ENTERPRISE PERFORMANCE EVALUATION MODELS

Summary. Authors conducted a comparison of two models of evaluation results of business: accounting model based on traditional, with regards to financial accounting, concept of the equity and the result of it usage; financial model, which is formed in accordance with the principles of corporate finance. The necessity of using the latter for making effective management decisions and successful implementation of the concept of value-based management in domestic enterprises was covered.

Authors suggested an evaluation procedure of market premiums for individual risk as part of the accrual method based on the following groups: management, quality management; size of the enterprise; the structure of financing sources; diversification based on commodity, territory and clientele; levels of profitability and predictability; other factors.

Key words: accounting and financial business evaluation model, economic profit, average cost of capital, cost of equity, accrual method.

Introduction. Modern economic theory based on a new economic thinking, which is widely used by foreign companies, urges and justifies the need to use innovative business management concepts in order to operate successfully. However, the results of conducted interviews with senior staff of a number of domestic companies give reason to believe that administrative decisions are usually made by using accounting model of performance evaluation which works only with quantitative financial indicators such as net income, profit, capital productivity ratio, profitability. Those indicators are studied and observed in the dynamics, compared with the planned values. Meanwhile, benchmarking, SWOT analysis, PEST analysis were barely used. New alternative ways of capital investment were almost never studies. This is confirmed by the results of expert research of domestic companies on their use of innovative financial management tools. Data show that only 5% of the investigated Ukrainian companies in the corporate sector calculate value-oriented performance indicators. About 30% of large companies do not calculate the weighted average cost of capital (WACC) and do not use the discount rate to justify management decisions. In addition, 16% of the companies do not conduct the assessment of investments and senior financial personnel of about 11% surveyed companies never heard of a tool such as the discounted rate [15]. Under such conditions, there is a need in the development of applied regulations that would combine the management experience of the past with newest achievements in management and provide a high level of efficiency of domestic enterprises. Value-oriented approach to the evaluation of the company performance, which is based on a financial model, is an important tool in the management reorganization.

Modern foreign and domestic researchers of cost management approach are S. Valdaytsev, I. Ivashkovska, T. Copeland, T. Koller, R. Kaplan, J. Murrin, D. Norton, N. Olva, H. Ostrowska, V. Pankov, I. Kolos, T. Momot, O. Mendrul, O. Sokhatska, N. Tertychnyi, A. Yanchuk, I. Yaremko and others. The literature review provides an opportunity to argue that the works of foreign authors focused on markets of their countries and do not consider the current Ukrainian realities.
First of all, it is about the use of value-oriented indicators to determine the creditworthiness of the company and its investment attractiveness, analysis of the dynamics of economic development, evaluating the effectiveness of corporate governance, etc. Also, possibilities of adaptation of foreign techniques of equity to conditions of Ukrainian economic environment in the calculation of value-oriented performance of its activities remain unexplored.

The article is aimed to critically discuss a comparative analysis of accounting and financial models of a company performance evaluation isolating its strengths and weaknesses, as well as to study and measure equity cost factors in the calculation of economic value-oriented performance of its activities.

In modern management practice identifies two models of business analysis: accounting and finance, with their own principles, which help to understand and study the performance of an enterprise, identifying a set of performance indicators in order to make effective management decisions.

The study of literature [1; 2; 4] helped to distinguish differences in patterns that are fundamental in nature. The accounting model estimates the company performance based on accounting data and financial statements, using results of effectively executed operations while excluding any consideration of alternatives possibilities and virtually ignores development options. It is clear that the company's expenses for the period, as part of this vision, include only the costs incurred. The limitation of this model is that the principle of «actually performed transactions and actual costs» dominates not only at the stage of collecting and processing information but during further analysis of the company performance and decisions making process. The weakness of this model in terms of management is that it does not provide additional evaluation of alternative possibilities.

The successful performance of a company based on accounting models is a situation in which earned income covers the incurred actual (explicit) costs. It does not reflect the possibilities of creating economic profit; neither it includes any consideration of alternative capital investment with some risk and the corresponding economic benefit, nor takes into account lost investment income. The approach from the standpoint of economic profit requires an examination of risk investment, search of similar risk alternatives and study of the results and, therefore, a fundamental reassessment of the result.

