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BUSINESS MODEL ENGINEERING USING THE CRITERIA OF ENTREPRENEURIAL RISK RESISTANCE BASED ON MARGINAL ANALYSIS

The article presents the opportunities to use marginal analysis tools for estimation of effects after making various managerial decisions on business model financial result. The provided approach to operating leverage interpretation allows using this indicator as a general indicator of business risk level associated with implementation of a certain business model. This approach gives an opportunity to minimize business risks at the stage of business model projecting.

Keywords: business model; business risk; income from operations; marginal analysis; marginal profit; operating leverage; break-even point; financial safety margin.

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ПРОЕКТУВАННЯ БІЗНЕС-МОДЕЛІ ЗА КРИТЕРІЄМ СТІЙКОСТІ ДО ПІДПРИЄМНИЦЬКОГО РИЗИКУ НА ОСНОВІ МАРЖИНАЛЬНОГО АНАЛІЗУ

У статті розглянуто можливості використання інструментарію маржинального аналізу для визначення ефекту від впливу різних варіантів управлінських рішень на фінансовий результат бізнес-моделі. Запропоновано підхід до трактування операційного важеля, який дозволяє використовувати цей показник як загальний індикатор рівня підприємницького ризику, пов'язаного з реалізацією певної бізнес-моделі, що дає можливість мінімізувати підприємницький ризик на етапі проектування бізнес-моделі.

Ключові слова: бізнес-модель; підприємницький ризик; прибуток від основної діяльності; маржинальний аналіз; маржинальний прибуток; операційний важель; точка беззбитковості; запас фінансової стійкості.

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ПРОЕКТИРОВАНИЕ БИЗНЕС-МОДЕЛИ ПО КРИТЕРИЮ УСТОЙЧИВОСТИ К ПРЕДПРИНИМАТЕЛЬСКОМУ РИСКУ НА ОСНОВЕ МАРЖИНАЛЬНОГО АНАЛИЗА

В статье рассмотрены возможности использования инструментария маржинального анализа для определения эффекта воздействия различных вариантов управленческих решений на финансовый результат бизнес-модели. Представленный подход к трактовке операционного рычага позволяет использовать этот показатель как общий индикатор уровня предпринимательского риска, сопряженного с реализацией определенной бизнес-модели, что дает возможность минимизации предпринимательского риска на этапе проектирования бизнес-модели.

Ключевые слова: бизнес-модель; предпринимательский риск; прибыль от основной деятельности; маржинальный анализ; маржинальная прибыль; операционный рычаг; точка безубыточности; запас финансовой прочности.

Introduction. The key motive for entrepreneurial activities is the monetization of an entrepreneurial idea, its transformation into a source of income. In order for owners to obtain income, their resources should be transformed into business assets. Business circulation of such resources will generate money flows and form added value and profit.

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Opportunities to gain profit and also to capitalize entrepreneurial idea by means of business value creation depend on management quality in 3 areas of decision making: primary, investment and financial activities (Figure 1).

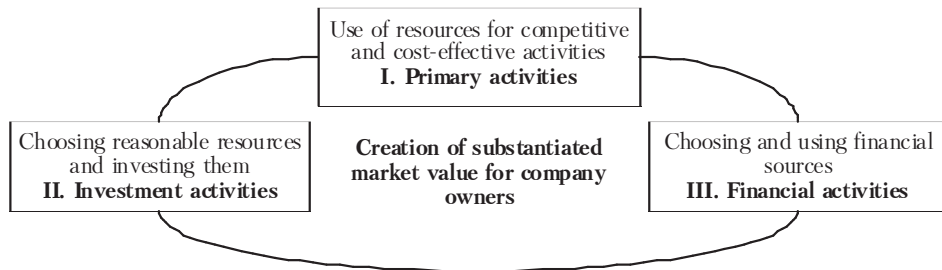


Figure 1. The process of value creation and main fields of managerial decision-making from E. Helfert (2001)

Investments are the main driving force for any business, so they form the foundation for carrying out primary activities. Decisions, made in the field of primary activities are aimed at effective utilization of assets created in the result of investing for work at selected markets. The field of managerial decision making concerning business financing comprises choosing among various variants of financial resources formation accessible for entrepreneurial activity subject required for investment and primary activities. A necessary condition for involving resources of owners and creditors into entrepreneurial activities is carrying out profitable primary activities. This profit is the key purpose for owners and creditors to invest in business.

The concept "business model" is used to form a comprehensive view of value creation sources and potential for owners and creditors. Emergence and extension of scientific and practical interest in business models corresponds to the development of VBM concept (value-based management) – management oriented at value creation.

