Developing strategic measurement and improvement for the biopharmaceutical firm: Using the BSC hierarchy

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ABSTRACT

The balanced scorecard (BSC) provides an enterprise view of an organization’s overall performance. It integrates financial measures with other key performance indicators around customer perspectives, internal business processes, and organizational growth, learning, and innovation. The strategy planning and execution process is a virtual necessity for business activities, and this paper presents the use of the analytic hierarchy process (AHP) to prioritize all of the measures and strategies in a BSC framework. This study has found related strategies and objectives from four perspectives of balanced scorecard. This case illustrates selection or design of the most appropriate and helpful measures of the BSC in the pharmaceutical firm in an emerging market.

1. Introduction

In the current phase of globalization and market liberalization, competitions among biopharmaceutical firms are growing. When facing threats from global pharmaceutical companies, the local pharmaceutical firms should find out the niche market in order to gain more market share. Accordingly, pharmaceutical firms have been developing their strategic measurements to improve their organizational performance and competitive advantage. Also, the efficient indices can be used to evaluate the impact of improves performance on pharmaceutical firms. A measure of efficiency proves a good indicator of the success or otherwise of a pharmaceutical firm in a competitive market. So far, the pharmaceutical firm must have a clearer vision about the strategies that fit its own environment and optimal management policies, and puts such strategies into effect through vision-oriented projects. This paper uses the AHP model to analyze strategic performance of a pharmaceutical firm in Taiwan, and proposes the use of the analytic hierarchy process to prioritize all of the measures and strategies in a BSC framework. This study has found the related strategies and objectives from four perspectives of balanced scorecard. Consequently, this case illustrates selection or design of the most appropriate and helpful measures of the BSC in the pharmaceutical firm in an emerging market.

The balanced scorecard developed by Kaplan and Norton (1992) suggests a sequence of perspectives that reflects the value-creating activities of the company. The sequence begins with the learning and growth perspective, followed by internal/business process, customer, and financial perspectives. Core outcome measures (performance measures) within each perspective are assumed to be leading indicators of core outcome measures in the next perspective. Within each of the four perspectives of the balanced scorecard, performance drivers (performance measures) exist that are presumed to be leading indicators of core outcome measures (Kaplan & Norton, 1993, 1996a, 1996b, 1996c, 2001a, 2001b, 2001c, 2001d, 2004a, 2004b, 2004c). Since its introduction in the early 1990s, the balanced scorecard has evolved from a performance measurement tool to a strategic management tool. The BSC methodology creates an infrastructure for strategic management activities by introducing four new management processes that, separately and in combination, contribute to linking long-term strategic objectives with short-term actions (Kaplan & Norton, 1996a). By combining the financial, customer, internal process, and learning/growth perspectives, the balanced scorecard helps managers to understand many interrelationships and causal effects. This understanding can help managers to break free from traditional notions about functional barriers and ultimately lead to improved decision making and problem solving.

In recent years, many studies regarding BSC have been published, and several practical implementations have been reported in journals. Following one another, firms now employ new performance measurement systems to track non-financial metrics and related researches by authors such as Barad and Dror (2008), Fernandez, Raja, and Whalley (2006), Banker, Chang, and Pizzini (2004), Said, HassabElnaby, and Wier (2003), Frigo (2002), Banker,
The current balanced scorecard strategic management literature suggests that there should be a strong linkage between strategic plans and performance measures (Kloot & Martin, 2000), and this is confirmed in studies by Kaplan and Norton (1992), Michael (2003), Lipe and Salterio (2002), Nørreklit (2000), and Evert (1998). However, when analyzing these issues and studies, developing strategic criteria and measurement is important for balanced scorecard hierarchy. Measurement and strategic criteria are fundamental and essential to the BSC hierarchy. A key topic is selection or design of the most appropriate and helpful measures for performance improvement. The purpose of this paper is sought to answer the following research questions: What should be the objectives and measures on the learning/growth, internal/business process, customer, and financial perspectives? How can management select or choose the objectives and measures with the balanced scorecard hierarchy? To answer these questions, this paper employs the analytic hierarchy process (AHP) and addresses two critically important topics: setting up objectives in BSC and choosing the measures for those objectives.

The rest of this paper is organized as follows. Section 2 presents a brief review of the BSC theorem and related research. Section 3 describes the analytic hierarchy process (AHP) theorem. Section 4 presents the results of empirical analysis, including decision hierarchy analysis, relative weights analysis, consistency value analysis, and strategic map analysis, followed by a discussion of the management strategies and a construction of a pharmaceutical firm’s strategy map. Finally, some concluding remarks and a summary are given in Section 5.

