about the theoretical background, some discussion of the concept and forms of financial slack to be used in the empirical analysis seems appropriate.

The Concept of Financial Slack

Financial slack (or organizational slack) appears in different forms in the literature. For example, Bourgeois and Singh (1983) divide slack resources into three categories in terms of the ease or quickness with which slack resources are recovered: (readily) available slack, recoverable (with some effort) slack, and potential slack. Bourgeois (1981) distinguishes between the slack that created deliberately by management and the slack that made available by the environment. Singh (1986) divides slack into absorbed slack and unabsorbed slack. The former refers to slack absorbed as costs and the latter refers to uncommitted liquid resources.

The present study focuses on the two extreme forms of slack—available slack and potential slack—among the three kinds of slack introduced by Bourgeois and Singh (1983). Available slack refers to extra resources that are not yet committed to a specific expenditure and thus readily available. This kind of slack provides managers with the most flexibility. For example, cash and marketable securities represent available slack resources. Most empirical studies of slack and performance employ current ratio as a proxy for available slack (see Daniel et al. 2004). Current ratio refers to a liquidity ratio that measures a firm's ability to pay short-term obligations and is calculated as current assets divided by current liabilities. Potential slack refers to resources that may be generated in the future by economic environmental changes. For example, the capital-raising potential such as changes in stock price represents potential slack. Many empirical studies use leverage ratios such as the ratio of debt-to-equity to measure potential slack (see Daniel et al. 2004). If the debt-to-equity ratio decreases, "future interest payment to obligations are reduced, as is the potential for

outsiders (creditors) to affect managerial policy” (Bourgeois 1981: 37). Increasing values in the debt-to-equity ratio actually indicate decreasing potential slack levels. Note that the two kinds of slack--available slack and potential slack--correspond to ‘high discretion slack’ and ‘low discretion slack’ suggested by Sharfman et al. (1988), respectively.

Previous empirical studies show that the effects of slack resources on organizational performance and behavior can be different depending on the types of slack resources. For example, Bergh and Lawless (1998) find that available slack has a positive effect on performance while potential slack has a negative effect. Lin et al. (2009) differentiate between high-discretion slack and low-discretion slack, and find that there are a U-shaped relation between high-discretion slack and internationalization and a positive relation between low-discretion slack and internationalization. Different kinds of slack resources may affect firm performance differently. Thus, it may be necessary to consider the multidimensional aspects of slack when assessing its effect on firm performance.

Competing Theories of the Role of Slack

Many researchers recognize that organizational slack is important in firm performance, but they would hardly agree on what role slack should play. While typical organization theories such as the behavioral theory of the firm tend to argue for the positive effect of slack resources on firm performance (e.g., see Cyert and March 1963; Penrose 1959), some finance theories based on an agency perspective put focus on the negative effect of financial slack (e.g., see Jensen 1986). These two competing arguments are discussed in turn.

For behavioral theory of the firm, a firm consists of diverse interests of participants and they often conflict. In this context, slack represents “payments to members of the coalition in excess of what is required to maintain the organization” (Cyert and March 1963: 36) and thus plays the role of conflict resolution. For example, Moch and Pondy (1977) show that organizational slack reduces unnecessary political activities within organizations. Thus, firms can use slack resources to minimize coordination costs within the firm to improve firm performance.

More importantly, slack resources provide a source of funds for

innovation projects (Cyert and March 1963), encourage the firm to experiment with new strategies (Hambrick and Snow 1977), and allow the firm to respond aggressively to shifting environmental demands (Cheng and Kesner 1997). Innovation is likely to improve firm performance since “product or process innovations alter an innovating firm’s competitive position against rivals, or strengthen its bargaining power vis-à-vis buyers or suppliers” and “the process of innovation transforms the firm itself, building up its internal capabilities in a variety of ways that create generic differences between innovating and non-innovating firms” (Geroski and Machin 1993: 36). Thus, slack is expected to improve firm performance. Furthermore, organizational slack plays a stabilizing role in a rapidly changing economy (Cyert and March 1963) to affect performance positively. By controlling the level of organizational slack, the firm can absorb excess fluctuations caused by external environments. It has been widely accepted that organizations need to adapt to their changing environment, take advantage of environmental opportunities, and reduce external impacts to improve organizational performance (e.g., see Scott 1998).