Latest research and publications analysis. Numerous studies and publications concerning the development of business model concepts such as done by K. Froot et al. (1993), E.A. Helfert (2001), E.N. Komaristiy (2007), M. Pagano and A. Roell (1998), S. Penmann and T. Sougiannis (1998) define business model contents as a sum-total of 4 key elements, including: value for customers, which a company offers based on its product proposal; business-process system, supporting the creation of value; assets used for value formation; financial model which determines cost structure and ways to receive income. Thus, a business model of entrepreneurial activities object defines how it will gain profit and create value for owners and creditors.

The research object is marginal analysis tools.

The goal of the article is to assess opportunities to use marginal analysis tools for estimation of the effect after making various managerial decisions on business model financial result.

The methods for the research are the abstract and comparative analysis.

Key research findings. There exist many approaches to the selection of the object for a business model. It may be a particular product or integrated economic systems corporation based on interests or value-creation chains based on contract relations.

The source of added value creation should be considered as a minimal structural element for separate business model creation. Particular products, projects, clients

can stand as such source. Identification of added value creation sources allows describing the corresponding business processes and specifying the cost structure connected with their implementation.

The financial aspect of business model implementation management contains in balanced production and marketing relations aimed at achieving the maximum financial result – income from operations with regard to entrepreneurial risks.

Marginal analysis is one of the tools helping to define the efficiency of various managerial decisions options on the amount of income from primary activities.

The marginal profit indicator forms the basis for marginal analysis. Its calculation requires dividing all costs into fixed and variable expenses. The changeability in response to a factor serves as a separation criterion. The factor is a change of the applied business model.

It is important to keep in mind that costs can be considered fixed or variable with a certain degree of conditionality: in fact they are conditionally fixed and conditionally variable. "Conditionality" in this case means the following assumption. Practically all kinds of economic activities characteristic for real economic sector have a certain scale: increase of activity volumes (production and distribution) cannot be infinite with one and the same constant level of expenses. At some stages business extension is followed by leaping increase in fixed costs, meaning the transition to a new business scale.

Marginal analysis is carried out using the system of indicators, based on marginal income calculation: breakeven point, financial safety margin and operating leverage.

Calculation of breakeven point (profitability point or point of return) helps to keep the balance between production and marketing decisions and to evaluate the possibility to gain profit from operations (1). This ratio characterizes the minimal result, when the business model will be realized in the given scale of activities.

$$\text{Pr.}p = \frac{\text{Fixed costs}}{\text{Profit margin}}. \quad (1)$$

If marginal profit in the denominator is specified per 1 product unit, the value of breakeven point will be in actual measurement – quantity of production required to produce and sell in units in order to cover operational costs completely and to gain zero profit from operations. The breakeven point can be represented in terms of value, then margin profit will be defined per 1 unit of revenue from output sales.

Financial safety margin is an indicator, characterizing business model sustainability against operating profit fluctuations – is calculated on the basis of breakeven point. This indicator reflects derivation of actual revenue from its volume, which provides breakeven result in both absolute (2) and relative (3) terms.

$$\text{FSM} = \text{Revenue} - \text{Pr.}p \text{ (in value terms)}; \quad (2)$$

$$K_{\text{FSM}} = \frac{\text{FSM}}{\text{Revenue}}. \quad (3)$$

If current revenue provides operating income, financial safety margin shows what part of revenue loss will lead to a complete loss of profit from operations. If operations are unprofitable in the current volume, financial safety margin demonstrates to what extent the revenue amount should be increased to achieve breakeven point. That means the indicator "works" in the profit as well as loss zones.

A business model resulting in breakeven point means that marginal profit covers all fixed costs. Further accumulation of revenue leads to operational income – profit from primary activities. If profit from primary activities grows faster than revenue, it is a phenomenon appearing in the result of operating leverage.

Operating leverage is an indicator allowing to estimate the potential of operational profit change in the conditions of revenue alterations in comparison with the current level.

$$\text{Operating leverage} = \frac{\text{Marginal profit}}{\text{Income from operations}}. \quad (4)$$

Operating leverage shows in what number of times the change in financial result from operations (profit or loss) will outrun the operating result change operations (income).

Operating leverage effect comes out as a growth rate for profit or loss from operations in comparison to the current value of corresponding financial result in the result of profit change:

$$\frac{T_{profit}(\text{Financial result from operations})}{T_{profit}(\text{Revenue})} \times \text{Operating leverage}. \quad (5)$$

It is necessary to take into account the fact that operating leverage effect is formed separately for different kinds of financial results from operations – profit and loss. This means operating leverage does not show the effect from business model transition through the breakeven point.

