寄稿論文

Strategic Management Accounting and Feed-forward Management: with Reference to the Unified Management of Profit Opportunity and Risk

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Abstract

This paper aims to reexamine strategic management accounting[1] in relation to profit opportunity and risk from the viewpoint of feed-forward management[2], as few studies to date have discussed the relations between management accounting and the unified management of profit opportunity and risk. Many studies have been conducted that emphasize non-financial information and feedback organizational management in an attempt to make traditional management accounting relevant to practical strategic needs. As long as strategies are future-oriented and implemented under strong uncertainty and in complex business environments, the information and control methods used must also be preventive and proactive. For this purpose, this paper first examines the value of information and the effects of feed-forward information on strategic organizational management, after the meaning and role of non-financial information and feedback control in strategic management are thoroughly reexamined. Second, with reference to the above point, the paper examines management accounting in the unified management of profit opportunity and risk from a feed-forward perspective. Lastly, this paper highlights the relations between global innovation and proactive variance analysis and notices the further direction of management accounting toward more proactive and preventive planning (decision making) and control (performance evaluation).

Keywords: *non-financial information, feed-forward management, profit opportunity and risk, comprehensive risk management, strategic innovation*.

[1] Relationships between strategic management and management accounting were already examined in the previous paper (Nishimura, 2005). However, the aspects of feed-forward management could not be deeply discussed there. This paper reexamines contemporary management accounting from the synthesized viewpoint of feed-forward management.

[2] The concept of feed-forward management is used as a system in which an enterprise proactively and preventively plans for and controls business activities based on future-oriented information, or plans a project and arrange the concrete measures to actualize it, before setting out the project.

1 Introduction

Strategy planning plays an increasingly important role in business management, with managers seeking to gain competitive advantage over rivals in strongly uncertain environments. Although management accounting has contributed to strategic management through providing decision makers with financial data, traditional management accounting methods based on financial information (budgetary control and standard costing) are been judged from the1980s to the1990s by some accounting researchers to be inadequate for today's strategic needs under fierce market competition and a rapid pace of technological change. For the contemporary strategic management, management accounting must certainly provide the management with more useful information closely related to economic activities and organizational mission, or more proactive data. Many who have advocated strategic cost management or management accounting have searched for ways to satisfactorily incorporate non-financial information into internal reporting processes and to keep an appropriate balance between financial and non-financial perspectives. However, could this focus on non-financial information essentially change the substance of management accounting and strengthen its strategic character? This paper inquiries into the implication of information and control in contemporary management accounting, and reexamines the strategic space-time expansion of information and control from the viewpoint of current strategic management practices. For this purpose, the relations of profit opportunity and risk to strategic management are clarified and the unified management of profit opportunity and risk is addressed in connection to comprehensive risk management as their integrated concept to understand the contemporary characteristics of management accounting. Last, this paper further explores the framework of strategic management accounting with reference to the multiple-loop feed-forward management.

2 Strategic cost management and accounting information

2.1 Strategic management and non-financial information

Many scholars of strategic management accounting have described strategies and tactics for achieving competitive advantage in markets. This focus seems to be based on Porter (1985) who considers the value chain as a core category and discusses strategic competitive advantage from the perspectives of cost leadership, the differentiation of business, and its uniqueness. Performing activities generates costs, but cost advantage arises from one business performing particular activities more efficiently than its competitors (Porter, 1998). For Porter, differentiation arises from both the choice of activities and their performance. In this sense, activities are the basic units of competitive advantage and an overall advantage or disadvantage results from a company's total activities, not from just a few activities. In connection to these activities, Porter centers his attention on their non-financial aspects rather than the role of financial reports in the development of strategic management. Moreover, Shank and Govindarajan (1993) and Kaplan et al. (1996; 1998) have related strategic cost management to Porter's concept of competitive advantage. In particular, Shank and Govindarajan developed Porter's idea of competitive advantage from the perspectives of the value chain, cost drivers, and strategic location analyses. They assert that cost data is used to develop superior strategies en route to gaining substantial competitive advantage, and that financial measures only reflect the results of past decisions, not the actionable, future-oriented steps needed to survive in a competitive environment. Shank and Govindaraja (1993) thereupon state the following:

> "[…] *we see the rise of non-financial measures as an attempt to reassert the primacy of being operations driven. Non-financial measures try to capture progress on the actionable steps that lead to company success, because first, the non-financial measures were more di-*

rectly traceable to the strategy (key success factors) of firms. [---] *Management felt that progress on these measures directly affected the success of firm strategy*." (pp. 138－9)

They try to shift from traditional financial information to the non－financial information reflected in the accounting data and to relate it more closely to strategic management. They do not separate the former from the latter, since financial information is a critical component for clarifying the practical relations between strategy and actual objective information gained through accounting. For example, as represented in activity－based costing (ABC), cost cannot be disregarded and plays a more important role in strategic profitability management in combination with activity information and cost drivers.

Many advocates who have focused their attention on non－financial information and strategic cost management have surely contributed to the reform and improvement of traditional management accounting by providing a realistic recognition of strategy and the practical research methods such as case studies and empirical research. However, the problem is how much their theories can contribute to the development of strategic management accounting. Let us move next to look at the value of information and organizational structure in relation to strategic management.