In contrast to the behavioral view of the firm, many agency theorists view managers as agents of the shareholders in the firm, and claim that the less slack the firm has, the better, because managers have incentives to use slack resources solely for the lavish indulgence of management. Agency theory regarding corporate governance research puts the focus on an agency problem between shareholders and managers in the firm. The agency problem is caused by the fact that shareholders seek to increase firm value and managers pursue their own interests at the expense of the interests of shareholder. Without appropriate monitoring, managers would waste available resources to pursue their own interest. For example, as financial slack such as free cash flow increases, poor projects are likely to be financed since managers have incentives to invest slack resources in negative net present value projects to pursue their own interests (Jensen 1986). As a result, financial slack may jeopardize firm performance.

For agency theory, organizational slack is regarded as unnecessary costs. A practical implication of this view is related to organizational downsizing yielding economic efficiency. That is to say, eliminating organizational slack improves organizational performance. This perspective is also consistent with the view of Kornai (1979) on

soft-budget constraints. Kornai (1979) argues that slack resources of state-owned firms generated by soft-budget constraints lead to inefficient management.

Corporate Governance Systems and Slack

As discussed, for the behavioral theory of the firm, a positive relationship between financial slack and firm performance is expected. In this view, managers are assumed to perform a proactive role in improving firm performance by devoting slack resources to productive activities. Thus, managerial discretion can be beneficial to the firm and slack is a tool for realizing managerial visions. In contrast, agency theorists hold that an agency problem in the firm is a main source of inefficient management and slack is likely to be used by managers to pursue their interests at the expense of the interests of shareholders. In this view, managerial discretion needs to be constrained by appropriate corporate governance mechanisms. If not, managers are free to use slack resources to pursue their own interests since managers have incentives to use slack to extend their influence in the firm and increase perquisite consumption.

Putting these two competing arguments on the role of slack together, we would suggest that the positive relationship between financial slack and firm performance can be observed in such situations that managerial discretion is necessary to improve firm performance, but the negative relationship is observed in such situations that agency problems are severe. For example, managerial discretion might be important for small and young firms when growth opportunities are present, and in these cases, the positive relationship between slack and performance is likely to be dominant. However, as discussed in the traditional corporate governance literature, agency problems would be severe for large firms with dispersed small shareholders, and in these cases, the negative relationship is expected. In the former case, slack resources can be useful tools for improving performance, but, in the latter case, slack resources induce managers to invest in poor projects.

We extend the above logic of the role of slack in different settings to country-level comparisons: Whether the relationship between slack and performance is positive or negative can depend on the institutional setting such as corporate governance system in which the firm operates. If we can distinguish between the corporate

governance system in which managerial discretion to devote slack resources should be exerted to improve firm performance and the corporate governance system in which agency problems are acute, we can expect that the positive relationship between slack and performance is prevalent in the former corporate governance system, but the negative relationship is dominant in the latter.

As discussed, the U.S. corporate governance system is characterized by large-scale corporations with a short-term orientation whereas the U.K. system is characterized as a network system with a relatively long-term orientation. Considering that traditional corporate governance literature addresses the agency problem ('the separation of ownership and control') in large corporations with a dispersed ownership focusing short-term performance, we expect that while agency problems are more severe in the U.S. than in the U.K., the necessity of managerial discretion is stronger in the U.K. than in the U.S., since the network system with a long-term orientation in the U.K. can provide a favorable environment for managerial discretion to improve firm performance. Thus, according to the hypotheses, we predict that the positive relationship between slack and performance is observed for the U.K. data, but the negative relationship is observed for the U.S. data.

Thus, our hypothesis to be tested is as follows:

Hypothesis 1: The relationship between financial slack and firm performance differs across corporate governance systems.

Hypothesis 1a: The relationship between financial slack and firm performance is positive in the corporate governance system in which managerial discretion is necessary to achieve organizational goals.

Hypothesis 1b: The relationship between financial slack and firm performance is negative in the corporate governance system in which agency problems are central.

RESEARCH DESIGN

The current study tries to assess the empirical validity of the hypotheses of financial slack by comparing the econometric results

between the U.S. and the U.K. In this section, the data and the empirical methods used in the study are introduced.

Sample

This study investigates panel data of publicly listed industrial firms in the U.S. and the U.K. over 19 years (1990-2008). A panel data analysis identifies a dynamic change in each firm over time and thus can provide more persuasive empirical evidence by overcoming econometric problems. The source of data is the OSIRIS database offered by Bureau Van Dijk. The database includes financial information on globally listed public firms. Some companies are eliminated from the sample used in the empirical analysis when the firms have a large amount of missing data on the necessary variables of the empirical analysis. The sample consists of 1852 U.S. firms and 280 U.K. firms over 19 years. The total number of observations is 40402: 35188 for the U.S. and 5214 for the U.K. We expect that the data set with a large number of cross-section units observed for a large number of time periods provides a more useful, real-world application.