The second significant limitation of this model as analytical basis for the formation of a capital management system is that it is not oriented to assess uncertainty of an expected result an investor faces. A rate of return on capital cannot be obtained based on financial reports that would show alternative options for investors as those alternatives should be measured by similar level of risk.

This model does not accord to understand the adequacy of the profit needed to cover investment risk appropriate for investors. As the result managers cannot use profitability index calculated based on financial statements to make financial and strategic decisions. Finally, the main performance indicator is revenue. However, revenue cannot be used to pay for the resources, salaries, to meet its obligations to creditors, etc. In order to justify management decisions, it is important to assess liquidity – the ability of assets turn into the most convenient form – cash flow as modern financial model works with free cash flows (FCF). A cash flow is named FCF only when it is calculated by a deduction from business income not only necessary expenses, but also investments in fixed assets and working capital needed to support sustainable business operation. Therefore, this cash flow may be freely distributed to owners through the payment of dividends or reinvestment into the business. The accounting model does not question any future results, excluding its investment component.

The peculiarity of the financial model is the usage of the economic profit to justify decisions and analysis of results. Economic profit is a final indicator that quantitatively assesses
the adequacy of cash flows generated to provide a normal level of profitability, or so-called barrier profitability of capital.

In determining the acceptable level of profitability it is necessary to assess the value of advanced capital by owners, and to identify potential rates of return they expect. From the investor’s point of view, the "normal" rate of return shows the specific value of investment below which the investors loses the interest and motivation to continue his investment into the business whereas for managers «normal» is a rate that reflects the cost of raising equity capital or minimum return on investment (cost of equity, COE). In order to define this rate it is imperative to analyse the current situation on the capital market. Thus, the basic requirement of the financial model is the realization that equity is not cost free, the cost of which is determined by the interests of the owners.

Any business must provide its owners the rate of return that meets at least the minimum level of investment risk into these assets. Lower yields will encourage owners to invest in alternative assets as the price of lost opportunities is higher than actual income.

When using the accounting model managers use profit not only for the operational management but, more importantly, for the justification of strategic decisions. It serves as a quantitative characteristic that development goal of the company and its subsidiaries. However, these figures are unlikely to be used to assess strategic effectiveness of enterprise. Since accounting management model does not account for the cost of equity, the model overstates the effectiveness of its use and as the results owners are misinformed. In calculating earnings income is reduced by the costs associated with the involvement of borrowed capital, but it does not take into account the costs associated with the involvement of equity.

Therefore, a development strategy that does not consider the risk and requirements of investors cannot satisfy owner’s interest. System of borrowed and owned asset management that does not account for risks and corresponding value of income which should be earned by management team, is unacceptable in today's market conditions as such system does not meet neither financial nor strategic management task. Therefore, in the financial model, which began to dominate the practice of management, the effective rate is the growth of capital invested by owners. "Financial" standard of thinking requires managers to take into account all sources of financing assets that yielded the income. This means that income must be reduced by the value of all advanced capital (owned and borrowed), which is calculated as a weighted average. Well known foreign economist Peter Drucker wrote, «Until a business returns a profit that is greater than its cost of capital, it operates at a loss.» [17].

Thus, in the framework of the financial model, a crucial indicator for the evaluation of the company performance is not the profit calculated using traditional approach (difference between income and incurred actual costs) but indicators, the calculation of which takes into account the costs associated with the involvement of both debt and equity, such as «residual income» (RI), economic value added (EVA – Economic Value Added); market value added (MVA – Market value added); the added value of the share capital (SVA – Shareholder Value Added); cash value added (CVA – Cash Value Added), the rate of return on investment based on cash flow (CFROI – Cash Flow Return on Investment), total equity returns (TSR – Total Shareholder Return) [11].

Evaluation of companies’ performance using these value-oriented metrics actively promoted in the market by such renowned consulting agency with a worldwide reputation as Boston Consulting Group, LEK / Arlca's, Stern Stewart & Company, HOLT Value Associates and others. The calculation of these indicators involves determining the weighted average cost of capital. Since the company attract capital from various sources, its average value is calculated as follows [3; 5]:

\[
WACC = K_s \cdot W_s + K_d \cdot W_d
\]  

(1)
where \( WACC \) – weighted average cost of capital (\%), \( K_s \) - cost of equity (\%); \( W_s \) – proportion of equity, expressed as a decimal fraction; \( K_d \) – post (after) tax cost of debt (\%); \( W_d \) – proportion of debt, expressed as a decimal fraction.

