



APPLICATION OF BALANCED SCORECARD (BS) TO RESPONSIBILITY ACCOUNTING TO EVALUATE THE ACHIEVEMENTS ATTAINED BY LOGISTICS ENTERPRISES

Van Thi Thai Thu

Quy Nhon University, Viet Nam
thaithudhqh@yahoo.com

Abstract

Responsibility accounting is an important tool of financial - economic management in enterprises. By decentralizing management responsibility for responsibility centers, administrators are able to assess responsibilities and achievements of each department specifically and exactly. In order to help the administrators have more comprehensive assessment as well as set more appropriate targets for their enterprises, this study shows how to apply BS theories in responsibility accounting to evaluate achievements gained by logistics enterprises.

Keywords: *Balanced Scorecard, Responsibility accounting, Logistics enterprise.*

Introduction

In Vietnam, logistics is a new service, however, it plays a significant role in corporations' production and operations as well as the whole economy in terms of supply, production, distribution, markets expansion, costs reduction which then create a closely coordinated society. There are approximately 1,200 enterprises operating in logistics which only meet about $\frac{1}{4}$ of the total market demand with the provision of individual services and a few particular stages of the important service chain. This is resulted from the shortage of intensive operations, the limitations in business size and capacity, the weak cohesion, ... which are basically derived from the limitations in management, evaluation and control of business operations. Logistics operations are referred to as very diverse services including unloading, storage, transportation, delivery, delivery to the customs clearance, packing, wholesale, retail... Therefore, Vietnamese logistics corporations are necessarily required to be decentralized in management and to build an assessment system upon each responsibility center.

Thus, it is very essential to research on and select the appropriate methods of achievement measurement and evaluation which will in turn enhance the position of Vietnamese logistics enterprises in the global supply chain.

Responsibility accounting and BS

Responsibility accounting

Definition

Responsibility accounting which is a part of the accounting system has functions of collecting, recapping and reporting information related to the responsibilities of managers at all levels in the organization as well as other information involved in costs, revenues, business operations of each department for which they are responsible. (**ANTHONY A ATKINSON, RAJIV D.BANKER, ROBERT S.KAPLAN & S.MARK YOUNG, 2001**).

Responsibility accounting is an underlying concept of accounting performance measurement systems. The basic idea is that large diversified organizations are difficult, if





not impossible to manage as a single segment, thus they must be decentralized or separated into manageable parts. These parts, or segments are referred to as responsibility centers that include: revenue centers, cost centers, profit centers and investment centers (James R. Martin, 1990).

RESPONSIBILITY ACCOUNTING BEGINS WITH FORMAL RECOGNITION OF THESE SUBUNITS AS RESPONSIBILITY CENTERS. A RESPONSIBILITY ACCOUNTING SYSTEM IS PART OF THE PERFORMANCE EVALUATION SYSTEM USED TO MEASURE THE OPERATING RESULTS OF THE RESPONSIBILITY CENTER. THE DECISION RIGHTS ASSIGNED TO A SUBUNIT CATEGORIZE THE UNIT AS A COST CENTER, A PROFIT CENTER, OR AN INVESTMENT CENTER (Jerold L. Zimmerman, 2011).

Responsibility accounting could be differently recognized based on different scientific viewpoints. Nevertheless, these aspects are not contradictory but mutually complementary which then constitute a comprehensive view of responsibility accounting. In my opinion, responsibility accounting is a part of management accounting, a tool of measurement, control and evaluation the operations of departments which are in charge of revenues, expenses, investment and profit.

Main contents of responsibility accounting

Formation of responsibility centers: There are 4 responsibility centers including cost center, revenue center, profit center and investment center.

Each center has its executive authority and is responsible for any problems arising in its range of action. Particularly, profit center administers both revenues and costs. Investment center manages not only revenues, costs, center's profit but also investment and fundraising ability.

Reporting: The lower-level responsibility centers must report results to higher-level management units, which is the basis for the superiors to examine and control the operations in subordinate responsibility centers. The financial results are often reported in these responsibility centers.

Assessing the performance of responsibility centers: The evaluation is usually done based on financial indicators such as total cost, expense-to-revenue ratio, total revenue, profit-to-revenue ratio, the difference between real profit and planned profit, partial balance, revenue-to-cost rate, rate of return on investment (ROI), interest surplus (RI), ...