The variables used in the empirical study are selected as follows. As a proxy for firm performance, this study uses return on assets (ROA), defined as net income divided by total assets. A market-based measure such as Tobin's Q is a popular proxy for firm performance in empirical studies of corporate governance, but due to the problem of data availability, we use the accounting-based measure. The accounting-based measure has a benefit as it is not susceptible to the psychology of investors and capital markets.

Two explanatory variables representing financial slack are included in the empirical analysis: current ratio (CUR) and debt-to-equity ratio (DTE). Following other similar empirical studies, we employ current ratio (CUR) as a proxy for available slack and debt-to-equity ratio (DTE) as a proxy for potential slack (refer to the meta-analysis by Daniel et al. 2004). We pay attention to whether the different types of slack are functionally equivalent or not. By including different kinds of financial slack as independent variables, we can check for the difference between the different variables of slack resources. Current ratio is a financial ratio indicating a firm's market liquidity and ability to meet creditor's demands. Debt-to-equity ratio measures a firm's financial leverage. Notice that

Table 1. Summary Statistics and Correlation Matrix

	variable	median	mean	s.d.	ROA	CUR	DTE	TAS
US	ROA	3.84	-0.77	44.15	1			
	CUR	1.86	3.58	16.15	0.02***	1		
	DTE	0.97	1.96	47.10	0.01*	0.00	1	
	LAS	12.27	12.25	2.32	0.18***	-0.09***	0.01	1
UK	ROA	4.71	2.78	22.10	1			
	CUR	1.43	2.59	10.94	0.01	1		
	DTE	0.85	1.31	17.94	0.02	-0.01	1	
	LAS	11.73	11.78	1.85	0.15***	-0.02	0.01	1

Note: ***, **, and * respectively indicate significance at 0.1%, 1%, and 5% levels. s.d. refers to standard deviation.

potential slack increases as debt-to-equity ratio decreases. That is, the coefficient of the debt-to-equity ratio is associated with the negative value of potential slack. In addition to slack variables, we employ a size variable calculated as a natural logarithm of total assets (LAS) to control for the effect of firm size on firm performance, following a lot of similar empirical studies.

The summary statistics of the variables and the correlation matrix are reported in table 1. The correlation matrix does not show a concern for a multicollinearity problem. We examine the multicollinearity problem through the variance inflation factor as well and the result also indicates no severe multicollinearity problem.

Econometric Methods

We use regression techniques in order to test the hypotheses discussed above. The basic empirical specification used in the empirical analysis is written as

$$ROA_{it} = b_0 + b_1 CUR_{i,t-1} + b_2 DTE_{i,t-1} + f_i + d_t + e_{it} \quad (1)$$

where the subscript i refers to the firm, t refers to the time period, f is a firm-specific effect, d is a time-specific effect, and e is a stochastic error term. A lag structure is used in the model since there is a time delay between financial slack and its effect on firm performance. For example, slack resources can affect a firm's ability

to cope with environmental uncertainties, which, in turn, has an impact on firm performance. Especially, since potential slack is not a tool for managers to use immediately, the lag structure would be appropriate.

We estimate equation 1 by a fixed effects feasible GLS (FGLS) model suggested by Wooldridge (2002). Among the two main panel data models, fixed effects model and random effects model, we choose to use fixed effects model in which firm fixed effects are controlled for because random effects model is more appropriate when a data set is representative of a larger population, but the sample used in the study is drawn from listed companies of two countries and cannot be treated as a random sample from a population. We perform some relevant tests such as F test, LM test, and Hausman test to evaluate the usefulness of the models, and the test results favor fixed effects model. Another concern is about the classical assumptions of OLS, such as heteroskedasticity and serial correlation, which are usually too restrictive for panel data. We conduct some tests for heteroskedasticity and serial correlation including LM test and BG test, and find the presence of heteroskedasticity and serial correlation problems. Thus, we use FGLS regression instead of OLS in order to control the problem. Fixed effects FGLS regression is carried out using R program (“*pggls*” command with “within” model option) in the empirical analysis.

