

Print ISSN: 2288-4637 / Online ISSN 2288-4645  
doi:10.13106/jafeb.2021.vol8.no3.1065

# The Impact of Responsible Accounting on Organizational Performance: A Case Study of Pharmaceutical Enterprises in Vietnam\*

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Received: November 30, 2020 Revised: February 01, 2021 Accepted: February 16, 2021

## Abstract

This study seeks to analyze the impact, and provides more empirical evidence on the effect, of the responsible accounting model combined with scorecards on the organizational performance of pharmaceutical companies. The research methodology uses questionnaires survey distributed to pharmaceutical companies. Quantitative research was done with SPSS 25 software. After excluding invalid questionnaires due to many blank boxes, 306 questionnaires could be used by the author. Research results show that seven elements of the responsible accounting model combined with the balance scorecard all positively affect the organizational performance of enterprises in the pharmaceutical industry including: (1) dividing organizational structure into centers of responsibility according to strategy; (2) assigning management to management according to vision; (3) allocating costs and revenue; (4) making budget estimates according to balanced scorecard (BSC); (5) evaluating estimates with reality by BSC; (6) making BSC analysis reports; and (7) rewarding based on BSC. Cost allocation and revenue are the factors that have the strongest impact on the organizational efficiency of pharmaceutical enterprises. Based on the research results, the author has proposed recommendations to improve the good application of the responsible accounting model combined with the balance scorecard, thereby contributing to improving the organizational efficiency of pharmaceutical enterprises.

**Keywords:** Responsible Accounting, Balanced Scorecard, Organizational Performance, Pharmaceutical Enterprises

**JEL Classification Code:** G30, M40, M41

## 1. Introduction

Responsible accounting is a part of the accounting system with the function of collecting, consolidating and reporting information related to the managerial responsibilities at all levels in the organization. Thereby, providing information related to costs, income, and performance of each department for which they are responsible (Anthony et al., 2001).

Balanced Scorecard (BSC) is a modern, goal-based management method. Accordingly, the development orientation of the business is shown by the targets. The targets are harmoniously organized and balanced by the pharmaceutical enterprise based on the important priorities of the enterprise. BSC helps guide the behavior of the entire system in the business, helps all parts of the business toward common goals, and serves as the basis for job management and evaluation. BSC is exploited to communicate the interconnected goals set by businesses, both assessing the past and the prospects of the business. The main aspects of BSC include: financial prospect, customer prospect, internal process prospect, and learning and development prospect. These prospects have a close relationship with each other.

One of the causes creating risks for the pharmaceutical enterprises in particular in Vietnam is the unstable macro environment (Pham, 2020). According to the national strategy to develop Vietnam's pharmaceutical industry to 2020 and vision to 2030, the Vietnamese government has identified the pharmaceutical industry as a key industry in fostering economic development and create welfare for

### \*Acknowledgements:

[1] The author is thankful to Academy of Finance for funding this research.

[2] I would like to thank the anonymous referees for their helpful comments and suggestions.

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the people in the future. The focus areas of the National Strategy include: Universal Health Insurance, Affordable Patient Access to Quality Medicine, and Development of the Domestic Pharmaceutical Industry. In order to achieve the targets in the above focus areas, the government has enacted many policies. In the National Strategy for the Development of the Pharmaceutical Industry, the government aims to reduce dependence on imports and focus on modernization, so that Vietnam's pharmaceutical industry becomes on par with other countries in the world. In the long run, the government aims to meet the basic health needs of the country through localization of production, and at the same time toward the production of therapies for therapeutic purposes. Vietnam also aims to make pharmaceuticals capable of producing vaccines and biological products to prevent epidemics, and to develop testing systems, drug distribution and drug information equivalent to that of advanced countries in this area. Furthermore, the leaders should be confident of their own ability and consistency with company's goals (Nguyen et al., 2019). In Halal, knowledge had more influence on consumer intention to consume halal pharmaceuticals than cosmetics and food products (Sudarsono & Nugrohowati, 2020).