2. Balanced Scorecard

2.1. Balanced scorecard (BSC) perspective

First devised by Kaplan and Norton in 1992, the balanced scorecard approach consists of four perspectives: learning and growth perspective, internal process perspective, customer perspective, and financial perspective (Kaplan & Norton, 1993, 1996a, 1996b, 1996c, 2001a, 2001b, 2001c, 2001d, 2004a, 2004b, 2004c, 2004d, 2006). BSC is a strategic approach and performance management system which organizations can use for vision and strategy implementation. The BSC model contains four new management processes that, separately or together, help to link long-term strategic objectives with short-term actions (Kaplan & Norton, 1996a). Numerous companies and industries have adopted BSC, which meets several management needs. The BSC model is more than a collection of financial and non-financial measurements, and represents a translation of business unit strategy into a linked set of measures that define both long-term strategic objectives and the mechanisms for achieving/obtaining feedbacks regarding those objectives (Kaplan & Norton, 1996a). Furthermore, Kaplan and Norton (2004a) created a powerful new tool, strategy map, which companies can use to describe the links between intangible assets and value creation with an unprecedented degree of clarity and precision. Strategy map can be used to link processes with desired outcomes; to evaluate, measure, and improve the processes most critical to success, and to target investments in human, informational, and organizational capital (Kaplan & Norton, 2004a, 2004b).

The BSC model identifies four related perspectives on activities that are likely to be critical to most organizations and to all levels within organizations: (a) investing in learning and growth capabilities, (b) improving internal process efficiencies, (c) providing customer value, and (d) increasing financial success (Kaplan & Norton, 1992, 1993, 1996a, 1996b, 1996c, 2001a, 2004b).

a. The learning and growth perspective. Kaplan and Norton (1992) based their BSC model on activities that develop the learning and growth perspective. This perspective captures the ability of employees, information systems, and organizational alignment to manage a business and adapt to change. Process success depends on skilled and motivated employees, as well as accurate and timely information.

b. The internal process perspective. A causal model of BSC assumes that employee capabilities drive internal process improvement. Kaplan and Norton divided firm generic value chain activities into four high level process areas: (1) innovation; (2) customer management; (3) operations; and (4) regulations and environment. Each of these areas can include both major processes and sub-processes. The organizational pie thus can be sliced in various ways (Beiman & Sun, 2003).

c. The customer perspective. The customer perspective also identifies the outcomes associated with delivering differentiated value propositions. These outcomes include market share in specific customer segments, account sharing with targeted customers, acquisition and retention of customers in targeted segments, and customer profitability. Some studies have identified a significant relationship between customer satisfaction and performance, including Banker et al. (2000), Heskett, Jones, Sasser, and Schlesinger (1994), and Ittner and Larcker (1998).

d. The financial perspective. Financial performance measures indicate whether firm strategy, implementation, and execution contribute to bottom-line improvement. The financial perspective includes three measures important to shareholders. Return-on-capital and cash flow reflect short term preference, while forecast reliability indicates the desire of the corporate parent to reduce historical uncertainty associated with unexpected performance variation. Finally, project profitability focuses on the project as the basic unit for planning and control, while sales backlog helps reduce performance uncertainty (Kaplan & Norton, 1993).

2.2. AHP and BSC

Owing to its ability to assist organizations or firms in selecting among alternative missions/visions, selecting among alternative strategies, and allocating resources to implement organizational strategies and objectives, AHP has been successfully applied in numerous BSC studies, including Huang (2009), Kim and Kim (2009), Varma, Wadhwa, and Deshmukh (2008), Chan (2006), Leung, Lam, and Cao (2006), Fletcher and Smith (2004), Reisinger, Cravens, and Tell (2003), Stewart and Mohammed (2001), and Liberatore and Miller (1998). Within the above studies, Huang (2009) proposed an integrated approach for the balanced scorecard tool and knowledge-based system using the analytic hierarchy process (AHP) method, and then develops an intellectual BSC knowledge-based system for strategic planning that sets or selects firm management or operational strategies based on the following perspectives: learning and growth, internal/business process, customer, and financial performance. Kim and Kim (2009) suggested that analytic hierarchy process (AHP) prioritizes the evaluation factors on the CRM scorecard. The CRM scorecard contains antecedent/subsequent and objective/perceptual evaluation factors in different perspectives comprehensively measure corporate CRM capability and readiness. Another example of AHP applications in BSC studies is a study by Varma et al. (2008), which used a combination of analytical hierarchy process (AHP) and balanced scorecard (BSC) for evaluating performance of the petroleum sector.
shown in Table 3. Performance measures of the financial perspective include EPS, EVA, ROE, number of invention patents, number of patents used effectively, and capital adequacy ratio (%). Performance measures of the customer perspective include number of customers, average duration of customer relationship, customer loyalty (%), product returns as a proportion of sales (%), and customer satisfaction (%). Performance measures of the internal process perspective include time, creativity, RD expense/total revenues, R&D productivity, and e-business capability. Finally, performance measures of the learning and growth perspective include employee satisfaction (%), internal promotion, professional license, and training performance.

5. Conclusions

This paper presents a nonparametric AHP method and Delphi method for facilitating performance measurement and strategic management in the pharmaceutical firm. The main findings can be summarized as follows.

The study concludes with implications for theory, research, and practice. Its results provide a logical and reliable way for individual business units to describe and implement their strategies. According to the AHP, assure sustainable shareholder value, intellectual property, maintain the asset quality, and customer relationship management are the prioritizing strategies for strategy execution. The AHP can help managers to more effectively execute strategic plans for improved business results. It is suitable for substantial start-ups, established business and strategic business units.

It is recommended that the approach outlined in this study be replicated in other industries and companies. Future research works will focus on validating the proposed BSC model and associated strategic objectives and performance measures, as well as on implementing the BSC to the other pharmaceutical firms to test the effectiveness of this BSC strategic management approach.

References