On the one hand, this figure reflects costs involved with equity and debt, on the other – the rate of return level required by investors based on investment in similar risk involved objects.

After-tax cost of debt is the cost of debt as adjusted for the effect of different deals and contract of interest expense for income tax purpose. Percentage after tax cost of can be calculated as follows [3]:

\[
K_d = \frac{r \cdot (1-T)}{1-Z_c},
\]

where \( K_d \) – after-tax cost of debt; \( r \) – the annual interest rate on leverage (\%); \( T \) – income tax rate, expressed as a decimal fraction; \( Z_c \) – expenses to attract debt capital (if these costs are insignificant, given that the formula used without the denominator). The reduction in income tax due to interest expense is called interest tax shield \((1-T)\).

One of the prerequisites for reliable determination of economic value added is to develop methods of determining the cost of equity. It is quite difficult to calculate the cost of equity. Two models are normally used for that: Capital Asset Pricing Model (CAPM), which was formulated by Nobel Prize winner in Economics William Sharpe in 1964 and Arbitrage pricing theory (ART), which was suggested by famous scientist and economist Stephen Ross in 1976.

Model CAPM is a method of determining a cost of equity based on the risks faced by shareholders [3]:

\[
E(r) = R_f + \beta \cdot (R_m - R_f) + E,
\]

where \( E(r) \) – the investors required rate of return on equity (\% pa); \( R_f \) – risk-free rate of return on assets (\% pa); \( R_m \) – the average market rate of return (average market securities portfolio (\% pa); \( (R_m - R_f) \) – the total market premium (premium) risk; \( \beta \) – coefficient «beta», a measure of systematic risk associated with macro-economic and political processes that take place in the country; \( E \) – allowance for unsystematic risk (individual, specific to a company risk).

It is difficult to calculate an adequate risk-free asset, “beta” factor as well as an appropriate estimated time intervals.

Model ART, unlike the CAPM, is multifactorial and involves the inclusion of any number of systematic risk factors. The mechanism of calculating the desired level of return on equity in this model is as follows [3]:

\[
E(r) = R_f + \beta_1 \cdot K_1 + \beta_2 \cdot K_2 + \beta_3 \cdot K_3 + \ldots + \beta_i \cdot K_i,
\]

where: \( E(r) \) w the investors required rate of return on equity (\% pa); \( R_f \) – risk-free rate of return on assets (\% pa); \( K_1, K_2, K_3 \ldots K_i \) – risk premium factor and unpredictable changes; \( \beta_1, \beta_2, \beta_3, \ldots \beta_i \) – rate sensitivity of ordinary shares to the relevant economic factors.

According to the ART model systematic risk factors are changes in macroeconomic indicators (GDP, inflation, interest rates, etc.), and each of them has own inherent sensitivity coefficient \( \beta \).
These models of cost of equity valuation are based on the analysis of stock market information, so they cannot be used by non-public enterprises. Moreover, it should be mentioned that the application of those models on the domestic market has some difficulties as well. Such difficulties arise in the calculation of any model parameters: market risk premium, the average rate of return, risk levels. Dolinsky L.B.[3] notes that the correct application of these models involves the large statistical sample of the market value (or yield) of securities, with free circulation.

Such statistic information can be received at active, highly liquid, developed stock market. Unfortunately, the Ukrainian stock market is underdeveloped, as the result its trends are heterogeneous, besides high political instability further enhances its uncertainty. Therefore, there is a serious lack of information. Thus, to assess β coefficient large amounts of data needed to be collected and evaluated, which is almost impossible to do without a powerful IT system, and the index PFTS «PFTS Stock Exchange» may give erroneous assessment due to the high volatility of the stock market of Ukraine.

This explains the fact that leading Ukrainian evaluation experts [7; 9] indicate cumulative method as the only acceptable definition of cost of equity. According to it, the cost of equity consists of market yield almost risk-free asset and the combined market risk premium, which is set using experts opinion. This method is used to determine the cost of equity which is the necessary level of rate on return for investors.