With the development strategies of Vietnam's pharmaceutical industry in the coming years and the current integration context, pharmaceutical businesses will have many opportunities and challenges. Therefore, in order to provide more comprehensive and accurate information, accountants need to combine with a balance scorecard to help administrators give the best business decisions to improve the competitiveness of the sector.

## 2. Literature Review

### 2.1. Responsibility Accounting Model

The empirical studies on responsible accounting are also gradually deployed and applied. Bloomfield et al. (1992) analyzed hospital management information systems in the UK. Shih (1997) looked at the process of investigating how firms design performance evaluation systems for crop managers.

In addition to emphasizing more research on responsible accounting, Antle and Demski (1988) shed light on what is a controllable principle in accounting. Okoye (2009) presented studies on the relationship between responsible accounting and management performance in manufacturing firms; responsible accounting is a tool to assess a business's managerial responsibility.

Research by Hyršlová and Hájek (2006), Okoye (2009), and Larsson and Svensson (2010) is very meaningful in bringing environmental issues into accounting. In addition, one of the studies on social responsibility accounting that

needs to be mentioned is the study by Gholami et al. (2012) showing that, besides financial goals, the enterprise must pay attention to social responsibility because unethical behaviors will greatly affect the performance of the unit. The studies on responsible accounting are also inseparable from the above trend.

Sarkar and Yeshmin (2005), doing research on accountability in Bangladesh, showed that there are units surveyed that have designed four responsibility centers in their unit and also design units of three responsibility centers. A common tool used to evaluate effectiveness is budgeting. Leadership of sales centers is assessed using segment reporting (Sarkar & Yeshmin, 2005).

Muthulakshmi (2014) found that responsible accounting consists of five responsibility centers, which are cost center, revenue center, profit center, investment center, and profit contribution center.

Thus, in recent years, accounting in general and responsible accounting in particular have gone deep into issues of environment, social responsibility, and sustainable development. To evaluate the results of the departments, the performance evaluation models have been researched and proposed by scientists. One of the evaluation models that combines all three economic (financial), environmental, and social issues for sustainable development is Knowledge Management Star (KM Star) model by Nirmal Pal and public associates, published in 2004. Specifically, this model evaluates the department's performance based on five elements: financial, sustainability, customer, process, and perception.

In summary, responsible accounting is a very effective control tool that has been studied by foreign authors from different angles. These are very useful contents for applying the responsible accounting system in practical conditions in Vietnam.

### 2.2. Balanced Scorecard

The BSC method is a strategic planning and management system used by business organizations, non-profit organizations, and governments to guide business operations according to vision and strategy. It improves the efficiency of internal and external communication and monitor the performance of the business against the set target. It gives managers and senior officials in organizations a more balanced view of the overall performance of the organization (Kaplan & Norton, 1992).

The original purpose of the BSC was to balance financial ratios with the future value orientation of the business, and later on, more and more organizations are using this tool to align their business activities. BSC is exploited to communicate the interconnected goals set by businesses, both assessing the past and the prospects of the business.

The main aspects of BSC include: financial prospect, customer prospect, internal process prospect, and learning and development prospect. These prospects have a close relationship with each other.

In short, BSC directs the entire enterprise to the main stages toward the breakthrough; helps to consolidate various corporate programs such as quality, innovation, initiative, and customer satisfaction. More importantly, the balanced scorecard is a tool to break local strategic measures, so that business owners, managers, and employees can clearly see their role in implementing the organization's strategy and focus wholeheartedly on those strategies. However, this is a very difficult method to apply as it requires consensus of the whole enterprise, and it takes a lot of time and resources to apply.

### 2.3. The Responsible Accounting Model Combined with the Balance Scorecard

Mojgan (2012) has studied the role of responsible accounting in the organization by qualitative methods. Research results show that the purpose of responsible accounting is designed to report and accrue costs according to individual liability purposes. Each monitoring area is charged only with the cost of responsibility and the cost over which it has control. There are three types of responsibility centers: cost center, revenue center, and investment center. The criteria given to evaluate the company's performance include: return on investment (ROI), residual income (RI), return on revenue (ROS), economic value added (EVA), and balance score card (BSC).