We put attention on the omitted variable problem that equation 1 is likely to encounter. A lot of literature in management, finance, and economics points out various determinants of firm accounting performance (or ROA), but this study does not control them due to the problem of data availability. Taking this problem into account, this study uses a dynamic panel data model in addition to equation 1:

$$ROA_{it} = b_0 + b_1 ROA_{i,t-1} + b_2 CUR_{i,t-1} + b_3 DTE_{i,t-1} + f_i + d_t + e_{it} \quad (2)$$

By including the lagged dependent variable as an independent variable, the dynamic model can control for the possible effects of omitted variables. The lagged performance variable can explain various determinants of performance in the previous year. Moreover, the lagged dependent variable included accounts for persistence in responses. In addition to equation 2, equation 3 using a *t-2* lagged variable is also estimated as a robust method:

$$ROA_{it} = b_0 + b_1 ROA_{i,t-1} + b_{1.1} ROA_{i,t-2} + b_2 CUR_{i,t-1} + b_3 DTE_{i,t-1} + f_i + d_t + e_{it} \quad (3)$$

In order to estimate the dynamic equations consistently, we use a system Generalized Method of Moments (system GMM) estimator of the kind suggested by Blundell and Bond (1998). A difference GMM model developed by Arellano and Bond (1991) is also used, but the result is not reported because the two models' results are similar and the result of the former is more advanced and informative. GMM estimators are often used to obtain consistent estimates in dynamic models, but they are also subject to large finite sample biases when strong instrument variables are not available and the time period is short, which are typical problems observed in panel data. However, the long T panels of the data used in this study can help in avoiding the biases. We use two-year and earlier lags of ROA as GMM instruments. All lagged values except the first lag of ROA are valid as GMM instruments since, when equation 2 requires that $E(e_{it} ROA_{i,t-s}) = 0$ for all $s > 0$, it follows that for all $s > 1$, $E(\Delta e_{it} ROA_{i,t-s}) = 0$.

In the GMM regressions, we conduct Sargan test and a test for second-order serial correlation of residuals to examine whether the model is correctly specified. Sargan test is a test of overidentifying restrictions in a statistical model. It evaluates the validity of the instruments used in the statistical model. The serial correlation test, called m_2 test, also checks the specification of the model by evaluating the validity of $t-2$ variables as instruments. GMM estimation is carried out using R program ('pgmm' command with 'Twoways effect Two steps model' option) in the empirical analysis.

We include firm size as a control variable, which is observed in many studies. In addition, the size variable has another implication. This study considers the possibility that financial slack has different effects on firm performance with different degrees of managerial discretion in the firm. Managers would be more active to use slack resources when they are given more discretion. Thus, the more discretion managers have, the more significant slack will be. For example, managerial discretion can be beneficial when it encourages firm-specific investment (Burkart et al. 1997). In this empirical analysis, firm size is included as a proxy for the degree of managerial discretion. As firm size increases, managerial discretion in the firm is likely to decrease (Mayers and Smith 1994: 643). We employ an

interaction model using interaction terms of organizational slack and firm size to examine the moderating effect of the degree of managerial discretion:

$$ROA_{it} = b_0 + b_1 ROA_{i,t-1} + b_2 CUR_{i,t-1} + b_{2.1} CUR_{i,t-1} * LAS_{i,t-1} + b_3 DTE_{i,t-1} + b_{3.1} DTE_{i,t-1} * LAS_{i,t-1} + f_i + d_t + e_{it} \quad (4)$$

EMPIRICAL FINDINGS

This section reports and discusses the empirical findings of the regressions. As a preliminary step, we examine the results of fixed effects FGLS regression, which are shown in table 2. Note again that a positive coefficient for the debt-to-equity variable indicates the negative effect of potential slack on firm performance. For example, both the negative coefficient of current ratio and the positive coefficient of debt-to-equity for US in table 2 refer to the negative effects of slack (i.e., available slack and potential slack, respectively) on firm performance, although the coefficients are not statistically significant.

The FGLS regression results do not report significant coefficients. These results might be caused by omitted variable bias or other potential econometric problems. Thus, we turn attention to the results obtained from the dynamic GMM regression analysis, which are given in table 3. In contrast to the FGLS regression results, the GMM regression results reveal the significant and noteworthy effects of financial slack on firm performance as discussed below. The results also show the significant and positive coefficients of lagged performance variables as expected.

Table 2. FGLS Regression Results

	Full-Sample	US	UK
CUR _{t-1}	0.0168 (1.1579)	-0.0028 (-0.1706)	0.0024 (0.1585)
DTE _{t-1}	0.0007 (0.2699)	0.0013 (0.4307)	0.0051 (0.4950)

Note: ***, **, and * respectively indicate significance at 0.1%, 1%, and 5% levels. For regressions, figures are regression coefficient estimates and t-values are shown in parentheses.