2.2 Strategic aspect of non－financial information

In recent years, new types of non－financial information in management accounting have emerged. Scholars have studied cost design (function), quality costing, ABC (activity), product life cycle costing, value chain costing, and benchmarking from a strategic viewpoint (Drury, 2001). These non－financial approaches differ from the traditional thought since cost considerations shift from a close focus on the financial effects of production and cost relationships with suppliers and customers to an increased emphasis on understanding physical and economic activities as a basic attribute of cost (e.g., cost drivers, product life cycle, value analysis, value engineering, organizational mobility, consumer satisfaction, supply chain, and education and training systems). In particular, ABC and the Balanced Scorecard (BSC) show the strategic expansion toward enterprise value (profitability) and organizational mission (target). Nevertheless, although the new school of thought views traditional management accounting as playing a declining role in strategic management, it remains to be seen to what extent this belief is true and what function traditional information will continue to serve in strategic management accounting

Kobayashi (1993), who has studied the development of strategic cost management in Japan from the beginning, points out that surprisingly few empirical studies have been reported that show to what extent costing and management accounting systems assist managers in making strategic decisions. It appears that little further progress has been achieved since Kobayashi's study. Drury points out that "in particular, strategic management accounting has been identified as a forward way. However, there is still no comprehensive framework as to what constitutes strategic management accounting" (p. 485). This point is very important when examining the present state of management accounting practices and when questioning what meaning the shift from financial information to the non－financial imformation has for strategic management (Nishimura, 2005 ; 2008).

It is not yet clear if "strategic management accounting" in any true sense of the term is actually being practiced by businesses. For example, a survey by Guilding et al. (2000) of business in the United States, United Kingdom, and New Zealand found that although strategic uses of accounting (e.g., monitoring locations, evaluating the performance of competitors based on published financial statements, and conducting cost evaluation of competitors) are evident, other strategic uses of costing (e.g., quality costing, value chain costing, product life cycle costing, and attribute－costing) are less commonly shown. Thus, they concluded their analysis by stating:

"*Shank and Govindarajian (1988) have sug-*

gested that strategic accounting will supplant managerial accounting as a framework for decision-making. With the exception of strategic pricing and some aspects of competitor accounting, the evidence uncovered in this study falls well short of providing vindication for Shank and Govindarajan's prophesy." (p. 129)

We must recognize the whole framework of contemporary management accounting and its relations to strategic management to clarify the central conception of strategic management accounting: its significance and characteristics.

2.3 A controversial point

Neither traditional accounting nor financial information can *directly* reflect the true situation of business organizational activities, since they both have the special attributes of calculating stock and flow situations of business value or profit by using particular accounting methods and concepts. In this sense, we can understand that advocates of strategic management accounting prefer non-financial information to financial information for strategic planning and control, because non-financial information *directly* reflects the actual and objective situation of business organization. However, as Drury (2001) and Guilding et al. (2000) suggest, the key question is why strategic cost accounting or a hybrid accounting of physical and financial information cannot assume a greater role in strategic management accounting. The point of this discussion is not to judge whether financial or non-financial information is more useful or to think of ways to integrate both types of information, but to assess the value of each type of information for management needs. Therefore, points of controversy remain as to whether traditional management accounting can be transformed into strategic management accounting by adding supplementary non-financial information to accounting systems and how non-financial information can change the fundamental framework of traditional management accounting into a future-oriented and forward-looking one.

As long as strategy must be forward-looking and future-oriented, information for strategic management must also do the same. Even if the focus shifts from financial information to non-financial information, the fact remains that the information is feedback; The fact that not only financial information but also non-financial information here is feedback, not feed-forward, is crucial for us to consider. If we take the feed-forward standpoint and reexamine information from the perspectives of profit opportunity[3] and risk (Nishimura,2011 ; 2012), we can open a new way in strategic management, when we consider them in combination with accounting profit concept. Of course, these new methods would be most beneficial if we can recognize and use physical and organizational activities as well as accounting information from a feed-forward viewpoint. At present, because uncertainty and diversity are strongly present in business environments, strategic management also cannot continue to rely only on present and past information, but must look ahead and think more toward the future.

3 Roles of information and organizational efforts

Another important aspect in strategic management is the effect of organizational structure and its constituent members on strategic management, although having the relevant information for strategic management can surely stimulate organizational efforts to implement a business vision. Even if an organization has useful information for strategic management, it cannot be put to optimal use if the organization and its constituents are too inactive and timid to cope with the strong uncertainty and fluctuation of the contemporary business environment. For this reason, researchers have focused their attention on the relations between strategy management, information, and organizational efforts. Thus, the literature has discussed the penetration of strategic goals into organizations, which can

[3] Here profit opportunity is used as an opportunity with certain objective and subjective probability that is transformed in accounting profit in the near future (Nishimura, 2011) and in the double-faced relation to risk.

result from a combination of top–down decision making and bottom–up learning, organizational vitality, and the integration of financial measurers and the non–financial measurers.

3.1 Balanced Scorecard approach and organizational mobility for strategy

Kaplan's works are representative of those who advocate strategic management accounting. His researches, including ABC and BSC approach, are noteworthy in the accounting literature in that they relate traditional management accounting to strategic management. Kaplan and Norton (1996) systematically analyze the activities that generate costs and emphasize the balancing of external and internal measures from the viewpoint of business strategy. They recommend the "change of strategy into action" where strategy is formed by the whole organization and made to permeate its entirety. They argue that, in the BSC, financial and non–financial measures must be part of the information system for employees at all levels of the organization. Not only must the front–line employees understand the financial consequences of their decisions and actions, but senior executives must also understand the drivers of long–term financial success, or non–financial information:

> "*The objectives and the measures for the Balance Scorecard are more than just a somewhat ad hoc collection of financial and non-financial performance measurers. [---] The Balanced Scorecard should translate a business unit's mission and strategy into tangible objectives and measures.*" (Kaplan and Norton, 1996, pp. 9–10)

Kaplan and Norton (1996) deem a vision or strategy to be a core component of company management. A business strategic system containing financial and non–financial information that accounts for customers, business internal processes, learning and growth, and financial goals is necessary to change business strategy into action in every section of the organization. As a result, accounting information is situated in the relative, not absolute, place of management accounting in relation to non–financial information. Such novel methods as ABC and BSC have certainly contributed to making management accounting relevant to practical organizational needs.

