Employment of activity-based costing in the process of company business model generation

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Abstract. This paper presents a method of presentation of information for the purposes of managerial decision making in terms of activity-based accounting method and company business model generation. Availability of concerted control strategy and disclosure of a business model in organization's reporting will enable to meet demands of all types of users of information on activity of a company. We offer employment of appraisal of a company value in terms of use of Activity-Based Costing.

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Introduction

Analysis of world practice reveals that in the context of the market economy participants of market relations struggle as for possession of capital resources and material valuables, so for capacity for development and implementation of effective organizational and economic innovations. Researchers associate economic growth resources mostly with technologies (39%) than with capital (34%) and labor power (27%) [1]. One of priority fields of economic entities' development is a purposeful system of measures for development, implementation, assimilation of various tools and methods of management accounting in concerted enterprise information system of corporate governance [2].

For successful activity in a competitive environment every organization needs development of a business model which would enable an enterprise to understand those processes thanks to which it succeeds in increment [3]. A research conducted by Economist Intelligence Unit in 2010 has revealed that 50% of managing directors believe that innovative business models are more important for company prosperity than innovative products and services. An opinion poll of Chief Executives taken by IBM in 2011 has revealed almost the same. Almost all respondents assert about necessity of adjustment; of business models with a glance to new environment. In hard economic times companies consider business models to be one of the most important resistance factors in erratical environment. However, according to a research of the American Management Association, global companies allocate equal to or less than 10% of aggregate innovation investments for development of new business models [4].

Methods. Concept of Business Model and its Function in the Process of Managerial Decision Making

Unfortunately, unambiguously correct and more complete definition of business model has not been worked out yet, though its definition occurs in studies of many professionals and scientists researching issues of strategic management and strategic management accounting. We have reviewed basic approaches to definition of the concept of business model and its components in Table 1.

Table 1. Comparative Analysis of Approaches of Different Researchers to Definition of the Term "Business Model"

Country	Researcher	Definition of the term "Business Model"	Structural element of a business model; aspects of scientific investigation
1	2	3	4
USA	Larry Bossidy and Ram Charan	This is a process of vivid intellection based on reality, targeted on understanding of specific character of business as a single machine [5]	Business model is effective if external environment and financial aims of a company harmonize with its internal abilities, resources
USA, Germany	Mark Johnson, Clayton Christensen, Henning Kagermann	Define business model as aggregate of four elements [6].	a) product consumption value, b) benefit formula, c) key resources, d) key processes.
Russia	V. Gusakov	This is what, how, and at cost of what a company earns money means [7].	a) objectives and take of the company on its prospects; b) management structure and system of company; c) company's market and products; d) corporate culture; e) value chain in the company.
Russia	V. Kotelnikov	This is a method of sustainable performance which turns initial values (resources, company's abilities, and innovations) into economic results [8]	Business components: a) business strategy, b) economy and finances, c) marketing and competition, d) entrepreneurship.
	D.Hambrick and J.Friedrickson	As definition of business model they present a list of five questions, answers to which form definition and structure of business model [9].	Questions developing definition of business model: 1. Arena. To what sphere will we be involved? 2. Channel. How will we get in that sphere? 3. Competitive advantage. How will we sweep the market? 4. Economic logic. How will we get profit? 5. Directive. Wit what speed will we move and in what sequence will we work?
	H. Chesbrough	It is a useful general construction necessary for conjoining ideas and technologies with their economic results [10].	Critical functions of business model: a) Adding values (it is referred to types of activity thanks to which new product or service appears). b) Receipt of profit (receipt of a valuable by a firm in consequence of these types of activity).

All approaches to definition of business model reviewed in Table 1 interpret the this definition as logic of business dealing, methods of doing business, and principles of use value delivery. Analysis and generalization of various definitions of business model concept allow us to enunciate the most adequate and the broadest, to our opinion, definition of business model as a profile of company's business and method of its increment. Let's distinguish main, in our opinion, components of any business model:

1. management structure and system of company;
2. markets and offered valuables (products, services);
3. value chain:
   a) financial component of a value chain (expense structure, revenue structure, cash flow pattern);
   b) business component of a value chain (mechanisms for collaboration with suppliers and subcontractors, other contracting parties);
4. customers:
   a) product sales channel and product promotion at the market;
   b) target groups of customers;
   c) mechanism for collaboration with customers;
5. corporate culture.