Al-Baidhani (2013) studies the use of balanced scorecards as an effective management and estimation tool. Companies need to establish strategic guidelines and operational goals on all levels. The equilibrium scorecard provides such indications; it provides the link between measurement systems and strategy. The transformation from the industrial economy to the knowledge economy around the world motivates us to use BSC. Hanini (2013), when studying the implementation level of the responsible accounting characteristics in Jordan banks, gave some recommendations such as: it is necessary to set goals and budget for the responsibility centers at banks. Banks in Jordan should be encouraged to use other modern methods of management accounting in business such as Balanced Scorecard (BSC).

Van (2017) said that responsible accounting is an important economic and financial management tool in the business, through decentralization of management responsibilities for the responsibility-minded administrators who evaluate the responsibilities and achievements of each department specifically and accurately. Tran (2020) shows that the application of the responsible accounting model combined with scorecards among Vietnamese pharmaceutical

companies is low. Since then, recommendations are also proposed to improve the application of the responsible accounting model incorporating balance scorecard in the enterprise.

## 3. Research Methodology

### 3.1. Research Method

The research method used includes a questionnaire survey of pharmaceutical companies to evaluate the impact of responsible accounting combined with balanced scorecards on organizational performance. Organizational efficiency and the seven elements of the responsible accounting model combined with the balance scorecard, are measured on the five-point Likert scale – Very good, Good, Average, Not good, Weak. The Likert scale is a familiar tool in many studies, so the author quantifies each factor of internal control according to five levels. Quantitative research was performed using SPSS 25 software.

The research scope encompasses all pharmaceutical companies. Research data is collected in the form of direct interviews and email interviews of managers and employees working in many different positions in the pharmaceutical enterprises. Researchers collected 315 questionnaires from 350 distributed. After excluding invalid questionnaires due to many blank boxes, 306 questionnaires remained for further analysis.

### 3.2. Hypotheses

In order to be able to provide managers better and more comprehensive information than the traditional responsible accounting model, responsible accounting needs to be combined with a balanced scorecard. Therefore, the content-based approach of the responsible accounting will be selected to carry out the research to study the model of responsible accounting combined with the balance scorecard (BSC).

From the research model, to assess the impact of responsible accounting in combination with the balanced scorecard on organizational performance in the pharmaceutical industry in Vietnam, the study formulated the following hypotheses:

**H1:** *The pharmaceutical enterprise's division of its organizational structure into strategic responsibility centers significantly impacts the organizational effectiveness.*

**H2:** *The pharmaceutical enterprise's decentralization to administrators according to a better vision significantly impacts the organizational effectiveness.*

**H3:** *The pharmaceutical enterprise's distribution of costs and revenue significantly impacts the organizational effectiveness.*

**H4:** The pharmaceutical enterprise's making estimates according to BSC significantly impacts the organizational effectiveness.

**H5:** The pharmaceutical enterprise's assessment of estimates with the reality according to BSC significantly impacts the organizational effectiveness.

**H6:** The pharmaceutical enterprise's application of analysis report according to BSC significantly impacts the organizational effectiveness.

**H7:** The better the pharmaceutical enterprise applies BSC-based Reward's the bigger the organization will be.

## 4. Research Results

### 4.1. Scale Test

The results of evaluating the reliability of the scale with Cronbach's Alpha showed that all scales had reliability greater than 0.6 and total variable correlation coefficient greater than 0.3. All scales satisfy the conditions to analyze discovery factors EFA. The reliability of the scales is summed up in Table 1.

### 4.2. Explore Factor Analysis EFA

Factor analysis was performed with Principle Component extraction and Varimax rotation for the dependent observed variable. The results showed that the coefficient KMO = 0.847 meets the condition  $> 0.5$ ; Significance level and Bartlett test = 0.000 ( $< 0.05$ ) show that the EFA analysis is appropriate. The total extracted variance is 63.676%  $> 50\%$ ; load factors are greater than 0.5, thus, should meet the requirements. The official scale after handling EFA includes 32 observed variables as proposed.