BSC is a balance between the external and internal measures which derive from an organization's strategy and vision. This balance of measures can be impossible without incorporating financial and non–financial information into the practices of constituent members throughout an organization. As a result, BSC provides a practical foundation for developing strategy based on business environmental measures (customer and shareholder information) and internal business activities (learning and growth, and internal business processes). Simultaneously, the approach not only provides balance in the present, but also the ability to balance future–oriented information involving durable growth that adjusts with change, or opportunities and threats. In order to actualize the balance of external and internal information, a single loop feedback process, or the linear process of establishing a vision and strategy which is implemented by traditional top down command–and–control model, must shift to a double–loop learning process in which the strategy is revised to confront changes. BSC is a future–oriented system that uses a double–loop learning (feedback) process to reactively grapple with the continual changes of environmental and internal factors (Kaplan and Norton, 1996, pp. 16–17).

3.2 Controversial points

In the strong uncertainty and increasing diversity of the current global economy, we should once more reexamine the framework of BSC from the feed–forward, not feedback, viewpoint. First, regarding the new appreciation of non–financial information, BSC incorporates this information, as well as financial information, into each constituent part of an organization to urge attention to company financial targets by both lower and mid–level employees during front–line activities and supervision. Thus, all activities throughout the organization related to scorecard measures can be ultimately linked with financial perform-

ance. This is in striking contrast to the traditional model in which the financial information of senior managers is completely separate from the physical and non-financial information of the lower and mid-level employees at local sites. In contrast, a new concept of cost in the case of ABC is created as a result of integrating financial information with non-financial information. This concept not only represents economic resources spent on manufactured goods, but also reflects and measures physical information and activities related to each product, which can facilitate the profitability management of products: distinguishing value-creative activity from the non-value added. BSC spreads the use of non-financial information to the whole organization, while ABC creates a new model of costing by incorporating non-financial information into traditional costing. The issue that we must consider next is that neither of the two approaches is based on feed-forward thought.

Second, Kaplan and Norton (1996) advocate a double-loop feedback and learning process, in which the four actions of "clarifying and translating the vision and strategy, communicating and linking, planning and target setting, and strategic feedback and learning" are circulated (p. 11), in order to achieve a balance between strategies and other management factors or measures. They emphasize that a comparison of desired performance goals with current levels identifies the existence of any performance gap, and hold that strategic initiatives can be designed to close the gap. Thus, according to them, "the Balanced Scorecard not only measures change; it fosters change" (p. 16). This change results from the learning and communication that occurs in the double-loop feedback process. In such cases, organizational consensus plays an important role in this double-loop feedback process. This feedback process is a necessary component for any strategy to spread into all the levels of a business organization and enhance their mutual understanding, if the strategy is to engender a consistent, high degree of motivation and morale among personnel and thus increase the probability that the organization becomes or remains efficient, profitable and adaptable in a rapidly changing environment.

There remains an important concern: For management in the information and global innovation age, has the extension of traditional management accounting to non-financial information and double-loop feedback or learning processes become an effective tool? According to them, low-level feedback management first begins with cost controls, budgetary controls and market forecasting, and is a reflective and reactive process that is repeated through learning. However, more important is high-level feedback management that closely relates to strategic goals or vision. Feedback systems are interconnected with one another from low to high levels. Such a loop makes organizational energy vital through the sharing of financial and non-financial information. In contrast to the single-loop feedback, which may be adequate in stable economic environments, the double-loop feedback process speculates on the information that managers need to receive about increasingly complicated strategies in continually changing environments. Kaplan and Cooper (1998) suggest that cost management and performance evaluation can function adequately in a feed-forward system if they are integrated with an organizational reporting system and are prominently built into the structure of the management process. However, the application of feed-forward system is still in controversy.

Third, Kaplan and Norton (1996) also argue that business enterprises should balance expected returns management against risk management, although they are not specific on exactly how to achieve the required balance. Because this point is also related to the feed-forward aspect of strategic management accounting systems, it is important to examine the structure of multiple-loop feed-forward processes and the integrated management of profit opportunity and risk. Thus, the question now arises: What relationship does profit opportunity or risk management have with strategic management? Are ABC and BSC useful enough for controlling the serious uncertainty? At the same time, we should meditate on what IFAC (2004) points out as follows:

"*We also concluded that the balanced scorecard, which is a respected performance management tool, could not be used to fill the strategic oversight gap. Although it is invaluable in helping business to translate agreed strategy into action and /or to bring non-financial key performance indicators into better focus, it is less successful in addressing the ambiguous, uncertain, complex decisions required to formulate the strategy at times of transformational change*." (p. 6)

We have discussed the meaning of information and the strategic energy or efforts of organizations in regards to implementing strategic management accounting and have pointed out some key points of dispute in contemporary management accounting. The paper will look more carefully into multiple-loop feed-forward management from the angle of profit opportunity and risk management in Section 5 (see also Fig. 3).

There is one further point that we must not ignore. Regarding the relationships between organization and profit opportunity or risk management, we should more deeply look at the meanings of organization. The relationship between the organization and individuals is very complicated. Any organization is itself a form of authority and has the power of silence. Some persons can use the organization to restrict other members' benefits and further their own interests, while others strive to make the most of organizational opportunities to enhance both organizational and individual benefits at the same time. Therefore, only as long as "opportunity space" (Simons, 1995) is made to be a human space with organizational and individual opportunities, it can promote promising and durable growth. Arrogance and sycophancy are not traits confined only to individuals, but can also be negative characteristics of the organization, which weakens overall organizational energy and vitality: 'risk space'. Any organization in which arrogance and sycophancy are prevalent will break down eventually, whether sooner or later (Nishimura, 2011 ; Collins, 2009 ; Ingrassia, 2010). In this sense, the common recognition of profit opportunity and risk among members of an organization and their vital and human relations within the organization where they can measure themselves with "opportunity space" are important factors in strategic management. Considered from this viewpoint, until recently management accounting has been challenged by some gaps between information value and organizational needs (strategic control under uncertainty).

