CULTURE AND OTHER FACTORS AFFECTING FIRM PROFITABILITY IN PAKISTAN

Magdi El-Bannany*, Syed A. Tipu**

Abstract

Some of the factors which may affect firm profitability include organizational culture, investment in information technology, firm size, barriers to entry, and the financial leverage of the firm. This paper contributes to the understanding of firm profitability by examining the determinants of firm profitability in Pakistan over the period 2003-2007. A sample of 19 organizations in Pakistan was selected for an in-depth analysis. The data were collected through multiple visits to the selected sites, direct observation, questionnaires, and structured interviews with the senior and middle level business executives. A total of 95 middle and senior level managers were requested to fill out questionnaires covering different dimensions of culture mentioned in the Organizational Culture Inventory. Additionally, in order to get an insight into the deep rooted basic assumptions, detailed interviews were conducted with 80 middle and senior level managers. The data regarding investment in IT, firm size, ratio of fixed asset to total assets, and capital-asset ratio were derived from the firms' annual reports for the period 2003-2007. The regression results show that culture, investment in information technology, firm size, capital intensity and financial leverage have significant impact on firm profitability.

Keywords: profitability, organizational culture, Pakistan

**University of Sharjah, United Arab Emirates, Liverpool Business School, United Kingdom, Ain Shams University, Egypt*
Email: melbannany@sharjah.ac.ae & m.el-bannany@ljmu.ac.uk
***Syed A. Tipu, Assistant Professor, Department of Management, Marketing and Public Administration, College of Business Administration, University of Sharjah, United Arab Emirates, stipu@sharjah.ac.ae*

1. Introduction

This paper aims at examining the determinants of Firm profitability in Pakistan over the period 2003-2007. Organizational culture plays an important role in shaping the behaviour and attitudes of the members of an organization. In recent years, the study of organizational culture has drawn more attention due to its role in the failure or success of an organization. Most of the studies exploring the culture-performance link are focused on the organizations in developed countries. However, there is paucity of research investigating the impact of culture and other factors on firm performance in a developing country. The research reported in this article attempts to fill this gap and enhance the understanding of the impact of different culture types on firm profitability in a developing economy.

The paper begins with review of the literature on the factors affecting firm profitability. The model specifications and the variables used are mentioned which will be used to explain firm profitability in Pakistan. A detailed discussion of empirical results on the relationship between the return on assets before tax and the independent variables is presented followed by conclusions.

2. The Determinants of firm Profitability

The variable to be explained is individual firm profitability, measured as the percentage return on assets before tax (ROA). In the literature there are different theories to explaining firm profitability:
Culture hypothesis: Various studies have acknowledged the impact of organizational culture on firm performance in general and profitability in particular.
Some of previous studies which show culture performance link include (Peters and Waterman, 1982; Denison, 1984; Gordon and DiTomaso, 1992; Kotter and Heskett, 1992; Rashid et al., 2003; Xenikou and Simosi, 2006; Balthazard et al., 2006) .
Peters and Waterman (1982) pioneered the research focusing on examining the relationship between culture and performance. Their research

revealed that strong culture could result in superior financial performance. Denison (1984) collected data relating to employees' perceptions of work organization and participation in decision making and investigated how these parameters would affect organizational performance i.e., return on investment and sales. The research revealed that the firms with more positive perceptions of work environment performed better than the firms with negative perceptions of work environment. Gordon and DiTomaso (1992) also confirmed the findings of Denison (1984) and found that adaptability of strong culture could also determine stronger firm performance in terms of asset growth rate. Kotter and Heskett (1992) examined the link between culture and long-term economic performance and found that the companies with strong culture show better economic performance. Xenikou and Simosi (2006) considered three different culture orientations mainly humanistic, achievement, and adaptive and examined their impact on an insurance company performance in terms of sale of insurance products, the number and size of saving accounts, and issue of new loans and credit cards. It was found that the achievement orientation (goal accomplishment and standard of excellence) of culture is significantly and positively correlated with performance.

Rashid et al (2003) used financial measures such as return on assets (ROA) and return on investment (ROI) to examine the impact of culture on firm's profitability. It was revealed that culture significantly influence the financial performance of the firms.

