The relationship between responsibility accounting and business performance: evidence from Vietnam

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Abstract

This study aims to examine the impacts of different characteristics of a responsibility accounting system on business performance in the context of Vietnamese companies using a panel study. The panel data includes 309 firm-year observations, from 103 companies over a 3-year period from 2017 to 2019. The findings support the positive impacts of several characteristics required in a responsibility accounting systemon business performance.

Keywords: responsibility, accounting system,business performance, positive impacts

1. Introduction

Responsibility accounting is considered as a critical mechanism in a management accounting system, supporting organizational strategies and structures (Anthony andGovindarajan, 2001). The concept of responsibility accounting is fundamentally based on the delegating responsibility for divisional managers (Simon et al., 1954; Merchant, 1985, Horngren et al., 2006 and Okoye et al., 2009) that they are given authority to make their own decisions as well as held accountable for their decisions within their in-charge divisions or departments in an organization.

In literature, there are many studies on responsibility accounting focusing on the information asymmetries arising from principal-agent theory (Baiman, 1982), the controllability (Holmstrom, 1982; Antle and Demski, 1988), the management performance assessment (Antle and Smith, 1986) and the organizational hierarchical structure (Demski and Sappington, 1989). However, there are only a limited past studies on the impacts of the responsibility accounting system on business performance. Therefore, it is interesting to find an answer for the following research question: *Does a responsibility accounting system has any impacts on business performance in Vietnamese companies? In particular, this paper aims to identifywhich characteristics of a responsibility accounting system have impact on business performance.*

This paper consists of five main sections. In addition to the introduction in section 1, the next section will discuss related literature review on responsibility accounting and its impacts on business performance before constructing the hypothesis. Then, research methodology will be presented in section 3. Section 4 will comprise results of the study and further discussion. Finally, section 5 will give a brief conclusion of the study.

7868

2. Theoretical framework and hypothesis development

2.1. Responsibility accounting and the delegation of decision making

Responsibility accounting is a concept that has been discussing extensively in literature. Traditionally, the idea of a responsibility accounting system is about the delegation of responsibility for divisional managers to make decisions and hold accountable for the operation in their in-charge divisions(Simon et al., 1954; Merchant, 1985; Horngren et al., 2006;Kaplan and Atkinson, 2007; and Okoye et al., 2009).However, McNair (1990), Bushman et al. (1995), Scott and Tiessen (1999) and Rowe (2004) defines responsibility accounting in a broader range, not only divisional managers, but also groups of managers of interdependent or joint activities should take responsible for their aggregate performance.

Divisions or joint activities above could be considered as responsibility centers (Hoque, 2001).The logic of a system of responsibility centers is that an organization could be split into components and the heads of these components are given a certain level of authority (Bob Scarlett, 2007). With the establishment of responsibility centers, a responsibility accounting system managesorganization horizontally among groups or teams of several responsibility center managers. Particularly, there are three types of responsibility centers according to Garrison (2000), including:

(i) cost center where the manager takes responsible for the center's controllable costs. Example of cost centerscould be production departments, accounting departments, technological departments, etc. It could be easily seen that the majority of managers are accountable for cost centers.

(ii) profit center where the manager hold accountable for both controllable costs and revenue incurred. Example of profit centers could beselling locations or stores.

(iii) investment center where the manager are responsible for not only profit maximization but also investment projects or assets. For example, managers of investment centers are more likely to have power in making decisions related to constructing new factories or stores, purchasing new machineries and equipment, etc. The return on investment in this type of center is one key indicator supporting the performance evaluation of the manager. A clear example of an investment center could be an organizational segment or a subsidiary.

Kaplan and Atkinson (2007)added one more type of responsible center called revenue center where managers only have to take responsible for the revenue generated in that center. Example of revenue centers could be sales department. However, in practice, this type of center is mostly rare due to the fact that even in sales department, there is also the need to manage costs incurred in the process of generating revenue.

Based on the Herzberg's motivation theory (1971), the responsibility is one of the motivation factors encouraging individuals to perform better in their work. Consequently, business performance could be improve when many employees perform better. It is also clearly that responsibility is an important characteristic of a responsibility accounting system.

Therefore, the first hypothesis is presented as follows:

H1: there is a positive relationship between the delegation and clear description on responsibility for each responsibility center manager and business performance.

2.2. Responsibility accounting, controllability and management performance assessment

The concept of responsibility accounting system presented above also implies that managers' performance should be assessed based on his/her control factors (Holmstrom, 1982; Antle and Demski, 1988; Antle and Smith, 1986). Therefore, controllability and management performance assessment are two important characteristics that should be considered in the design of a responsibility accounting system. Also,identifying the control boundary is necessary in the process of evaluating management performance (Choudhury, 1986).

Agreed with this point of view, Kermit and Barbara (1996) stated that there arefour requirements that need to be fulfilled for the successful implementation of responsibility accounting including: establishing responsibility centers, establishing performance measures, evaluating performance, andestablishing reward systems.