Table 3. GMM Regression Results

	Full-Sample		US		UK	
ROA _{t-1}	0.5536*** (175.5248)	0.4457*** (152.6148)	0.5667*** (193.1632)	0.4556*** (178.9531)	0.2743*** (673.9551)	0.1613*** (413.3064)
ROA _{t-2}		0.2201*** (80.8703)		0.2307*** (94.7858)		0.0557*** (238.2188)
CUR _{t-1}	-0.0202* (-2.4354)	-0.0204** (-2.7778)	-0.0257** (-3.1026)	-0.0226** (-3.1258)	0.0122** (2.7795)	0.0114* (2.4575)
DTE _{t-1}	0.0015 (0.8644)	0.0014 (0.8418)	0.0023 (1.3262)	0.0019 (1.0758)	-0.0077*** (-4.0045)	-0.0034 (-1.8344)
Sargan	244.4246 (0.0001)	257.6902 (0.0000)	243.1678 (0.0002)	245.4971 (0.0001)	235.9738 (0.0007)	238.4612 (0.0003)
m_2	3.7075 (0.0001)	-3.3473 (0.0004)	3.7044 (0.0001)	-7.0492 (0.0000)	2.1112 (0.0173)	0.4949 (0.3103)

Note: ***, **, and * respectively indicate significance at 0.1%, 1%, and 5% levels. For regressions, figures are regression coefficient estimates and t-values are shown in parentheses. Sargan is the Sargan test of the overidentifying restrictions, asymptotically distributed as χ^2 with degrees of freedom in parentheses. m_2 is a serial correlation test of order 2, asymptotically standard normal. For tests, figures are z or χ^2 values and p-values are shown in parentheses.

According to table 3, for the U.S. firms, financial slack has a negative effect on firm performance. The available slack term (CUR_{t-1}) has negative and statistically significant coefficients and this clearly implies a negative impact on firm performance. The potential slack term (DTE_{t-1}) has positive coefficients, which is interpreted as a negative impact, although they are not statistically significant. Accordingly, in the U.S., slack resources are shown to have negative effects on firm performance, which supports hypothesis 1b. On the contrary, the regression analysis using the data of the U.K. firms reports a statistically significant and positive relationship between financial slack and firm performance. Both available slack represented by current ratio and potential slack represented by debt-to-equity ratio appear to have positive impacts on firm performance. This supports hypothesis 1a. Although Sargan test and m_2 test do not show acceptable results, we can get desirable ones if we use the difference GMM estimation instead of the system GMM estimation, and it does not change the conclusion.

Table 4. GMM Interaction Regression Results

	Full-Sample		US		UK	
ROA _{t-1}	0.5542*** (176.5135)	0.4461*** (154.73)	0.5679*** (195.7974)	0.4568*** (186.5357)	0.2746*** (682.5715)	0.1615*** (426.1941)
ROA _{t-2}		0.2203*** (81.1481)		0.2313*** (95.3183)		0.0569*** (244.6288)
CUR _{t-1}	-0.0169 (-0.9583)	-0.0233 (-0.9907)	-0.0174 (-1.2075)	-0.0244 (-1.1112)	0.2461*** (14.9834)	0.2748*** (14.1495)
CUR _{t-1} *LAS _{t-1}	-0.0000 (-0.0408)	0.0004 (0.2218)	-0.0000 (-0.0620)	0.0008 (0.3885)	-0.0185*** (-14.3733)	-0.0206*** (-13.9094)
DTE _{t-1}	0.0130 (0.4303)	0.0025 (0.0941)	0.0177 (0.5927)	0.0126 (0.4880)	0.0127 (0.8734)	0.0262* (2.0434)
DTE _{t-1} *LAS _{t-1}	-0.0008 (-0.3756)	-0.0000 (-0.0175)	-0.0011 (-0.5041)	-0.0007 (-0.3920)	-0.0019 (-1.2773)	-0.0028* (-2.1175)
Sargan	245.6937 (0.0002)	258.9806 (0.0000)	245.9431 (0.0002)	247.9723 (0.0001)	242.9342 (0.0003)	244.1205 (0.0002)
m ₂	3.6364 (0.0001)	-3.3518 (0.0004)	3.6128 (0.0001)	-7.0940 (0.0000)	2.4052 (0.0080)	0.4746 (0.3175)

Note: ***, **, and * respectively indicate significance at 0.1%, 1%, and 5% levels. For regressions, figures are regression coefficient estimates and t-values are shown in parentheses. Sargan is the Sargan test of the overidentifying restrictions, asymptotically distributed as χ^2 with degrees of freedom in parentheses. m_2 is a serial correlation test of order 2, asymptotically standard normal. For tests, figures are z or χ^2 values and p-values are shown in parentheses.