To our mind, business model represents one of factors of increment made by an enterprise. Value is created by strategically important types of activity using physical, human, technological, and other resources. Analysis of certain activities is usually necessary for discovery of competitive advantage sources. As a matter of fact, competitive advantage of an enterprise appears as a result of accomplishment of strategic types of activity better than competitors. The idea of «a value chain» was originally suggested by M. Porter in 1985 [11]. Value chain, as Porter says, divides company's activity in strategically important types of activity for the purpose of examination of expenses and existing and potential differentiation means. Every value chain link leads to expenditure, generates revenues, and employment of assets. First of all, managerial staff is interested in operating expenses. In order to calculate these expenses for every value chain link, as well as for business process, which do not generate added value, we suppose that it would be reasonable to employ activity-based accounting methods (Activity-Based Costing) [12, 13, 14].

Body of the Study. Employment of Activity-Based Costing in the Process of Generation of Company's Business Model

Financial component of a value chain (expense structure, revenue structure, cash flow pattern) is an element of the activity-based approach method in the process of generation of company's business model. We suppose that it is reasonable to employ the activity-based approach method in description of expense structure, revenue structure, cash flow pattern, financial responsibility centers, as well as to employ the said method in determination of cost of a product or service produced by the company through the utilization of Activity-Based Costing. We explain this by the reason that, first, specifically this accounting method provides opportunity to make more precise evaluation of full input cost for making effective managerial decisions. Second, this method allows obtaining reporting information not only in terms of activity types and nomenclative units, but also in terms of revenue centers, cost centers, which in its turn is tool of management of departures from a business plan [15].

Activity-based method of business administration and activity-based accounting method (in this context, accounting is treated as a management function) are based on a principle of consolidation of information on business from the viewpoint of this information accumulation from enlarged business processes to more detailed ones, as well as on amount of deployed resources of various types for fulfillment of business processes.

Why is activity-based approach to company management so effective? We give reasons for appropriateness of activity-based accounting method in the process of development of company's business model in Table 2.

Table 2. Interrelationship of business model elements with end product, business processes, and resources

Element (subelement) of business model	End product (service)	Company's business processes	Resources necessary for business processes
a) management structure and system of company	Management structure and system of company, as well as expenditures for efficient management influence on development of high-quality and commercially viable product.	Management structure and system of company are organized in a manner which will allow exerting effective influence on the managed system (aggregate of business processes in this case).	Management structure and system are conditioned by peculiarities of resources' provision of the firm's activity, i.e. management system internals in business model depend on resource intensity (materials intensity, labor intensity, or capital intensity) of the production.
b) markets and offered valuables (products, services);	End product is made on the assumption of external environment needs, market situation, which subsequently influences on description of this business model element		
c) value chain:	X	X	X
1. financial component of a value chain (expense structure, revenue structure, cash flow pattern);	Expense structure, revenue structure, cash flow pattern depend on industry characteristics of manufactured product.	Business processes determine more explicit and qualitative detailed elaboration of expense structure, revenue structure, cash flow pattern, etc.	Resources deployed in company's activity also determine more explicit and qualitative detailed elaboration of expense structure, revenue structure, cash flow pattern, etc.
2. business component of a value chain (mechanisms for collaboration with suppliers and subcontractors, other contracting parties);	Mechanisms for collaboration with suppliers and subcontractors, and other contracting parties are conditioned by external market factors and requirements of purchasing market.	Mechanisms for collaboration with suppliers and subcontractors, and other contracting parties are component parts of the whole business process system.	Mechanisms for collaboration with suppliers and subcontractors, and other contracting parties are conditioned by movement of resources in input and output of the company against external economic environment.
d) customers:	X	X	X
1. product sales channel and product promotion at the market;	Product sales channel and product promotion at the market are a result of purchasing market requirement analysis and meeting these requirements.	Product sales channel and product promotion at the market are a component part of the whole business process system.	Product sales channel and product promotion at the market are analyzed in the context of resources spent for product manufacture.
2. target groups of customers;	Target groups of customers can be distinguished subject to their requirements in one or another type of products.	Target groups of customers are reflected in a classification of company's business processes and financial responsibility centers.	Target groups of customers are analyzed in the context of resources spent for product manufacture
3. mechanism for collaboration with customers;	Mechanism for collaboration with customers can be described in a business model for every type of manufactured products or by their groups.	Mechanisms for collaboration with customers are reflected in a classification of company's business processes and financial responsibility centers.	Mechanisms for collaboration with customers are analyzed in the context of resources spent for product manufacture
e) corporate culture.	Corporate culture is a complex of behavioral models which are obtained by an organization in the course of adaptation to external environment and requirements of purchasing market.		