BS

Definition

Many managers and consultants who agree to the basic rationale for a Balanced Scorecard believed they have created one when they supplement traditional financial measure with non - financial measure. But many of the most popular non - financial measure, such as customer satisfaction and employee attitudes have some of the same limitations as financial measure (Robert S. Kaplan & David P. Norton, 1996).

BS is a modern management method upon objectives, under which the development orientation of enterprises is shown via indicators. These are set in a reasonable, balanced way relying on the corporation's priorities. On one hand, BS is helpful to direct behavior of the whole system in the enterprises where all parts tend towards the common goals. On the other hands, it provides a basis for business management and evaluation.



Contents

BS is exploited to impart the linked targets set out by the enterprises in advanced, to assess their past achievements and also prospects. The BS main aspects comprise financial perspectives, customer prospects, internal processes prospects, learning and development prospects which are all in a very close relationship.

Applying BS in responsibility accounting

Balanced Scorecard identifies specific indicators to evaluate the business achievements based on experiences and growth including human factors and organizational structure. It is revealed to govern the responsibility centers from decentralization in individual and division levels to the appreciation these units management responsibility. Hence, BS is closely connected with the responsibility centers through the following respects:

Decentralization in management: According to the BS assessment standpoint, the distribution of targets and objectives is done on three levels including: enterprise level; business unit and business supporting unit level; as well as individual and group levels.

Process of business performance evaluation: The assessment of business performance based on BS is similar to the appraisal responsibility centers. After identifying the roles and responsibilities of each units and employees in BS, enterprises could evaluate them upon BS indicators.

Limitations of responsibility accounting in logistics enterprises

Decentralized administration and structure of responsibility centers

Management rights and responsibilities in logistics enterprises are currently delegated too much to the managers of profit centers in terms of controlling revenue and all shipments. It is the highly concentrated hierarchy in profit centers that constrains the potential capacity. There is no motivation for subordinate staff to impulse work performance, as a result, shipment efficiency will be reduced.

Indicators and evaluation reports of business performance

Cost indicators have only considered the orders vertically but not horizontally, i.e. the same expenses incurring in one business period. Since the the common goals of the enterprise are not strongly emphasized in the criteria and evaluation reports, the centers have no promotion to unleash their real capacity. There is also no criteria of customer service. Vietnamese logistics enterprises mostly build their customer strategy based on their experience and subjective judgments. The indicators used in investment and revenue centers are still sketchy, which results in inaccurate assessment.

The responsibility accounting reports are often incorrect. For example, the cost centers usually frequently correct and update their income statements because of the false documents, delays in contacting agent, price changes,...

Applying BS in responsibility accounting to evaluate business performance in logistics corporation

Identifying responsibilities of responsibility centers





Decentralising management and responsibilities to the managers of revenue centers. They are in charge of administering customers, supplying services to customers as well as domestic and foreign partners. This mechanism will be a good choice in terms of training opportunities for the subordinate whereas managers of profit centers can easily focus on the business development goals.

Additional targets and segment reports

The cost and revenue indicators should be managed and calculated horizontally. To do that, the costs and revenues should be classified in details according to logistics functions including transport, warehousing, storage, procurement, customer services, order processing and information exchange. If this is the case, enterprises will be able to evaluate cost fluctuations as well as the relationship between the incurred costs and the corresponding revenues.

Applying BS in responsibility accounting to evaluate business performance in logistics corporation

There are many objectives being set in business strategy by Vietnamese logistics enterprises including: (1) Continue to actively enhance their competitive capacity, investment in information technology, transport and specialized labor based on national, regional and international standards. (2) Develop logistics with 3PLs, 4PLs; and more added value for customers. (3) Be flexible, efficient and save costs. (4) Approach customers with sufficient services in supply chain at less risk.

There is a requirement to concurrently exploit the four basic aspects including Finance, Customer, Internal Process, Learning and Development, and general strategy of logistics enterprises to build Balanced Scorecard to evaluate the responsibility centers' performance. Different Balanced Scorecard are set depending on specific strategies of each logistics enterprise. (Figure 1)

Financial perspective: The ultimate goal remains the financial achievements no matter how different business strategies are. These objectives of logistics enterprises are exposed through increased revenue, cost savings and profit maximization, enhanced their values and prestige. One of the indicators assessing logistics enterprises' prospects is EVA - Economic Value Added.