In sum, the regression results report the negative effect of slack on firm performance in the U.S. and the positive effect in the U.K. This implies that agency problems seem to be more important in the U.S. than in the U.K., and managerial discretion to use slack resources to improve firm performance is important in the U.K. more than in the U.S. Thus, these results support hypothesis 1 that the relationship between slack and performance depends on the corporate governance system in which the firms operate.

The results of the regressions using interaction terms are presented in table 4. The interaction model is used in order to determine whether the degree of managerial discretion calculated as firm size affects the relation between financial slack and firm performance.

The interaction regression indicates that the moderating effect of managerial discretion seems to exist only in the U.K. firms. For the U.S. firms, we could not find any significant estimates of both slack variables. In contrast, for the U.K., the interaction term of available slack represented by current ratio and managerial discretion represented by firm size has a significant and negative estimate. It indicates that as firm size increases, that is, as the level of managerial discretion decreases, the positive effect of available slack on firm performance decreases in the U.K. The result of the interaction model confirms the result of the linear model. The linear regression shows a positive effect of slack on performance in the U.K., which can indicate a significant role of managerial discretion. The interaction model confirms this interpretation by reporting the negative coefficient of the interaction terms between financial slack and firm size. The degree of managerial discretion matters for the relation between slack and performance in the U.K.

SUMMARY AND DISCUSSION

The present paper presents an empirical analysis of financial slack and firm performance using a large panel data set of the U.S. and the U.K. firms. Conducting dynamic GMM regressions, the empirical study finds that there are the negative relationship between slack and performance in the U.S. and the positive relationship in the U.K. These empirical findings support hypothesis 1 that the relationship between financial slack and firm performance differs across corporate governance systems. The U.K. evidence confirms hypothesis 1a that the relationship between financial slack and firm performance is positive in the corporate governance system in which managerial discretion is necessary to achieve organizational goals. The U.S. evidence is consistent with hypothesis 1b that the relationship between financial slack and firm performance is negative in the corporate governance system in which agency problems are central. The regression using interaction terms of organizational slack and managerial discretion strengthens these conclusions.

Two relevant studies are Lee (2010) and Lee (2011). Lee (2010) investigates a panel data set of the U.K. firms by using the random effects FGLS regression technique and finds a U-shaped effect of

potential slack and a positive effect of available slack. Lee (2011) examines a panel data set of the U.S. firms by using the fixed effects FGLS regression technique and finds positive effects of both available slack and potential slack. These previous findings are not consistent with the current finding. It seems that the previous empirical studies do not use a dynamic regression model, and thus fail to consider the dynamic nature of the relationship between slack and performance.

The novelty of the paper lies in its demonstration that the relationship between financial slack resources and firm performance differs depending on corporate governance systems and that we reach the conclusion by comparing the regression results between the two countries—the U.S. and the U.K.—which have been regarded as belonging to a single corporate governance system. The contrast between the U.S. and the U.K. derived from the empirical evidence of financial slack is also related to the previous literature addressing the question of the institutional difference between the U.S. and the U.K.: Aguilera et al. (2006) and Toms and Wright (2005) point out that the U.S. corporate governance system is characterized by large-scale corporations with a short-term orientation and the U.K. system is characterized as a network system with a relatively long-term orientation. Large-scale corporations with a short-term orientation are likely to be related to a setting in which agency problems are central, while the network system with a long-term orientation can be more related to a setting in which managerial initiative is important. Consequently, the present empirical study of the relationship between slack and performance confirms the previous studies of the difference between the U.S. and the U.K. corporate governance systems.

Nevertheless, we need to note that this empirical study is not a complete examination of the corporate governance issue. The relationship between financial slack and firm performance represents just one aspect among a lot of corporate governance factors. An empirical study of organizational slack can provide a 'hint' for the question regarding the difference of the U.S. and the U.K. corporate governance systems, but cannot be a thorough investigation of the question. In order to study the corporate governance settings, we need to examine various aspects of corporate governance mechanisms such as ownership structure, finance structures, decision making processes, etc. simultaneously,

which is left for the future. This empirical evidence of the relation between slack and firm performance can be a starting point for the research investigating differential settings of corporate governance.

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