The situation when the tempo of financial result changes from operations outruns the tempo of operational result changes is characterized by entrepreneurial risk. Entrepreneurial risk is inherent to entrepreneurship. A significant reason for this the existence of fixed costs requiring coverage even in the conditions of revenue absence. It is the operating leverage index that is an indicator for loss of profit or increasing loss together with decreasing revenue.

A traditional approach to rendering economic content of operating leverage indicator reflects its dependence from structure of costs on operations. This is obvious from the quotes of publications on this topic:

- "Operational leverage is connected with the enterprise structure of expenditures" (Ponomareva, 2008).
- "Operating leverage power or the effect provided by sales of every additional product unit depends on the structure of costs: the more the proportion of fixed costs is, the higher is the effect" (Komaristiy, 2007).
- "The higher the level of fixed costs in production costs structure is, the stronger is the operating leverage comes out in both directions" (Orlova, 2010).
- "Operating leverage is characterized by an opportunity to increase income and profitability as well as by a risk to get a loss if sales market situation changes. It depends on the proportion of fixed costs in production costs structure and on marginal income – the more the fixed costs and marginal income are, the more active profit reacts on sales volume" (Stanislavchik, 2011).

There is no doubt that the operating leverage effect is preconditioned by constant elements in the contents of fixed costs. The lower is the volume of fixed costs, the faster the breakeven point is achieved and the growth of profit from operations starts.

In the result of fixed costs rate reduction the growth of profit outruns the growth of sales volumes. However, the operating leverage effect – the speed of increment in profit gradually decreases. This corresponds to the principle of correlation between profitability and risk – the more is the sales volume and also the financial safety margin, the less probability to lose profit will be.

In fact, the efficiency of operating leverage is determined only by the degree of how current amount of sales volume exceeds its breakeven value and is inversely proportional to financial safety margin coefficient:

$$\begin{aligned}
 K_{FSM} &= \frac{\text{Profit}}{\text{Profit} - \text{Fixed costs}} \times \frac{\text{Fixed costs}}{\text{Profit}} = \frac{\text{Profit} \times \text{Pr.p}}{\text{Profit}} = \frac{\text{Profit} \times (\text{Profit} - \text{Var.Costs}) - \text{Fixed costs} \times \text{Proceeds}}{\text{Profit} - \text{Variable costs}} \times \frac{1}{\text{Profit}} = \\
 &= \frac{\text{Profit} \times (\text{Profit} - \text{Variable costs} - \text{Fixed costs})}{\text{Profit} - \text{Variable costs}} \times \frac{1}{\text{Profit}} = \\
 &= \frac{\text{Income from operations}}{\text{Marginal income}} = \frac{1}{\text{Operating leverage}}.
 \end{aligned} \quad (6)$$

Dependence of operating leverage value from costs structure is secondary – the structure of costs characteristic for specific business model defines its breakeven point. In turn, deviation of actual profit from the breakeven point (financial safety margin) determines the risk of entrepreneurial risk which an enterprise faces under the given sales volume. This trend will be reflected by the operating leverage indicator.

As shown above, most business models in real economy have a scalable nature. Accordingly, an important characteristic of a business model is the maximum (the highest attainable) volume of the operating result – net revenues. This limit is determined by the amount of maximum productivity of key production factor, which determines the scale of the business model. Thus, the maximum achievable revenue from 1 airplane, 1 store, 1 production line etc. may be calculated.

Conclusions. The comparison of marginal revenue value with the breakeven point value of the provided business model gives the maximum financial safety margin value of the business model. It depends on the cost structure, as it is the costs structure that forms the breakeven point value.

If fixed costs prevail in a business model, then the breakeven point is achieved with significant sales volume close to achievable maximum. In this case the maximum financial safety margin of a business model is not so high as compared to breakeven point. This forms a high value of operating leverage and corresponds to a high level of entrepreneurial risk.

If the variable costs prevail in a business model, the breakeven point is achieved relatively quickly even with not so high level of sales volume. In this case the maximum financial safety margin of a business model considerably exceeds the breakeven point. And this forms a low rate of operating leverage and corresponds to low level of entrepreneurial risk.

The studied approach to operating leverage treatment allows using this indicator as a general indicator for level of entrepreneurial risk related to certain business model

implementation. In addition, it provides an opportunity to minimize business risk at the stage of business model engineering by means of costs structure optimization.

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