4 Opportunity space or risk thought and strategic management

4.1 Opportunity or risk management and new gaps

It is plain from the discussion above that both the BSC and ABC approaches are essentially based on feedback thought. In contrast, Simons (1995) advocates "four levers of control" from the viewpoint of "opportunity space" in order to spur the strategic energy of organizations. Because strategy is future-oriented and forward-looking, opportunity space is where organizational power and attention must connect with the future direction of the organization in order to create business value. Simons refers to the combination of organizational power, attention, and direction as "return-on-management" (ROM). His "four levers of control" is based on feed-forward and proactive and preventive standpoint. This standpoint not only focuses on the future-oriented aspect of strategy, but also considers the "space" in which organizational opportunity is joined with individual opportunity. Within the opportunity space, the "four levers of control" can fulfill their strategic function throughout the whole organization.

According to him, an organization and its members use their attention to define the boundary of unlimited opportunity space: its subset or specific domain. Their attention to ideas triggers problems for whose solution innovation is created and developed. Opportunity-seeking is also limited by defined business risk as a boundary system. This balanced activities between core value (opportunity space) and boundary system (risks to be avoided) leads to maximizing ROM.

In contrast to such focus on opportunity space, Smith and Merritt (2002) focus on risk management as a fundamental concept of project management and use it to effectively control uncertainty. They grasp risk in the dual sense of 'a potential for loss' and 'an opportunity for gain' and emphasize the loss aspect to 'eliminate the surprises that go with such losses' (p. 182). Positively, the comparison of net expected loss among projects is also useful for better decision making. Therefore, they also consider risk an essential characteristic of product innovation (p. 4),

Simons as well as Smith and Merritt emphasizes the proactive concept of opportunity or risk, not planned profit and loss based on experience, to plan and carry out a strategy under uncertainty, differently from Johnson and Kaplan (1987). This situation forces management accounting into recognizing a gap between its traditional feedback system and the new feed–forward that weaves opportunity or risk into accounting planning and evaluation system.

As discussed above, at the start, risk management did not take a synthesized and comprehensive form in which risk management was carried in harmony with profit opportunity management by using probability thought, because risk was also understood and managed disconnectedly with opportunity. This piece–meal and specialized approach to risk was caused under the situation where for strategic decision making, enterprises were first compelled to cope with uncertainty by means of risk management. As the gap increases between traditional management accounting and the strategic opportunity or risk management, management accounting also inclines toward feed–forward and began to be reconstructed in the framework of risk management.

However, in the financial crisis of 2008–9, such piece–meal risk management has been criticized on the grounds that it depended too upon quantitative and unpractical measurement to operate well for the control of global uncertainty and the corporate governance that tried to cure managers of unjust and unlawful activities in larger companies (Richardson, 2010; Mikes, 2011). Company–centered viewpoint begins to shift to the holistic and social one, where risk is simultaneously managed with profit opportunity to proactively and synthetically control uncertainty through comprehensive risk management and enhance corporate governance through the transparency and controllability of risk management. As a result, the more comprehensive and trustworthy risk management has been advocated, in which risk management is incorporated in corporate governance and internal control and keeps step with profit opportunity management to simultaneously control uncertainty and strategically create enterprise value (COSO, 2004; Power, 2007). The

Table 1 Profit opportunity and risk in the innovations

Innovation	Exploitation of profit opportunity	Minimization of risk
Internal innovation (e.g., Toyota system)	By developing the specific production and management methods: JIT, cost design, Kaizen, cooperation through visible management, and the integration of high quality and low cost	Through no–inventory system, pull method and make–to–order method Problem: sluggish response to changing market demand
External innovation (e.g., agile supply chain)	By building market–oriented supply chain: flexible and speedy response to changing market demand, and standardization of parts	Dispersion of risks among suppliers, saving facility through standardization and normalization, and sharing target and information among them Problem: balance of optimization between the whole and the parts
Global innovation (e.g., social innovation	By opening innovation to society, or free participation of citizens and other firms in innovation and connecting innovation with charitable and environmental undertakings	Invisible individuals and firms bearing a company's risk Problem: lay the risks the company on individuals and society

Source: Nishimura, 2012

comprehensive risk management connected to profit opportunity management has taken an important part in corporate governance, strategic innovation, and organizational management. At the same time, the strategic innovation has also made managers and researchers formulate the concept of profit opportunity or risk and shift the risk management movement to the comprehensive risk management.

As for profit opportunity or risk, three innovations are specially noteworthy in the recent development of global economy: internal innovation such as Toyota production system, external innovation such as agile supply chain, and global innovation. As shown in Table1, each innovation essentially aims to find and exploit large profit opportunity. However, it cannot also avoid risks because of close connection with this profit opportunity. The development process of the three innovation types also represent the extension of risk management from the piece−meal standpoint disjoined with profit opportunity to the holistic and comprehensive one.

It follows from what has been said that there are three gaps between information and organizational needs (managerial directions), as indicated in Fig. 1. The first gap is "relevance lost," which Kaplan and Johnson (1987) proposed in terms of informational irrelevance to organizational needs and for whose regain ABC and BSC were addressed by many case studies. The second gap is the disconnection between feedback information and the proactive and preventive opportunity or risk recognition to mitigate uncertainty as effectively as possible or to maxmize profit opportunity. The third gap is between existing management accounting and the corporate governance (social responsibility) that unites with the comprehensive risk management. All enterprises should exert themselves to establish accounting measurement and evaluation models which not only clarify profit opportunity and risk and enhance the strategic energy and vitality of organizations, but also make senior managers strongly conscious about social responsibility of environment, safety, and stability in an era of global innovation and the unstable financial world (see Nishimura, 2011 ; 2012).