Formula of EVA: $EVA = \text{after tax Net profit operation} - \text{NOPAT} - \text{capital expenditures}$.

This index is influenced by four factors: revenue, operating costs, working capital, and fixed assets. Figure 2 shows how logistics affects EVA.

Revenue: The customer service provided by logistics can have a major impact on sales volume and customer retention. While it is not generally possible to calculate the exact correlation between service and sales, there have been many studies, that have indicated a positive relationship (Anderson, Eugene W., Claes Fornell and Donald R. Lehmann, 1994). It is the good customer services reinforcing their loyalty that helps to maintain long-term relationships between enterprises and customers. Evidence suggests that higher levels of customer retention lead to greater sales. Customers are more likely to place a greater



proportion of their purchases with a supplier that provides excellent service over time. Also, if the value of the higher level of service is measured and sold to the customer, there will be less pressure on margins resulting in higher revenue (Douglas M. Lambert, 2000).

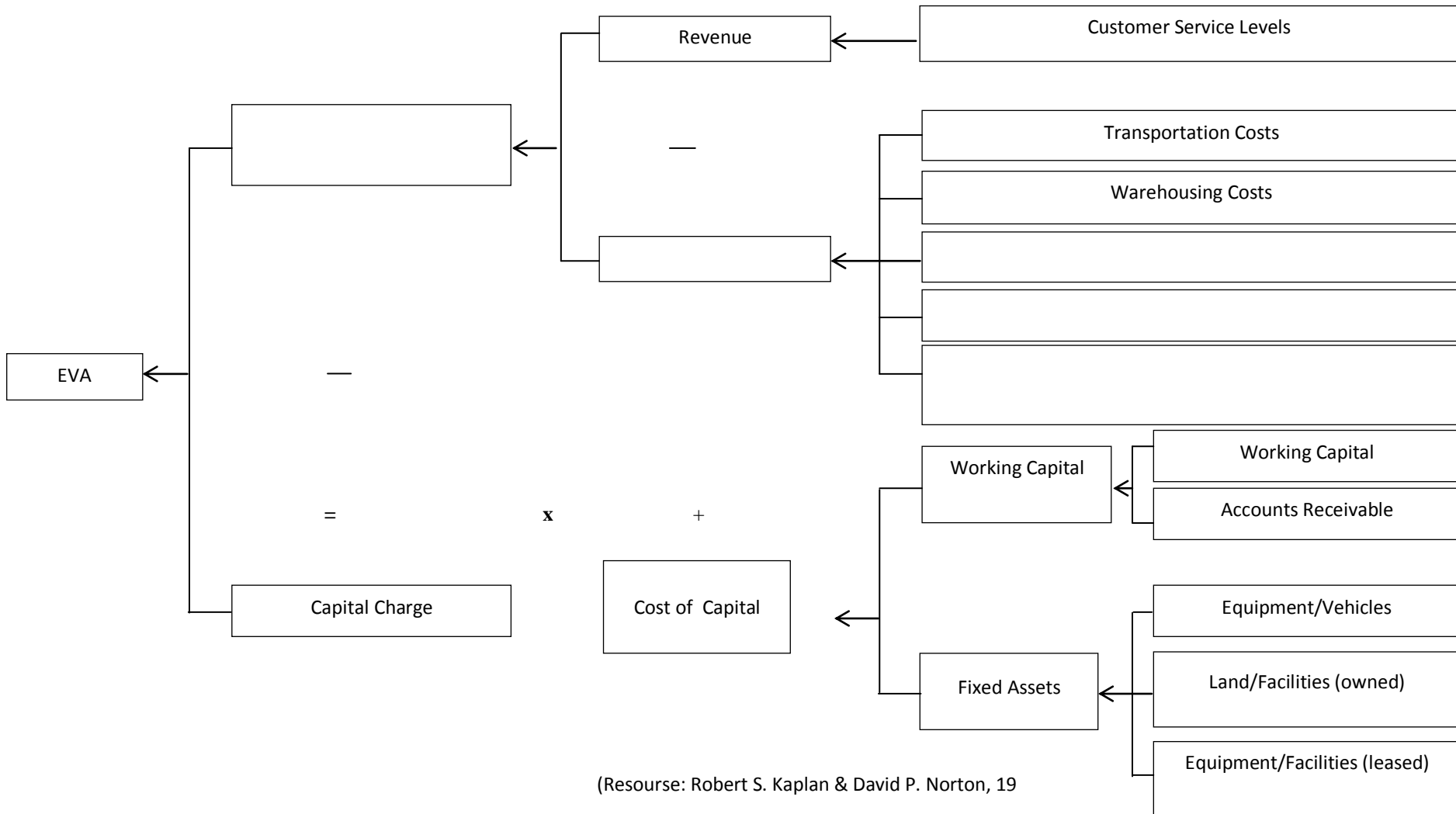


Figure 1: Balanced Scorecard for performance evaluation of responsibility centers in logistics enterprises
(Resource: Duong Thi Cam Dung, 2007)

<p><u>Financial prospect:</u></p>	<p><u>Objectives:</u> Profit maximization; higher revenue, cost saving The enhancement of enterprise's value and reputation</p>	<p><u>Criteria:</u> Profit evaluation, EVA, RI Evaluate ROI, ROA Examine liquidity via Cash Flows Statement Market share</p>
<p><u>Customer prospect:</u></p>	<p><u>Objectives:</u> Revenue Trade mark Appropriate transportation schedule Improved customer service, more new services, business network,...</p>	<p><u>Criteria:</u> - Revenue center: Revenue, volume, growth rate of revenue with existing customers, growth rate of revenue with new customers ... - Cost center: Logistics cost, number of documents, delivery time of documents ...</p>
<p><u>Internal business process prospect:</u></p>	<p><u>Objectives:</u> Documents, transportation, internal procedures, goods insurance and claims</p>	<p><u>Criteria:</u> Number of incorrect or delayed documents Shortcomings in transport and supply Number of lost or damaged parcels</p>
<p><u>Learning and Growth prospect:</u></p>	<p><u>Objectives:</u> Staff trained with skills and professional proficiency Improving discipline Application of modern information technology to logistics procedures</p>	<p><u>Criteria:</u> Training cost/total cost The understanding of customers, products, ... of employees Percentage of repeated violations Corporate welfare Management software, network</p>