The high level of competition, a large number of bankruptcies in the industry, a significant downturn, the backwardness of technology, poor management, etc. cast doubt on the possibility of the company to remain active and lead to an increase in risk premiums. In this regard, expert assessment of the market premium for an individual (corporate) risk should consider specific to the company investment allowances determined by certain factors. In [13; 14; 16] those factors listed such as: management personnel, quality management; size of an enterprise; the structure of financing sources; commodity, territorial and customer diversification; other factors.

They assessed on the basis of normative values on a scale that has six levels of gradation, which corresponds to a range premiums from 0 to 5%. The assigned rating, based on verbal description indicates the risk level as: almost absent – allowance 0%; very low – 1%; low 2%; Medium – 3%; high – 4%; very high – 5%. The main problem in applying this method is to establish criteria for the division of risk factors in groups. The authors tried to contribute to solving this problem, detailing possible allowances for individual risk, based on the above factors.

Given that management work is mentally involved process, which does not directly creates wealth, but is productive and fully affecting economic results; it can evaluate performance effectiveness by analysing the dynamics of financial indicators, comparing them with the dynamics of management costs. In addition, it is important to take into account the competence, qualifications, credibility, work experience, professional expertise, relationships in the business world team of top managers, use of evidence-based management. The individual risk rises in the presence of a «key figure» – the leader, who is solely responsible for taking management decisions, organizational structure instability, and constant changes in leadership. Given the complexity of the data, it is important to express the measurements verbally.

Company size (large, medium, small) determines the shape of the market position – competitive or monopolistic. It is clear that the company, which holds a monopoly on the market, the risk premium is almost absent because of the constant demand for products and a lack of competition. Risk premium for competitive position and territorial diversification of enterprises offering defined as a weighted average of the values assessments of risk factors with the help of expert assessment based on the following information:

1. Competitive position on the national market (territorial diversification):
• general national level (over 20 regions) - 0%;
• regional level (over 15 regions) – 1%;
• interregional level (6 – 15 regions) – 2%;
• district level (2 – 5 areas) – 3%;
• local level (region 1) – 4%;
• local level (district 1) – 5%.

2. The presence of leading market positions:
• national leader (market share > 25%) – 0%;
• interregional leader (market share > 20%) – 1%;
• district leader (market share > 15%) – 2%;
• regional leader (market share of 5 to 10%) – 3%;
• local leader (market share < 5%) – 4%;
• is not a leader (market share 0%, 5%) – 5%.

3. Competitive position on the international market (territorial diversification):
• more than 20 countries – 0%;
• more than 15 countries – 1%;
• 6 – 15 countries – 2%;
• 2 – 5 countries – 3%;
• 1 country – 4%;
• 0 countries – 5%.

4. Number of countries where the company has a notable market position (over 5 %):
• more than 20 countries – 0%;
• more than 15 countries – 1%;
• 6 – 15 countries – 2%;
• 2 – 5 countries – 3%;
• 1 country – 4%;
• 0 countries – 5%.

5. The presence of a registered trade mark, trade mark:
• availability – 0%;
• unavailability – 5%.

Individual risk will increase with worsening of financial stability of the company, because it does not allow fulfil obligations in time, limits access to loans and leads to increase in volume and cost of equity. In order to determine the range of individual risk structure of funding sources discriminant analysis can be applied. With the help of empirical and theoretical research methods, function and integral index is calculated on the basis of which financial condition of the company can be assessed with some degree of certainty.

The studies in [12] give reason to believe in high efficiency of this type of analysis for estimation and forecasting financial condition. It should be noted that the known models that predict possible bankruptcy [(Altman – 1968, 1983 US); (Conan and Holdera – 1975, France); Tafflera, Tishou – 1977, UK); (Krause – 1993, Germany) and others.] are based on the method of discriminant function analysis.