Based on the Herzberg's motivation theory (1971), therecognition is one of the motivation factors thatencourage individuals to perform better. At the same time, the recognition could be achieved during the process of performance evaluation and reward payment. Therefore, a good system of performance evaluation

and reward system tends to motivated managers to enhance their individual performance, thus improving the whole organization performance. Therefore, hypotheses are presented as follows:

H2: there is a positive relationship between a system of key performance indicators and business performance.

H3: there is a positive relationship between the performance evaluation of individual managers and business performance.

H4: there is a positive relationship between the incentives for outstanding managers and business performance.

2.3. The relationship between responsibility accounting and business performance

Regarding the relationship between responsibility accounting and business performance, Lin and Zu (2002) examined responsibility cost centers at Han Dan Iron and Steel Company in China and concluded a positive role of these centers in the improvement of business management and profit. Similarly, Okoye et al. (2009) performed an empirical study on 12 manufacturing companies in Anambra State and also found out a statistical significant positive correlation between responsibility accounting system and managerial performance. Inconsistence with above studies, Lang (2002) and Rigby at al. (2021) examined the implementation of responsibility centers in universities and founda mixed result that the system of responsibility centers could be successful in some situations, however, it could be problematic in others.

3. Research methodology

3.1. Data and sample selection

At first, this study adopts quantitative approach with a large sample of 350 randomly selectedVietnamese companies which are listed on the Ho Chi Minh stock exchange and Hanoi stock exchange, which are the two largest stock trading market in Vietnam. Data is collected for a 3-year period from 2017 to 2019. Dataset used for the analysis is collected from two separate sources. Firstly, financial accounting figures are collected from companies' financial statements. Secondly, information related to responsibility accounting systems implemented in companies is collected by sending surveys to chief accountants or management accountants, depending on who is more approachable. However, at the end, there are only 103 respondents, giving a final total of 309 firm-year observations in the study forming a balance panel data. For analysis, OLS regression is performed.

3.2. Measurements

Regarding the dependent variable, business performance, is widely estimated using either accounting-based measures or market-based measures, which are generally accepted, in previous studies (Gentry and Wei Shen, 2010). In which, accounting-based measures are generally considered to be effective in measuring past financial performance, and market-based measures are generally considered to be effective in measuring future financial performance (Hoskisson et al., 1994). This study examines the impacts of different characteristics of a responsibility accounting system on business performance, therefore, it is suitable to study past financial performance using accounting-based measures. There are several widely used accounting measures, namely ROA, ROE, ROS, ROI, etc. However, there is significant convergent validity between them (Gentry and Wei Shen, 2010). Therefore, in this study, business performance is estimated by its return on assets (ROA) only. This indicator gives an idea of how efficient a business used its assets to generate earnings. The ROA indicator is collected from companies' annual financial statement.

Information related to independent variables is collected by sending surveys to chief accountants or management accountants.This study examines 4independent variablesas follows:

Variables	Description
Descr	the delegation and clear description on responsibility, measured by 5-point scale, ranging from "very bad" at 1 point to "very good" at 5 points. Survey question: How explicit is the delegation and description on responsibility in your company?
KPI	system of key performance indicators, measured by 5-point scale, ranging from "very bad" at 1 point to "very good" at 5 points. Survey question: How good is the system of key performance indicators in your company?
PEval	the process of performance evaluation of individual managers, measured by

	5-point scale, ranging from "very bad" at 1 point to "very good" at 5 points. Survey question: How good is the process of management performance evaluation in your company?
Incen	the reward system, measured by 5-point scale, ranging from "very bad" at 1 point to "very good" at 5 points. Survey question: How good is the reward system in your company?

Also, responsibility accounting system is consistent with the controllability (Holmstrom, 1982; Choudhury, 1986; Antle and Demski, 1988) that managers should only be responsible for and be evaluated base on what they control. Therefore, the classification of controllable and uncontrollable factorsare very important in this system. Thus, this should be added as an control variable, measured by 5-point scale, ranging from "very bad" at 1 point to "very good" at 5 points.Survey question: How good is the classification of controllable and uncontrollable factors in your company?.We predict that the classification of controllable and uncontrollable factors would have a positive correlation with business performance.