In relation to corporate governance and internal control, contemporary management accounting takes an integrated form of holistic risk management and social responsibility, which is called enterprise risk management, or the comprehensive risk management. This paper inquiries more closely into the role of management accounting in the unified management of profit opportunity and risk rather than the comprehensive risk management, be-

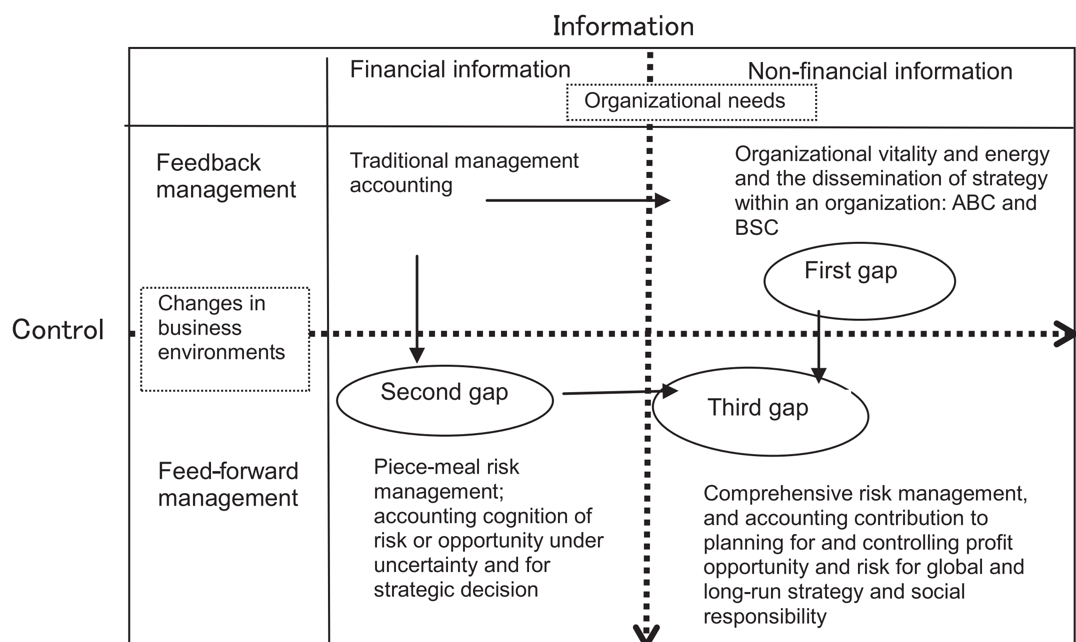

Fig. 1 Gaps between management accounting and environment or organization

cause the above unified management is more general in every firms and a fundamental structure which lies at the root of the comprehensive management. This inquiry may be useful for clarifying a holistic meaning of the comprehensive risk management. Next, we shall focus our attention on feed-forward management accounting in the unified management.

4.2 Comprehensive risk management and feed-forward management accounting

When considering business strategy, managers must compete with rivals in the development and creation of new product models and technology. Enterprises that fail to compete are forced out of markets. However, while the profit opportunity from innovation may be enormous, the risks and potential losses are large as well. In the current economy, the globalization of businesses that seek increased profit opportunity enhances risks, particularly country risk (e.g., overseas riots, labor disputes, and sudden changes in regulations), since business expands to subcontracting systems, supply chain, and overseas factories. Therefore, existing information systems in management accounting are also inadequate to deal with the need for the reliable forecasts of profit opportunities and risks that are produced through global research and development activity and growing business. Managers will be required to adopt new philosophies and use more dynamic management styles than at present, and must pay attention not only to profit opportunities that are produced by good strategies, but also the risks that accompany them. As Borge (2001) puts it:

> "[---] *the world is getting more competitive, interconnected, and complex. Events seem more unpredictable and are moving with greater speed and force. Many of the old safety nets enjoyed by organizations and individuals are badly frayed or gone altogether. The level and nature of risks in the world are constantly changing. Those without access to good risk management are in greater danger than before*." (p. 225)

Risk is a particular probability of a phenomenon occurring that is contrary to one's wishes, or in other words, the expected loss in business. This expected loss or the level of risk is calculated by multiplying the probability of the risk event and the probability of impact (risk likelihood) by the total amount of the loss at the occurrence of the risk (Smith and Merritt, 2002). Therefore, risk management must gather feed-forward information and execute proactive and preventive management to minimize the expected loss. Risk management not only makes use of superior computer hardware but also organizational software that sensitively perceives the up- and downstream risks of an organization. At present, it is more important to transform risks into profit opportunity than simply to avoid them. As a result, risk management combines with profit opportunity management. Profit opportunity management directly and positively binds strategic innovation together with risk management. Thus, the contemporary strategic management, in which profit opportunity management is combined as one body with the risk one, has a more positive meaning than minimizing opportunity cost and risk probability, or its object is to maximize net profit opportunity for business value creation (see Fig. 2 and Fig. 3). Therefore, management accounting needs to develop methods to measure and control opportunity cost and expected risk.