Thus, we proved appropriateness of employment of activity-based accounting method in the process of business model building. Let us consider such element of business model as financial component (expense structure, revenue structure, cash flow pattern) more extensively using Activity-Based Costing as basic management accounting method. Principles of this method reflect collection of business information in the context of aggregate of all company's business processes. And this in its turn allows an analyst to obtain reporting information not only in terms of activity types and business processes for further making effective managerial decisions by a manger.

When Activity-Based Costing is employed, forms of management reporting [15] drawn up in one or another company, first, reflect information requirements of enterprise management, second, reflect specific character of a type of economic activity and aggregate of company's business processes. The aim of commercial organization management is receipt of net profit and as a result enhancement of a company in value. Company value is an aggregate of all discounted cash flows which can be generated by a company in future through business processes.

Thus, we can assert that there is direct relationship between business model and its market value.

Results

We offer to appraise company value in the context of employment of Activity-Based Costing applying such analytical indicator as Price-to-Book Value (P/B). This is a coefficient which has company capitalization in its numerator, and company balance value or equity (share) capital in its denominator (1). Low (less than 1) appraisal of a company value can be explained by insufficient operating efficiency. Also worth noting is that when a firm is appraised using this coefficient, such factors as financial stability, rentability, opportunities for growth, etc. shall also be taken into account.

$$P/B = \frac{Qs * Ps}{B}, \qquad (1)$$

where: Qs is a quantity of outstanding shares of a company,

Ps is a market price of one share of a company,

B is an equity (share) capital which can be defined as difference between assets of a company and its obligations.

In formula (2) both the numerator and the denominator of P/B decompose to net profit of a company (E) which, as it has been mentioned before, is the aim of managers' activity. It is also shall be stated that net profit of an organization can be opened out as on the whole, so by particular business lines. In this case business line shall be understood to mean a major group of business processes which are combined according to their belonging to a definite end product in hierarchy structure of business processes.

$$P/B = \frac{Qs * Ps}{B} = \frac{P/E}{B/E} = \frac{E/B}{E/P} = \frac{ROE}{r}, (2)$$

where: E is a net profit of a company,

ROE is a rentability of equity capital,

r is a required yield of business (market rate).

The E/P ratio (the ratio of a net profit to company value) represents a yield rate (per cent per annum) which shall be collected by an investor as a net profit. This rate is denoted as r in the formula (2). Thus, r is a required market yield from investments to a company.

The E/B ratio reflects an amount of net profit per one currency unit of equity capital, other ways of saying, this is efficiency (rentability) of equity capital: ROE (return on capital).

Estimating P/B ratio we can conclude that ROE is a rate at which shareholders' funds work in a company (rentability of equity capital), and r is a market yield rate. P/B coefficient reflects overall performance of shareholders' funds as compared to market yield which can be acquired by an investor.

Analyzing formula (2) we see that net profit index does not influence on end value of P/B coefficient, but fluctuation of P/B index can be estimated through fluctuation of its numerator which is equal to ROE. Let us consider ROE coefficient and factor influence on it according to Du Pont formula (3).

$$ROE = \frac{E}{V} * \frac{V}{A} * \frac{A}{B} = \text{Profitabil ity of sales} * \text{Assets turnover} * \text{Financial leverage}$$

(3)

where V is proceeds from sales (in whole or according to business line),

A is company's assets.

This is a three-factor model which reflects influence on the end ratio of rentability of equity capital of separate factors connected with business lines. In order to evaluate influence of one of factors on fluctuation of equity capital rentability, it will be sufficient to multiply fluctuation of that factor by reference values of two other factors. Thus, evaluating influence of factors of business lines on ration of equity capital rentability, we can see interrelation between operating results of business lines and change of company value.

Conclusion

Value of employment of Activity-Based Costing method in estimation of P/B ratio lies in the fact that drawn management reporting in terms of activity types and business processes includes information necessary for estimation of ROE ratio and its factors by particular business lines. Thus in terms of P/B ratio we have demonstrated capability to analyze fluctuations as of market value of the whole company, so its particular business lines.

In the context of employment of Activity-Based Costing accounting method in the course of business model development, there is an opportunity not only to analyze company's operating results in bulk, but also:

a) to analyze company's operating results by particular business lines;
b) to define ineffective business lines;
c) to perform forecasting of economic results of business lines which are planned to be implemented.

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