In domestic business practices multifactor discriminant analysis is used rarely, because it is almost impossible to create discriminant functions for any industry due to the lack of necessary information base. The authors offer to detail individual risk grounded on the structure of funding sources, based on the discriminant model of evaluating the financial condition of domestic companies that was proposed in [10] by Ministry of Finance of Ukraine. The basic algorithm multifactor discriminant model (function) for calculating the integral index of financial condition is as follows:
$Z = a_1 \cdot K_1 + a_2 \cdot K_2 + a_3 \cdot K_3 + a_4 \cdot K_4 + a_5 \cdot K_5 + a_n \cdot K_n - a_0,$

where $Z$ – integrated financial ratio; $K_1$, $K_2$, ... $K_n$ – discriminant function of independent variables (financial ratios, determined on the basis of the financial statements); $a_1$, $a_2$ ..., $a_n$ – discriminant function parameters (weight impact of individual indicators of the overall integral indicator of financial condition); $a_0$ – free term discriminant function.

Financial indicators of discriminant model are indicators of financial condition, which are based on the financial statements. Their economic interpretation and calculation algorithm, according to the financial statements of business enterprises, is given in [10]. It should be stressed that the parameters of discriminant function and value of the constant term determined empirically, as the choice of model and combination of financial indicators contained in it, depending on the type of company and it must continually be refined. A quantitative value of integral indicator of financial condition, which is differentiated by class and type of enterprise, helps to measure risk premium depending on structure of funding sources. An empirically built scale can be used [10], which has one additional gradation level:

- class 1 – a high level of financial stability and the lowest probability of bankruptcy – 0%;
- class 2 – a high level of financial stability with negative dynamics – 1%;
- class 3 – sufficient level of financial stability and a slight chance of bankruptcy – 2%;
- class 4 – intermediate level of financial stability – 3%;
- class 5 – unstable financial situation, signs of insolvency – 4%;
- class 6 – poor financial condition, the possibility of bankruptcy – 5%.

The above document points out the need to refine the discriminant model every two years on the basis of actual changes in performance and financial-economic activity to ensure fair evaluation of their financial condition.

Among the factors that determine individual risk is commodity diversification. Company is recognized non-diversified when it produces a limited range of products; there is a wide range of variation in the volume and share of income from the sale of certain products; decline in demand for certain nomenclature group leads to lower demand and for all other nomenclature groups; products offered by the company with semi-finished characteristics that are used as components of other products.

These circumstances increase the dependence of certain production and business; enhance enterprise vulnerability of temporary difficulties. In all other cases, the company can be considered diversified.

Risk premium through product diversification enterprises can be defined as the weighted average of the estimates of the values of these risk factors with the help of expert assessment based on the following information:

1. Number nomenclature groups:
   - over 20 – 0%;
   - over 15 – 1%;
   - more than 10 to 2%;
   - over 5 – 3%;
   - over 2 – 4%;
   - up to 2 – 5%.
2. The scope of variation in income from individual product groups:
   - small (1 – 5%) – 0%;
   - small (to 10%) – 1%;
   - insufficient (15%) – 2%;
   - significant (up to 30%) – 3%;
• substantial (50%) – 4%;
• extensive (more than 505) – 5%.

3. The nature of the final product:
• finished goods – 0%;
• semi-finished product, a component of another product – 5%.

An important factor shaping the individual risk is customer and resource base, its diversification. The wider network of customers, the more regular customers than the smaller share of the revenue can be attributed to a specific customer, as the result the risk of investing in the business is lower.

Risk premium based on the structure of the client and the resource base of the company can be defined as the weighted average of the estimates of the values of factors based on the following information:

1. The level of diversification of client database (number of channels):
   • over 20 – 0%;
   • over 15 – 1%;
   • more than 10 to 2%;
   • 6 to 15 – 3%;
   • 2 to 5%;
   • 1– 5%.

2. The share of revenue attributable to each distribution channel:
   • 5% – 0%;
   • 10% – 1%;
   • 15% – 2%;
   • up to 30% – 3%;
   • 50% – 5%;
   • 50% – 5%.

3. The average percentage of imported material resources:
   • 0% – 0%;
   • 10% – 1%;
   • 35% – 2%;
   • do50% – 3%;
   • 70% – 5%;
   • 100% – 5%.