Risk management is closely related to profit opportunity management (Nishimura, 2011) in either case of the unified or the comprehensive management and these profit opportunity and risk management systems exist both in front of and behind strategic management in the process of business value creation (IFAC, 2004). At present, enterprises should pay more attention to feed-forward information and management in formatting their strategy rather than looking to the past. In particular, "opportunity space" should ultimately result in the creation of "profit opportunity space" in business enterprises that not only provides organizational and individual benefits, but also has a high confidence of probability in terms of risks. Consequently,

managers can compare profit opportunities with risks and estimate net profit opportunity. Thus, businesses should also strive to discover and exploit net profit opportunity (by deducting risks from profit opportunities) and devote their attention and evaluation to the "net profit opportunity space."

To date, however, most management accounting theories have focused on either accounting profit (return) or risk for strategic decision–making. Contemporary management accounting should deeply pursue future–oriented or feed–forward information and integrate all the information on both profit opportunities and risks, although indeed it is difficult to envision an integrated system for measuring risk and profit opportunity as a probability simultaneously, since the level of risk and profit opportunity is normally too wide and vague to be grasped easily by basic feedback control. As Culp (2001) stated, in the past, managers could run stable and profitable businesses when confronted by risks, since they could allocate the requisite resources, and exert sufficient control, either to avoid or minimize the risks. Now, as risks are entangled with strategies under the striking change and growing complexity of business environment, they cannot be controlled without the holistic and comprehensive management systems: for example, Strategic Scorecard that is aligned with risk management (IFAC, 2004). Only managers who better understand the tangled relationship between risks and profit opportunities may expect to gain a competitive advantage. Thus, an integrated system of controlling profit opportunities and risks assumes more importance under the present unstable and uncertain conditions and is an essential part of what should be termed "strategic management accounting".

As shown in Fig. 2, risk management and profit opportunity management exist in both sides of the contemporary strategic management for business value creation. In order to turn the risks associated with credit, interest rates, currency, commodities, stocks, operations, and asset liquidity into profit opportunities, managers must quantitatively measure and rank their risks under uncertainty. Both business and financial risks are important, and Borge (2001) states:

> "*At a strategic level, we know that a firm is a complex of business and financial risks. The results from this aggregate portfolio determine the success or failure of the company. The top management of the firm, especially the CEO, can view and manage this portfolio as a whole, trading off one risk against another, reducing risks that are peripheral to the company's long–term strategy, or adding risks (and opportunities) that are central to that strategy. Strategic risk management can help a business achieve its primary business goals without endangering its financial stability*." (p. 230)

Regarding profit management, accountants have long recognized opportunity cost as a benchmark measurement (Samuels, 1965; Demski, 1967; 1968; 1969). According to

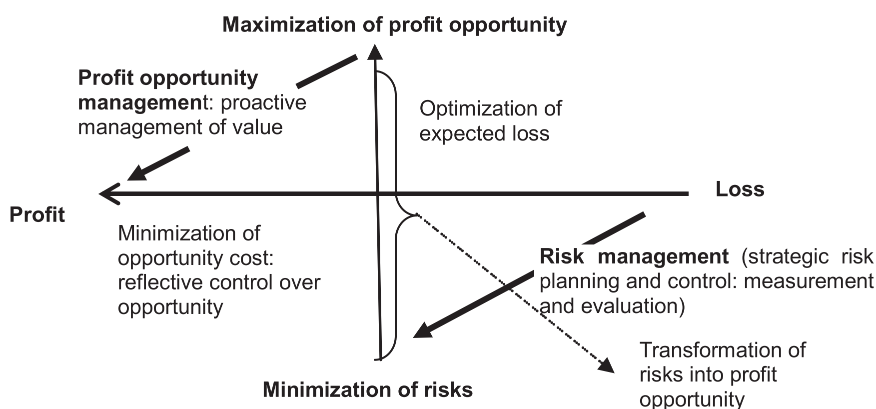

Fig. 2 The Structure of the unified management of profit opportunity and risk (See Nishimura, 2007, p. 83)

Demsk's model (*ex post* system), forecast profit variance is measured by a comparison of *ex ante* (forecast profit) and *ex post* profits (the optimal profit in the current situation), and as a result, the planning ability of a manager can be evaluated. These concepts can be expressed in the following equations:

Ex ante profit−*ex post* profit = forecast variance
Ex post profit−actual profit = opportunity cost

Managers have incentives to precisely forecast profits in future periods through variance analysis between *ex ante* profit and *ex post* profit. Next, organizations attempt to use opportunity cost variance information by comparing *ex post* profit with the observed profits and to generate business value through efficient activities and a high degree of capacity utilization in the next period. As a result of such analyses, they can also foresee the nature of risks and subsequently adopt methods to mitigate them. Currently, such a model as this is usually considered to be mainly of theoretical interest, although many managers probably already informally control opportunity in this manner, even though the analyses may not be conducted in a systematic way.

The *ex post* system described above relies on feedback control, as does the BSC approach. The variances of opportunity cost are recognized after the event. Furthermore, the *ex post* system advocates a single loop feedback that contrasts with the double−loop feedback of BSC. In order to develop proactive profit opportunity and risk management as part of a systematic approach to strategic management accounting, it is necessary to adopt a "multiple loop system of feed−forward control". Risk must be proactively and preventively controlled before the event. In the words of Borge (2001), "The purpose of risk management is to improve the future, not to explain the past" (p. 6). For instance, quality costing searches for the optimum point where the total costs of prevention, appraisal and failure are a minimum, or alternately, where the cost of conformance of prevention and appraisal, or the cost to preventively and proactively conform the quality of a product to the standard of specification, equal the cost of non−conformance of internal and external failure. If costing systems of this type are used for making quality improvement decisions, the optimum point will be recognized only after products are in the market. The present object is not to pursue optimum after the fact, but to control risk and profit opportunity beforehand. Multiple−loop feed−forward controls in strategic management accounting systems are necessary for this purpose. Such elements in an accounting system are suggested by the approach of '*proactively manufacturing cost and quality*' in Japanese *Genka Kikaku* (cost design) (Nishimura, 1996; 2001; 2003; Tanaka 1995), which embodies feed−forward control and are very important for proactive and preventive project management. The multiple−loop model of feed−forward accounting control is shown in Fig. 3.