Balthazard et al., (2006) used the Organizational Culture Inventory (OCI), an instrument designed to measure organizational culture in terms of behavioral norms, in order to describe how different culture types such as constructive, aggressive/defensive, and passive/defensive could influence organizational performance. The study focused on organizational level performance drivers such as quality of products/services, commitment to customer service, adaptability, turnover, and quality of workplace. It was found that the constructive style is positively associated with the above mentioned organizational performance drivers.

A dummy variable equal to (1) if the culture of the firm is constructive in year t and (0) otherwise.

Based on the above discussion, the first hypothesis is:

H1 Constructive culture rather than others has a positive impact on firm profitability.

Investment in Information Technology hypothesis: The notion of this hypothesis is as argued by Porter and Millar (1985) that investing in IT plays an important role in lowering the total costs of a firm (giving a cost advantage) and differentiates its products (hence gaining a competitive advantage) which should be reflected in increased net profit.

Studies of Abdullah (1985) in Malaysia, Katagiri (1989) in Japan and Shawkey (1995) in the USA and Holden & El-Bannany (2004) in the UK about the effect of investing in information technology systems on profitability provide evidence of cost savings and better services for customers.

The cost of investing in information technology is included the sum spent on hardware and software. But because of the data availability problem in Pakistan, the published data on the hardware cost will be used as a measure of investment in information technology systems. The hardware cost for firm i's in year t (IT_{it}), will be used to represent the level of firm i's investment in IT in year t.

Therefore, the second hypothesis is;

H2: There is a positive relationship between the degree of investment in information technology systems and firm profitability.

Firm size hypothesis: Firm size has been considered in the literature as factor, which might have an impact on firm profitability. It has been argued that large companies are more profitable than small companies because of some factors such as such as economies of scale, which are associated with the size of the firm, might play a role in affecting the relationship between the firm size and the profit rate. Calem and Carlino (1989) argued that economies of scale relate to cost savings stemming from the size of a firm. Thus, if there are firm-level economies of scale, unit costs fall with increased size, leading to the profit/size ratio rising with size ceteris paribus. Baumol's (1959) hypothesis about the relationship between firm size and profit rate presupposes that large firms should be more profitable than small firms because of the ability of large firms to do the same as small firms do. In addition larger firms, which have more capital, can invest more than smaller firms and gain more profit. The results of Evanoff and Fortier (1988) and Lloyds-Williams et al. (1994) and El-Bannany (2002) studies support this hypothesis.

The total assets for firm i's in year t ($FSIZE_{it}$), will be used to represent the size of firm i's in year t.

Based on the above discussion, the third hypothesis is:

H3: There is a positive relationship between the size of the firm and firm profitability.

Barriers to entry hypothesis: Haibin (2009) argued that firms that are protected from competition in their sector by heavy barriers to entry are much more likely to achieve more profit than others. Depoers (2000) argued that there are several ways of measuring obstacles to entry have been considered in the literature. Here, the amount of investment necessary to enter the sector, represented by the ratio of fixed assets to total assets, appears more appropriate than others in representing the notion of barrier to entry. The ratio of fixed assets to total assets for firm i in year t will be used to reflect barriers to entry to the market.

The results of the studies of El-Bannany (2002) in the UK & Egypt and Mann (1966) in the USA supports this hypothis.

Therefore, the fourth hypothesis is:

H4: There is a negative relationship between barriers to entry in a firm's sector and firm profitability.

Financial Leverage hypothesis: It has been argued that firms with a relatively low level of financial leverage risk (representing by a high capital-asset ratio) achieving a low level of profits (e.g. Molyneux, 1993). The results of El-Bannany (2002) study in the UK and Egypt supports this hypothesis.

Hence, the fifth hypothesis is:

H5: there is a negative relationship between the financial leverage of the firm and firm profitability.

3. Research Methodology

The Organizational Culture Inventory developed by Cooke and Lafferty (1987) was used as a framework to determine the dominant type of organizational culture. Three types of organizational culture proposed by them include: constructive, passive-defensive, and aggressive-defensive. A constructive type of culture value initiative, promotes teamwork, and instills family like atmosphere. In a passive-defensive culture, employees do not take initiative rather follow instructions from their bosses, focusing on following rules and regulations. Finally, in an aggressive-defensive culture, the employees are aggressive in approaching different assignments promoting competition rather than cooperation. A total of 19 organizations were selected for an in-depth analysis. A total of 95 senior and middle level managers were requested to fill out questionnaires covering different dimensions of culture mentioned in the Organizational Culture Inventory. Additionally, in order to get an insight into the deep rooted basic assumptions of culture, detailed interviews were conducted with 80 senior and middle level managers in selected organizations. Personal observations were conducted and organizational documents were reviewed at 21 locations in order to understand deep rooted assumptions of culture.