3.3. Model

In conclusion, to examine the correlation between responsibility accounting and business performance, this study estimates the following model:

$$ROA_{i,t} = \alpha + \beta_1 Descr_{i,t} + \beta_2 KPI_{i,t} + \beta_3 PEval_{i,t} + \beta_4 Incen_{i,t} + \beta_5 Clasifi_{i,t} + \varepsilon_{i,t}$$

In which:

ROA	return on assets, used to measure business performance
Descr	clear description on authority and responsibility
KPI	system of key performance indicators
PEval	performance evaluation of individual managers
Incen	incentives for outstanding managers
Classifi	classification of controllable and uncontrollable factors

4. Results

Table 1: Descriptive statistics

Variables	Obs	Mean	Std Dev	Min	Max
ROA (%)	309	8.051	7.381	-19.16	40.16
Descr	309	3.981	0.613	2	5
KPI	309	3.081	0.718	1	5
PEval	309	3.362	0.682	2	5
Incen	309	3.327	0.864	1	5
Classifi	309	3.068	0.885	1	5

Table 1 gives a summary of descriptive statistic for the sample. As can be seen from the table, the average ROA, which presents for business performance in this study, was8.05% ranging from -19.16% to 40.16%. The decentralization and clear description on responsibility ranged from 2 points to 5 points with the average point is 3.981.The system of key performance indicators was evaluated at approximately 3.081 for most sample companies. The average point for the satisfaction level of the process of management performance evaluation was 3.362 while this figure for the reward system was 3.327. Furthermore, the average point for the classification of controllable and uncontrollable factors was 3.068.

Table 2: Correlation matrix

	Descr	KPI	PEval	Incen	Classifi
Descr	1				
KPI	0.280	1			
PEval	-0.137	0.266	1		
Incen	-0.025	-0.138	0.279	1	
Classifi	-0.033	-0.085	-0.125	0.043	1

Table 2 presents the correlation matrix among explanatory variables. Although there are quite a high correlation between the decentralization of authority and responsibility and the clear description on authority and responsibility, at 0.280, this figure is still lower than 0.8 at which statistical problem might occur (Tabachnick and Fidell, 2007). Therefore, to a certain extent, there might be no multi-collinearity issue exist among explanatory variables. However, Tabachnick and Fidell (2007) also stated that if there is a slightly high correlation existed, the multi-collinearity might occur. Therefore, this study performs a further check using the Variance Inflation Factor (VIF) for the assurance of no multi-collinearity issue.

Table 3: VIF test results

Variables	VIF	1/VIF
Descr	1.18	0.847
KPI	1.25	0.800
PEval	1.37	0.730
Incen	1.33	0.752
Classifi	1.03	0.971

The Variance Inflation Factor (VIF) should be calculated for all independent variables. Table 3 presents the results of the VIF test. As can be seen from the table, the highest VIF is 1.37. Meanwhile,Chatterjee and Price (1991) concluded that the problematic threshold for a sign ofmulti-collinearity is VIF over 10. Therefore, results in table 2 and table 3 combined together show that there is no risk of multi-collinearity existed in the regression model.

Table 4: Fixed effect regression results (dependent variable: ROA)

Variables	Coef.	t-stat

7873

Descr	1.133*	2.02
KPI	1.074	1.18
PEval	0.275***	3.85
Incen	1.120**	2.77
Classifi	-0.150	-0.76
Constant	-2.955*	-1.93
Observations	300	
Number of COMPANY	100	
R-squared	0.598	

* (p ≤0.10) = Significant at 10%.

** (p ≤0.05) = Significant at 5%.

*** (p ≤0.01) = Significant at 1%.

Table 4 presents the fixed effect regression results for the model. The dependent variable in the regression estimation is business performance, measured by ROA. The R-squared is 59.8% implying that 59.8% of the dependent variable could be explained by this model.

It could be seen from table 4 that the regression results support three hypotheses:H1, H3 and H4. Particularly, at 10% level, a 1 point increase in the decentralization and clear description on responsibilitycould result in 1.133% increase in ROA figure. The regression results (coeff: 0.275; t-stat: 3.85) also suggest that 1 point increase inthe satisfaction level of the process of management performance evaluation could statistically significantly contribute to a 0.275% increase in ROA at 1% level. Similarly, the regression results (coeff: 1.120; t-stat: 2.77) also support for the significant positive relationship with between the reward system and business performance at 5% level.

As can be seen from the table, he coefficient of 1.074illustrates apositive association between system of key performance indicators and business performance, however, the result is not statistically significant.

5. Discussion and conclusion

The study examines the impacts of different characteristics of a responsibility accounting system on business performance in the Vietnamese context. Based on previous studies and the logic behind a responsibility accounting system, the study hypothesized a positive relationship between 4 characteristicsof a responsibility accounting system and business performance. By this approach, this study focuses on 103 Vietnamese companies listed on Ho Chi Minh stock exchange and Hanoi stock exchange for a 3-year period from 2017 to 2019.

The results show statistically significant positive impacts of the decentralization and clear description on

7874

responsibility, the satisfaction level of the process of management performance evaluation and the reward system on business performance. There is also an insignificant positive relationship between the system of key performance indicators and business performance.

There are still several limits in this study. Firstly, in this study, business performance is estimated by an accounting measure, return on assets (ROA). However, business performance could be approach by another measurement mothed, by market-based measures. Secondly, data for explanatory variables is collected by sending survey to chief accountants or management accountants, depending on who is more approachable. However, a responsibility accounting system is a management and control system that has impacts on the whole organization, therefore, data could be collected from multiple sources. Further research could address these limitations.

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