Figure 2: How Logistics Affects EVA





Operating Costs: Transportation costs, warehousing costs, information system costs, ... totally seize a big proportion of total cost in logistics corporation. Therefore, saving these costs will significantly reduce the operating costs. Logistics innovations that reduce costs, such as time compression in the supply chain, must be documented for top management and customers must be shown how these savings are affecting their EVA measures (Douglas M. Lambert, 2000).

Working Capital: In order to manage logistics efficiently, working capital of the business should be taken into account in which the reserves and receivables must be mainly focused. Faster collection of receivables and lower inventories free up cash for other investments. Working capital requirements can be reduced through time compression in the supply chain and the associated improvement in cash-to-cash cycle times (the time from the payment for purchased materials until the sale of the finished product and collection of cash) (Christopher, Martin & Lynette Ryals, 1999).

Fixed Assets: Logistics is asset intensive and in many companies the potential for asset reductions is substantial. Investments in trucks and materials handling equipment can be significant as can be the investment in company-owned as well as leased warehousing facilities. When it is possible to reduce a customer's investment in fixed assets the impact on the customer's EVA should be measured (Douglas M. Lambert, 2000).

In addition, other basic criteria such as RI, ROI, ROA and solvency assessment via cash flow statement are also recommended to evaluate financial prospects.

Customer perspective: In this case, there are two important problems including demand satisfaction and added value to customers needing to be considered by logistics enterprises. Customer demand is satisfied through a suitable combined supply of product, price, place and customer services. Therefore, in addition to revenues, market share, brand name which are often referred as their business priorities, logistics enterprises have more concentrated on business network, responsive transportation schedules, customer services,... It is the considerate customer services that will help them gain their customers' loyalty. Nonetheless, the likely increasing cost should be noted as highly qualified customer services are provided.