The level of dependence on suppliers:
- almost no dependence, which reflects the high level of diversification of suppliers, supply of any type of financial resources made by many economic entities; relationships with them are long term and reliable – 0%;
- very low dependence – the supply of material resources of any type of material resources engaged in two business entities with which relations are formed on the long term and reliable – 1%;
- low level of dependence – the supply of material resources of any type of material resources has one entity, which, if necessary, can be replaced without compromising production activity; relationships with them long term and reliable – 2%;
- medium dependence – the list of suppliers is not diversified, there are cases of material resources flow only from one supplier, who can not be replaced without compromising production activity; a relationship with him long term and reliable – 3%;
- a high level of dependence – the list of suppliers not diversified supply of available material resources one supplier, who can not be replaced without compromising production activity; supplier relationships are formed on the short-term outlook and their reliability uncertain – 4%;
- a very high dependence – the list of suppliers is not diversified, important for the enterprise material resources coming from one supplier the possibility of replacing the excluded; relationship with him is unstable and unreliable – 5%.

Other risks are determined by the nature and problems of relationships with banks, tax authorities and local government; potential litigation claims submitted by enterprise and against him; negative actions of competing enterprises; actual or potential regulations that limit the possibility of doing business. In order to evaluate those factors correctly such measurement should be done verbally.

The foregoing shows that the performance evaluation based on using the financial model and effective management decisions undertaking is difficult. However, such approach will ensure the development and growth results.

**Conclusion.** The objective economic processes of globalization of the economy, increased competition in the commodity and financial markets, have necessitated the reformed approaches to finding new business management systems. Foreign practice proved that one of the most effective approaches in management is the one with value-oriented focus, which involves the use of a financial model of company’s performance evaluation. While comparing it with the accounting model, the authors were enabled identify main differences that are fundamental in nature, taking into account the possibilities of creating economic profit, considering alternative capital investment with some risk, focusing on the analysis of the problems of uncertainty of the expected result facing the investor, and matching profits from investment risk.

Using financial models performance evaluation of the company requires the calculation of non-traditional for the domestic management indexes such as «residual income», economic value added, market value added, value-added equity, cash value added, return on investment based on cash flow, total equity returns. Their calculation leads to determination of the weighted average cost of invested capital. Evaluation of costs needed to attract capital in general, is simple and is based on a study of credit agreements and other debt. Determining the cost of equity is a complex process and requires consideration of modern domestic realities. In order to determine the appropriate value of equity within cumulative model, the authors proposed a procedure for evaluation of market premiums for individual risk factors for such groups as: management, quality management; size enterprises; the structure of financing sources; commodity, territorial and client diversification; the profitability and predictability; other factors. Criteria and scale separation of individual risk factors listed per groups.

The use of financial model of company’s results evaluating requires appropriate means of collecting and processing information; selecting aggregate value-oriented metrics and procedures working with them; control systems, etc. Those are the basic directions, which should be methodical developed for the successful use of a financial model of domestic enterprises performance evaluating.

**Використана література**

Загальні проблеми економіки та суб’єктів господарювання


УДК 336.225
Юрій ВОЛОШИН

ОРГАНИЗАЦІЙНО-ПРАВОВI ЗАСАДИ ВСТАНОВЛЕННЯ ПОВ’ЯЗАНОСТІ ОСІБ ДЛЯ ЦІЛІЙ ПОДАТКОВОГО КОНТРОЛЮ

Резюме. В сучасних економічних умовах гостро стоїть проблема наповнення доходної частини бюджету. Однією з найпоширеніших форм оптимізації платежів є використання пов’язаних осіб для здійснення операцій. У статті розглянуто організаційно-правові засади встановлення пов’язаності осіб під час здійснення податкового контролю. Обґрунтовано важливість практичного застосування процесу визначення кола пов’язаних осіб для правильного визначення об’єкта оподаткування. Методи: Логічного та порівняльного аналізу. Результати: Необхідною умовою ефективного контролю за діяльністю пов’язаних господарюючих суб’єктів є системний аналіз, що має здійснюватись контролюючими органами з використанням розроблених дієвих інструментів. Висновки: Розроблені та запроваджені заходи є важливими необхідними кроками для забезпечення податкового контролю за діяльністю пов’язаних компаній, проте існує ряд недоліків лише після усунення яких буде забезпечено ефективний податковий контроль.

Ключові слова: податки, податковий контроль, трансфертне ціноутворення, оптимізація сплати податків, пов’язані особи.