5 Moving towards feed−forward management accounting in the unified management of profit opportunity and risk

The application of feed−forward information to management accounting has been discussed elsewhere (Nishimura, 2003; 2011). This paper therefore focuses on the multiple−loop feed−forward information on target profit and costs, as embodied in a strategic viewpoint.

The cost design which Japanese enterprises created in the 1970s made it possible to develop feed−forward control thought in accounting. As shown in Fig. 3, which extends this framework, this feed−forward approach is not designed to reactively reflect on profit and loss after they occur, but to accumulate long− and short−run information on the business environment and to synthesize this information when possible. Information gathered in such a way is connected to multi−dimensional, planned values (expected and strategic profits, target and estimated costs, or profit opportunity and risk) that reflect long−term strategic and short−range competitive plans, and business can proactively adopt the most suitable methods to realize practical target values.

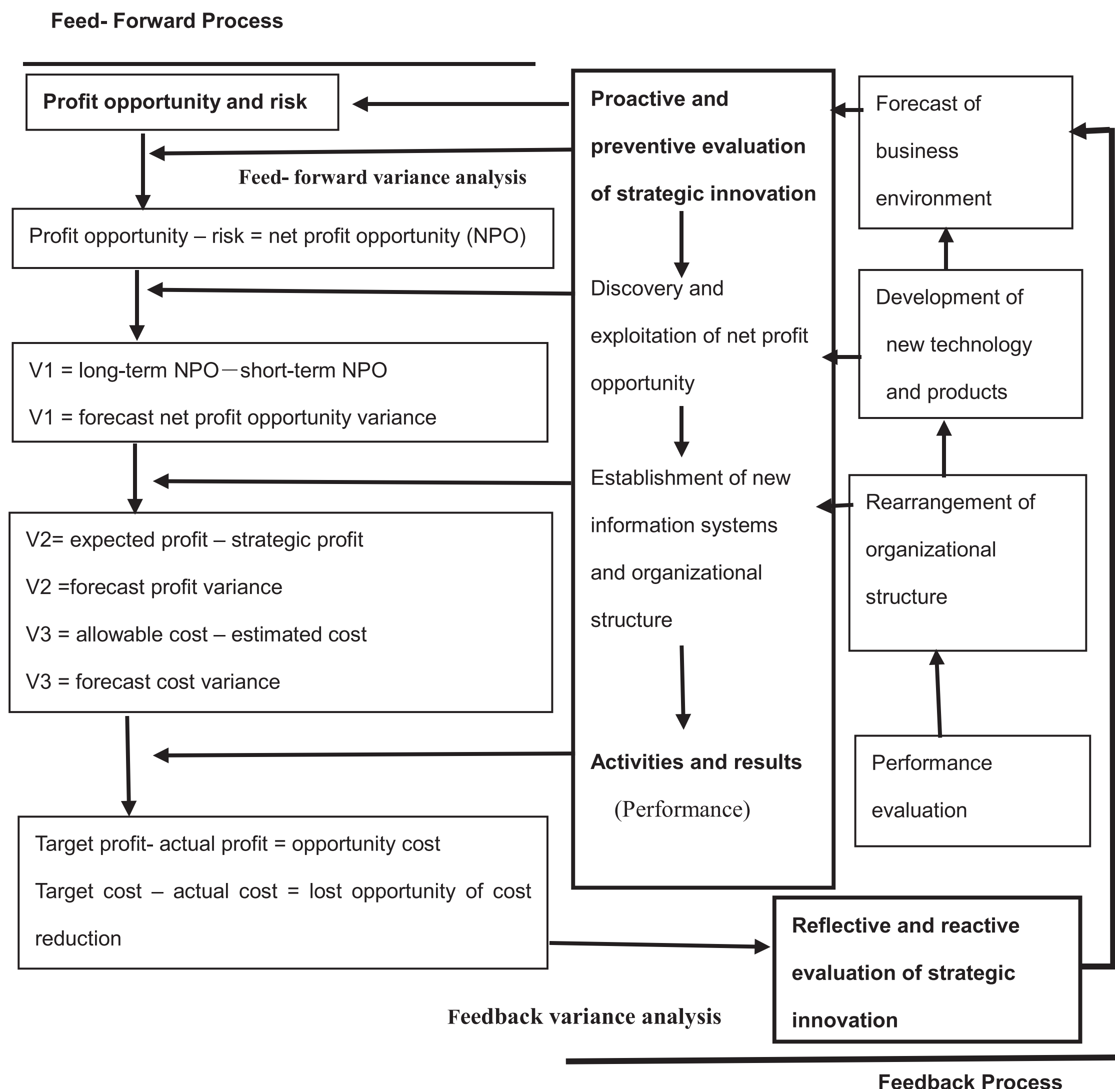

Fig. 3 Strategic management and management accounting process

1 Long−term NPO is forecasted through examining profit opportunity and risk under long−term strategy; 2 Short−term NPO is forecasted through examining profit opportunity and risk under short−term strategy; 3 Expected profit is estimated on the basis of long−term NPO and sustainable growth expectation in the light of past results; 4 Strategic profit is estimated under the condition of present competitive strategy; 5 Allowable cost is calculated in relation to expected profit; 6 Estimated cost is calculated in the relation to strategic profit; 7 Target profit is planned through considering strategic profit and forecast profit variance in the light of past results; 8 target cost is calculated in relation to target profit

Source: see Nishimura, 2012, p. 88.