It is clarified that customers will receive more added value when they are supplied with lower-cost logistics services. This value could be calculated by the correlation between the quality of products and services and their corresponding prices.

Thus, the criteria of assessing customer prospects are sales, logistics costs, sale growth ratio with existing customers, sale growth ratio with new customers, the number of existing customers introducing new customers to enterprises, the number of articles of the enterprises in magazines or forums, ... Meanwhile, saved costs and service quality are some crucial indicators of added value.

Internal business process perspective: Logistics operations mainly focus on transportation systems, information systems and operations at harbor. With respect to internal processes, there is a need for logistics business to ensure the logistics services be fast and accurate. Information systems and procedures should be established in an appropriate simple way, which is convenient for document-related-work and management information provision. The data of costs being available in accounting system will benefit decision making of administrators.

The order processing systems can provide information on commodity, customers, type of services, sales, number of orders, estimates, ... The quick and accurate information



provision could reduce costs involved in order processing systems and improve the logistics cycle. The opposite will result in increasing costs and unsatisfied customers.

In order to evaluate internal processes, statistical indicators should be calculated including number of false or delayed documents, shortcomings arising during transportation, number of lost or damaged goods,...

Learning and Growth perspective: It is indispensable to conclude that human plays a crucial role in the business success. Hence, they need to apply indicators involved in Training and Development in assessing the achievements attained by responsibility centers as well as in the whole enterprise. The goals include training, staff trained with professional skills; improving discipline; applying modern information technology in logistics procedures.

The applicable indicators can be the ratio of training cost to total cost; the ratio of training cost growth rate to profit growth rate; understanding of customers and products; proportion of repeated violations; corporate welfare; management software, network...

In Vietnam, rewards are taken from corporate welfare fund which is appropriated from business profits. However, in other countries, welfare is a reasonable deductible cost. Welfare inherently is to satisfy employees and increase employee's loyalty.

Moreover, the evaluation based on Training and Development criteria depends on the flexibility of each unit as well as the staff's openness. These are also important to improve the performance of each unit in particular and the whole enterprise in general.

Conclusion

Logistics is a nascent sector in Vietnam with the obvious limitations in the operation capacity of enterprises. In the globally economic integration today, therefore, it is indeed an essential requirement to heighten the intercal force and competitiveness of logistics enterprises. It could be more visible to consider the entire business as a complete machine with each part being a component. In order to achieve more advanced overall performance, all units need to be coordinated in a well balanced way. Responsibility accounting is helpful to assess results and performance gained by the departments in the enterprise. In addition to improving the decentralization in responsibility centers, providing administrators with information to properly assess the financial achievements of each part, this study recommends BS as a tool to evaluate management responsibilities in other aspects such as customer, internal process, training and development. It will in turn help administrators to have comprehensive assessment and set appropriate targets for the development of logistics enterprises.



References:

Anderson, Eugene W., Claes Fornell and Donald R. Lehmann (1994), Customer Satisfaction, Market Share and Profitability: Findings from Sweden, *Journal of Marketing*, Vol. 58, No. 3, pp. 53-64.

**Anthony A Atkinson, Rajiv D.Banker, Robert S.Kaplan & S.Mark Young (2001),
Management Accounting (3rd Edition), Pearson Education**

Christopher, Martin & Lynette Ryals (1999), Supply Chain Strategy: Its Impact on Shareholder Value, *The International Journal of Logistics Management*, Vol. 10, No. 1 (1999), pp. 3-4.

Douglas M. Lambert (2000), Measuring and Selling the Value of Logistics, *The International Journal of Logistics Management*, Vol. 11, No. 1, pp. 12-14.

Duong Thi Cam Dung (2007), *Completing the Responsibility accounting system in international transport company I.T.I*, Economic master thesis, University of Economic Ho Chi Minh City.

James R. Martin (1990), *Management Accounting: Concepts, Techniques & Controversial Issues*, Cambridge publishers, Cambridge.

Jerold L. Zimmerman (2011), *Accounting for Decision Making and Control (7th Edition)*, McGraw-Hill, New York, NY.

Robert S. Kaplan & David P. Norton (1996), Linking the Balanced Scorecard to Strategy, *California Management Review*, Vol. 39, No. 1, p. 55.