The data regarding investment in IT, firm size, ratio of fixed asset to total assets, and capital-asset ratio were derived from the firms' annual reports for the period 2003-2007.

It has been argued that if there are good reasons for expecting a strong causal relationship between the dependent variable and the independent variable the regression method can be used to test this relationship (Wang, 1993/94) and based on the discussion in section 2 we should expect this relationship, and thus it is suitable to use regression technique for this study.

The regression model will be as follows:

$ROA_{it} = \alpha_0 + \alpha_1 CUL_{it} + \alpha_2 IT_{it} + \alpha_3 FSIZE_{it} + \alpha_4 FASS_{it} + \alpha_5 RISK_{it} + u_{it}$

where i refers to the bank and t to the year.

ROA_{it} = profits of firm i in year t measured as after tax return on assets,

Cul_{it} = a dummy variable equal to 1 if the culture of firm i in year t is constructive and equal to 0 otherwise.

IT_{it} = the cost of investment in IT systems for firm i in year t,

$FSIZE_{it}$ = size of firm i in year t, measured by total assets.

$FASS_{it}$ = the ratio of fixed assets to total assets for firm i in year t,

$RISK_{it}$ = equity capital of firm i divided by total assets of firm i in year t,

u_{it} = disturbance term.

The coefficients for Cul_{it} IT_{it} and $FSIZE_{it}$ are expected to be positive but for $FASS_{it}$ and $RISK_{it}$ are expected to be negative. The study sample is shown in table (1):

Table 1. The Firms, data periods and observations

Name	Data Period	Observations
Atlas Battery (AB)	2003-07	5
Bank Al-Falah (BF)	2003-07	5
British Oxygen Company (BOC)	2005-07	3
Colgate Pamolive Pakistan (CPP)	2004-07	4
Engro chemicals (EC)	2006-07	2
Glaxo Smith Kline (GSK)	2006-07	2
KASB Bank (KASB)	2006-07	2
Pakistan Tobacco Co. (PTC)	2003-07	5
Pakistan International Airlines (PIA)	2004-07	4
Premium Textile (PT)	2006-07	2
Pakistan State Oil (PSO)	2006-07	2
Pakistan Telecommunication Company Limited (PTCL)	2006-07	2
Shell Pakistan Ltd (SPL)	2005-07	3
Siemens Pakistan (SP)	2006-07	2
Sui Southern Gas Company Pakistan (SSGC)	2003-06	4
Standard Charted Bank (SCB)	2005-06	2
United Bank Limited (UBL)	2003-07	5
Unilever Foods (UNI)	2005-07	3
Wyeth Pharmaceuticals (WP)	2003-07	5

4. Analysis of the results

4.1. Descriptive statistics

Table 2 reports the descriptive statistics for the dependent variable represented by firm Profitability and independent variables selected in this study. The dependent variable represented by firm profitability and the independent variables represented by the firm culture; investment in information technology; firm size; barriers to entry and firm risk are vary and hence argued by Naser and Al-Khatib (2000) this gives more credibility to the results of the study.

Table 2. Descriptive Statistics for the dependent and independent variables
N= 62 observations

Variable	Mean	SD	Min	Max
ROA_{it}	0.17	0.09	-0.13	0.39
Cul_{it}	0.59	0.38	0	1
IT_{it}	578	423	23	1989
$FSIZE_{it}$	53420	21316	2365	124958
$FASS_{it}$	0.56	.30	0.18	0.62
$RISK_{it}$	0.92	0.08	0.63	1.08

4.2. Test for Multicollinearity

Multicollinearity occurs when there is a high correlation between any two of the independent variables. There are many methods in the literature to detect multicollinearity and one of them is to see whether the simple negative or positive correlation coefficient between any two variables is say 0.99 or more as argued by El-Bannany (2002, 2008). If it is, we should suspect the existence of multicollinearity. The simple way to overcome multicollinearity problem is to delete one of the two highly correlated variables. The correlation coefficient matrix of the independent variables is shown in table 3.