### 4.3. Regression Analysis

$R$  squared reflects the influence of the independent variables on the variation of the dependent variable, in this case seven elements (Divide organizational structure into centers of responsibility according to Strategy, Assign management to management according to vision, Allocate costs and revenue, Make budget estimates according to BSC, Evaluate estimates with reality by BSC, Make BSC analysis reports, and Reward based in BSC). They explain 63.2% of the organizational performance of pharmaceutical companies. Other factors outside the model and random error affect 36.8% of the organizational performance factor of pharmaceutical companies. The Durbin-Watson coefficient is 1.810, in the range from 1.5 to 2.5, so there is no first-order series autocorrelation.

In order to check whether this regression model is suitable with the collected data set and has application significance, the author continues to test the suitability of the model through ANOVA test as follows:

Sig. tested  $F = 0.000 < 0.05$ , so the regression model assesses the impact level of the seven factors (see above) on the organizational performance of pharmaceutical companies.

The model's  $F$ -statistic has the value Sig. = 0.000  $< 0.05$ , which indicates that the model is suitable for the data set and can be deduced overall. VIF coefficients are all less than 2, so there is no multicollinearity phenomenon between components that does not appear in the research model.

The regression results show that the influence of the seven elements of the responsible accounting model combined with the balanced scorecard on the organizational efficiency of pharmaceutical enterprises is shown in Table 5.

**Table 1:** Scale Test Results

No	Variable name	Symbol	Number of Observed Variables	Cronbach's Alpha	Coefficient Total Variable Correlation Coefficient
1	Organizational efficiency	BR	4	0.727	0.454
2	Division of organizational structure into centers Responsibility according to strategy	DO	5	0.814	0.553
3	Decentralization of management to visionary managers	MD	4	0.781	0.499
4	Allocation of expenses and revenue	CI	5	0.847	0.614
5	Budgeting according to BSC	EM	5	0.881	0.665
6	Evaluation Estimation with reality according to BSC	ER	5	0.782	0.521
7	Prepare analysis report according to BSC	RP	4	0.722	0.424
8	Reward based on BSC	RW	4	0.821	0.619

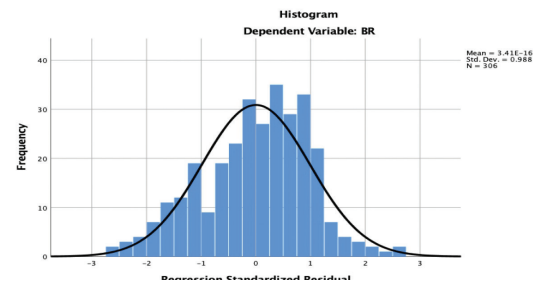
**Table 2:** Results of Factor Analysis to Discover EFA Independent Variables

	Factor						
	1	2	3	4	5	6	7
EM1	0.842						
EM2	0.770						
EM4	0.763						
EM3	0.675						
EM5	0.668						
CI3		0.804					
CI2		0.786					
CI1		0.695					
CI4		0.578					
CI5		0.538					
DO2			0.810				
DO3			0.763				
DO4			0.731				
DO5			0.686				
DO1			0.618				
RW3				0.820			
RW4				0.818			
RW1				0.779			
RW2				0.731			
ER4					0.732		
ER5					0.704		
ER1					0.681		
ER2					0.673		
Er3					0.606		
MD2						0.762	
MD3						0.744	
MD4						0.727	
MD1						0.641	
RP3							0.746
RP4							0.694
RP2							0.673
RP1							0.572

The regression model is written as follows:

$$BR = 1.026 + 0.171DO + 0.224MD + 0.299CI + 0.178EM + 0.256ER + 0.064RP + 0.145RW + E$$

Histogram normalized residual frequency chart with very small mean value close to 0 (Mean =  $3.4 \text{ E} - 16$ ) and standard deviation is close to 1 (0.988). Thus, the normal distribution of the remainder is not violated.