Senior managers can thus compare an expected profit on the basis of long−run strategy with strateic profit based on actual competition, through proactive variance analysis, and adopt proactive and preventive methods to better ensure that a satisfactory profit is realized. At the net profit opportunity forecasting stage, complementarily, to effectively control risk in detail, they could also compare long−term risk avoidance with short−term risk avoidance at the same time as the comparison between long−term profit opportunity and short−term profit opportunity. In this way, proactively variance analysis and evaluation methods can be used to mitigate risk and enhance profit opportunity. Additionally, attention should be paid to the fact that all the variances in this model are measured in relation to profit opportunity and risk and that the model also evaluates and controls activities and resources to proactively improve net profit opportunity.

The system of feed−forward control brings profit opportunity and risk management to-

gether. Profit opportunity and risks are assessed and recognized in relation to information on the business environment and organizational structure. Effective and efficient methods are implemented in regards to comparisons of multi−dimensional planned values, and all activities are controlled and evaluated by using practical targets.

After the target and strategic profits are determined, this approach then considers cost design and cost improvement issues. All firm personnel are then directed to achieving target costs in each division and department. Standard costing also fulfills its function in connection with profit opportunity and risk avoidance. As feed−forward management is implemented, the whole system becomes multi−looped. As a result, a cooperative, voluntary type of organizational culture is encouraged in human resources management by using the feed−forward approach. The formation of strategy and the recognition of profit opportunity and risk at every level of the organization help to reduce the possibility of management over−confidence and reliance on habit, although a vibrant atmosphere within the organization based on mutual reliance and shared benefit must be established for this to occur. Present management accounting practices are only distantly connected to these strategic developments. The realization of a strategic management accounting system will become more of a reality when profits opportunity and risk avoidance are connected using the multiple−loop feed forward accounting control system described above. Variance analysis must be proactively and preventively implemented at the level of profit opportunity and risk management, not just cost management, and also occur in relation to assessment and evaluation of the innovation process（see Nishimura, 2011）.

6 Conclusion

Although the idea of feed−forward control has long been discussed in the fields of business management and management accounting, it has not yet taken a definite form in accounting systems generally. The traditional management accounting systems have recently begun incorporating this idea into profit opportunity or risk idea through the cost design and cost improvement techniques established by Japanese enterprises and partly thorough the ABC and BSC approaches developed by innovators in strategic management accounting. The possibility of applying feed−forward information extends not only to cost management, but also to profit opportunity and risk management.

This paper has reexamined the value of information and organizational efforts, based on the existing literature on strategic management, and addressed feed−forward management in regards to cost design in Japanese auto companies. Cost design is also addressed in terms of "the second or third gap," which reveals its limitations in globalized markets and in an increasing uncertain and diverse environment（see Nishimura 2011; 2012）. Enterprises have developed agile supply chain and global innovation instead of Japanese type of management to globally discover and exploit profit opportunities. On the basis of these experiences and practices, management accounting must take a more firmly future−oriented and forward−looking form. Researchers should clarify the limitations of planning for and controlling global business by using feedback information and control methods, and should establish a new feed−forward strategic management accounting system to relevantly respond to contemporary business needs.

This paper gives only a framework for coping with the current issues in management accounting. Others, such as Falta et al.（2006）and Kumarasinghe and Willett（2010）, have used mathematical, statistical, and empirical approaches to analyze these new contemporary issues in business enterprises. These efforts to establish proactive and preventive management accounting will unite together and open up new ways to establish new strategic management accounting. When Monden（1994）introduced the Toyota production and management systems, the former Vice−President of Toyota Motor Corporation, Taichi Ono expected the system would lead to advances in strategic management accounting. It is not

yet clear whether this expectation has been met. Although Japanese-style management accounting has been considered by many at times to be more strategic than its Western counterparts, the nature of the relation between management accounting and strategy remains unresolved. It is interesting to consider whether it may be possible to better develop strategic management accounting by clarifying the fundamental framework of feed-forward cost control that Japanese enterprises have created. The evolution of current practices requires us to resolve more troublesome problems and establish a new research outcome. It is most important to integrate existing and growing ideas into a scientific framework, or a fundamental concept. In this sense, the study of Japanese-style management accounting, international comparative studies of management accounting practices and theories, and the study of the relations between these cognate disciplines from the viewpoint of feed-forward thought and an integrated viewpoint of feedback and feed-forward controls may play an important role in clarifying the strategic nature of management accounting.

Discussion for further Research

This paper discussed the feature and structure of today's management accounting in relation to strategic management from the viewpoint of feed-forward management. On the basis of the afore-said discussion, two points seems to be helpful in attempting to sketch out the contemporary management accounting. One is a new idea of extending management accounting information from financial data to non-financial one, which tried to regain the relevance of management accounting lost to strategic directions or targets. In management accounting, this idea takes such a definite form as ABC or BSC that is based on the concept of enterprise value or activity. This concept of non-financial information is used in wide area from cost to the whole organization.

Another point is related to 'a relevant idea' that extends management accounting information and control from feedback standpoint to the feed-forward. In this case, managers plan for and control profit opportunity or risk proactively for enterprise value creation; Cost design or the comprehensive risk management is the application of this idea to the contemporary strategic management. However, it is an unsettled question to clarify what part management accounting plays in the comprehensive risk management.

Environmentally conscious cost design (Nishimura, 2014), as well as the holistic and comprehensive risk management in internal control, is developed from the socio-economic point of view, according to which corporate profitability strategy and sustainable business growth are combined with corporate responsibility and consciousness of social issues (e.g., environmental protection, safety, and social welfare). As regards the comprehensive risk management accounting, much still remains how to strengthen the transparency and accountability of risk management from the socio-economic viewpoint as well as how to effectively control uncertainty by means of risk management and its related accounting.

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