The highest correlation coefficient value is between IT_{it} and $FSIZE_{it}$ and is less than 0.99 (it is 0.70), which means that we should not suspect the existence of the multicollinearity problem.

Table 3. The correlation coefficient matrix for the independent variables

Independent Variables	Cul_{it}	IT_{it}	$FSIZE_{it}$	$FASS_{it}$	$RISK_{it}$
Cul_{it}	-	0.052 (0.623)	0.171** (0.000)	0.265** (0.001)	0.061 (0.563)
IT_{it}		-	0.540 (0.705)	0.469 (0.991)	0.254 (0.612)
$FSIZE_{it}$			-	0.701** (0.000)	0.166 (0.113)
$FASS_{it}$				-	0.345** (0.000)
$RISK_{it}$					-

The 2-tailed significance level is shown in brackets.
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed)

4.3. Regression results and discussion

The results presented in table 4 show that the regression model is significant and explains 59% of the relationship between the firm profitability and the independent variables and this indicate that the model is reasonably well specified. The empirical evidence suggests that: Culture measured by a dummy variable equal to 1 if the culture of firm i in year t is constructive and equal to 0 otherwise is positively related to firm profitability and this complies with the expectation of hypothesis 1and confirm the results of the studies of Peters and Waterman, 1982; Denison, 1984; Gordon and DiTomaso, 1992; Kotter and Heskett, 1992; Rashid et al., 2003; Xenikou and Simosi, 2006; Balthazard et al., 2006.

Investment in information technology measured by the value of hardware is positively related to firm profitability and this is in line with the expectation of hypothesis 2 and comply with the results of and Holden & El-Bannany, 2004. firm size measured by the total assets is positively related to the firm profitability as expected by hypothesis 3 and supports the results of Evanoff and Fortier (1988) and Lloyds-Williams et al. (1994) and El-Bannany (2002). Barriers to entry measured by the ratio of fixed assets to total assets for firm i in year t is negatively related with the firm profitability and this is in line with hypothesis 4 and the results of Mann, 1966 and El-Bannany, 2002 and. Financial leverage measured by equity capital of bank i divided by total assets of firm i in year t is negatively related to the firm profitability and this confirm the expectation of hypothesis 5 and supports the results of El-Bannany, 2002.

Table 4. The regression results: dependent variable ROA_{it}; Number of observations 62

Regressor	Coefficient	t-ratio	Probability
Intercept	4.4074	3.51	0.000
CUL_{it}	0.062	1.06	0.041
IT_{it}	0.007	0.821	0.019
$FSIZE_{it}$	0.031	2.15	0.026
$FASS_{it}$	-3.199	5.76	0.005
$RISK_{it}$	-0.048	1.84	0.025
R-SQUARED = 0.637		R-BAR-SQUARED = 0.593	
F (5,56) = 18.648		Sig. F. = 0.000	
N = 62			

5. Conclusions

This study investigates the relationship between firm profitability and five independent variables over the period 2003-2007 using data for 19 firms from different sectors in Pakistan.

The independent variables are the firm culture, investment in information technology

systems, firm size, Barriers to entry and financial leverage. The firm culture hypothesis states that constructive culture rather than others has a positive impact on firm profitability because a constructive type of culture value initiative, promotes teamwork, and instills family like atmosphere. The investment in information technology systems hypothesis assumes that there is a positive relationship between the degree of investment in information technology systems and firm profitability as a reflection to lowering the total costs of a firm (giving a cost advantage) and differentiates its products (hence gaining a competitive advantage) which should be reflected in increased net profit. The firm size hypothesis states that there is a positive relationship between the size of the firm and firm profitability as a result of economies of scale. The barriers to entry hypothesis presuppose that there is a negative relationship between barriers to entry in a firm's sector and firm profitability because of the optimal level of investment required to enter the market. Financial Leverage hypothesis states that there is a negative relationship between the financial leverage of the firm and firm profitability because a high capital-asset ratio indicates a relatively low level of financial leverage risk, resulting in a low level of profits as argued by Molyneux, (1993) and the results support these hypotheses.

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