## 5. Discussion and Recommendations

### 5.1. Discussion

Based on the results of the quantitative research on the factors of accounting model responsibility combined with Balanced Scorecard to effectively organize the business sectors of Pharmaceuticals, we can draw some conclusions:

As regards the method, the multiple linear regressions extracted by the standardized Beta show that the cost and revenue factors have a higher normalized Beta coefficient (0.299) than all other factors. The standardized Beta coefficients of the remaining factors in turn are: Divide the organizational structure into strategic responsibility centers (0.171), Decentralize management for administrators according to vision (0.224), Accounting according to BSC (0.178), Evaluating estimates with reality according to BSC (0.256), Prepare analysis report according to BSC (0.064), and Rewards based on BSC (0.145).

Thus, cost allocation and revenue are the factors that have the strongest impact on the organizational efficiency of pharmaceutical companies. This can be explained by the fact that, for specific pharmaceutical companies, applying good cost allocation and revenue will positively affect the organizational performance, in particular, and the business performance, in general.

### 5.2. Recommendations

From the research results on the impacts of the responsible accounting model combined with the balanced scorecard on the organizational performance of the pharmaceutical



**Table 3:** Results Statistical Value Factors

Model	Model Abstract				
	<i>R</i>	<i>R</i> squared	Adjusted <i>R</i> -squared	Error Estimate of Standard Deviation	Coefficient Durbin-Watson
1	0.790 <sup>a</sup>	648	0.632	0.60167	1.810

a. Predictors: (Constant), RW, ER, MD, DO, RP, EM, CI.

b. Dependent Variable: Correct-BR.

**Table 4:** Suitability Test (ANOVA)

Model		Sum of Squares	df	Mean Square	<i>F</i>	Sig.
1	Regression	57.500	7	8.214	22.691	0.000 <sup>b</sup>
	Residual	107.877	298	0.362		
	Total	165.377	305			

a. Dependent Variable: BR.

b. Predictors: (Constant), RW, ER, MD, DO, RP, EM, CI.

**Table 5:** Results Multiple Regression Results

Model		Coefficients Normalized		Coefficient	<i>t</i>	Sig.	Multiple Statistics	
		<i>B</i>	Collinear Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.026	0.418		3.364	0.000		
	DO	0.183	0.063	0.171	1.317	0.000	0.749	1.336
	MD	0.219	0.044	0.224	0.426	0.000	0.689	1.451
	CI	0.303	0.067	0.299	1.529	0.000	0.525	1.905
	EM	0.164	0.052	0.178	1.229	0.002	0.543	1.843
	ER	0.264	0.063	0.256	1.004	0.000	0.710	1.409
	RP	0.073	0.063	0.064	1.156	0.000	0.712	1.405
	RW	0.170	0.044	0.145	3.623	0.000	0.832	1.201

industry, the author gives some recommendations to improve efficiency. Organizational efficiency can contribute to improve the operational efficiency of pharmaceutical enterprises as follows:

Cost allocation and revenue are the factors that have the strongest impact on the organizational efficiency of pharmaceutical enterprises. Therefore, when applying a responsible accounting model combined with a balanced scorecard, pharmaceutical companies need to apply in an effective manner the allocation of costs and revenue. To build a suitable cost norm, businesses need to control well the actual costs incurred in the past, and then combine them with market factors to build a suitable cost norm. In addition, the manager needs to identify factors affecting costs to minimize them in the allowed conditions. It is the responsibility of the

cost center to ensure quality, but minimize costs incurred, especially variable costs.

In addition, pharmaceutical companies need to apply a responsible accounting model combined with a balance score card, namely: Divide the organizational structure into strategic responsibility centers, decentralization of management for managers according to vision, Estimate according to BSC, Evaluate estimates with reality according to BSC, Prepare analytical reports according to BSC and Rewards based on BSC.

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