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Features of the improvement of the comparative approach to business valuation

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Abstract: The article discusses the features of improving the comparative approach to business valuation. Based on the studies, a methodology for determining normative multipliers is described by processing data using methods of mathematical statistics. The mathematical apparatus for the development of multipliers is proposed and the comparative approach for assessing the value of an enterprise (business) is improved.

Keywords. Income, cost, comparative, valuation, multiplier, value, appraisal valu, business valuation.

Introduction

Methods based on the market approach, determine the value of the enterprise on the basis of its comparison with similar companies whose shares are freely traded on the stock market or with companies that have been sold recently.

As noted above, the comparative approach is implemented through three methods: the capital market method (the companies' analogue method), the transaction method and the industry-ratio method (the industry assessment method).

In this dissertational work, the basis is the company's analogue method.

Enterprises may differ significantly from each other. Therefore, to compare them, adjustments are necessary:

- if the activities of enterprises differ and some of the activities are not attractive to the buyer, a portfolio discount is applied to the price;
- if an enterprise owns non-productive fixed assets, they should be assessed separately from fixed assets for production purposes, taking into account property taxes, etc .;
- - if as a result of the financial analysis revealed the insufficiency of working capital or the need for capital expenditures, these amounts are deducted from the initial value of the enterprise;

To clarify the results obtained in the evaluation of business on the basis of a comparison with analogues, a ratio, called estimated multiples, is used.

Multiplier - the ratio between price and financial indicators. For the evaluation, several multipliers are calculated using the formula:

$$M = \frac{Ц}{ФБi}, \quad (1)$$

where: M - the estimated multiplier;

Ц - the sale price of the company is an analogue;

ФБi; - financial performance of the enterprise is similar to the object of evaluation.

The use of estimated multipliers is based on the assumption that similar enterprises have a fairly close relationship between price and key indicators. Transforming the formula, we get:

$$Ц = M × ФБ, \quad (2)$$

Thus, the price of an enterprise can be determined by multiplying a financial indicator by an appropriate multiplier.

Business valuation typically uses four groups of multipliers:

Price / profit, price / cash flow;

Price / dividend;

Price / sales revenue;

Price / value of assets.

Depending on the specific situation, the judgment on the value of the enterprise may be based on any of the multipliers, or any combination thereof. For this, several multipliers are calculated for each analogous enterprise, risks and financial indicators are analyzed, after which a multiplier is selected that best matches the available financial information about the assessed enterprise.

The price / profit multiplier or price / cash flow multiplier is used subject to the following rules:

The revenue base (profit and cash flow) can be determined in various ways: before and after accounting for depreciation, interest payments, taxes, dividends. The main requirement is compliance with the selected multiplier of the enterprise-analogue;

The selection of the multiplier depends not only on the financial information received, but also on the asset structure of the enterprises: it is advisable to use the price / cash flow multiplier to evaluate enterprises owning real estate, the book value of which decreases, although the market price may increase. This is because when calculating the cash flow depreciation deductions are added to the net profit. If the assets of the enterprise is dominated by high-speed equipment, a more suitable base is net profit.

Since business valuation is performed on a specific date, the multipliers of enterprise enterprises should be calculated on the basis of reports as close as possible to the valuation date;

The revenue base is determined on the basis of retrospective data for a number of years using the simple average, weighted average or trend straight line;

The price / profit multiplier can be calculated both for the enterprise as a whole and per one share;

The use of a large number of similar enterprises can give a variation in the magnitude of the multiplier.

In the negotiation process, it is necessary to establish a reasonable range of variation, indicating actual comparability, or to explain the reason for the occurrence of significant deviations, which should be taken into account when determining the final price. The weighting factor should take into account the comparability of the analogue and the object of evaluation.

The capital market (company-analog) method includes the following assessment steps:

1. The choice of "analog" or comparable companies.

2. Financial analysis and comparison.

3. Selection and calculation of estimated multipliers.

4. Application of multipliers to the estimated company.

5. Determination of value.

6. Making final amendments.

The choice of a company - an analogue is made according to the similarity of signs: industry, products, financial characteristics, stage of development, strategy of operating activities, by the size of assets, etc.

Consider an example of determining the estimated multipliers based on the financial statement report below (see table).

Table 1
Calculation of multipliers according to Ok Oltin LLC for 2008.

Proceeds from sale	229552	Cost of own capital 22178
(service provision) cost	192478	
Gross profit	37074	
Obsolete	<27122>	
Profit before taxes and profits (EBIT).	9952	Evaluation multiplier
Loans are in the interest.		
Benefits after tax	19598	→ 22178/19598=1.1
Taxes	<19004>	
Net profit.	5940	→ 22178/5940=3.7
Cash flow (Net profit + depreciation	33062	→ 22178/33062=0.7
Cash flow until tax is exhausted. Advancing the benefits of taxes and benefits	46720	→ 22178/46720=0.4

As a result of the calculations, the following multipliers were obtained: 1.1; 3.7; 0.7; 0.4. Now we define the multipliers for LLC "Ok Oltin" according to the normalized report on financial results for 2019

Table 2

The calculation of the average value of the multipliers

The number of samples.	multipliers
1	0,7
2	1,1
3	1,2
4	1,2
5	2,1
6	2,2
7	2,3
8	3,2
9	3,3
10	5,2
11	6,9
The average value	**2,69**

From where we have: 0.7 + 1.1 + 1.2 + ... + 6.9 / 11 = 2.69.

The average value of the multiplier is 2.69.

The trend line is characterized by the following parameters:[17]

Now we define the desired multiplier by the trend straight method.

1. equation (functional dependence),

2. the magnitude of the reliability of the approximation R2. R2 [0, 1] is a number that reflects the proximity of the trend line value to the actual data. The closer to 1 the value of this indicator, the more reliable the trend line.

3. There are five different types of trend lines (functional dependencies):

1. Linear y = *ax + b;*

2. Polynomial $y = a_0 + a_1x + a_2x^2 + + a_nx^n$, for $n \leq 6$;

3. Logarithmic *y aln x b;*

4. Exponential $y = ae^{bx}$;

5. Power y = ax ^{b},

17 Shodiev T.Sh., Xakimov T.X., Boltaeva L.R., Ishnazarov A.I., Nurullaeva Sh., Muminova M.A. "Ekonometrika" (o'quv qo'llanma). –T .: TDIU, 2007. –187

For the use of the trend line in this dissertation, a linear functional dependence was adopted, which is determined by the following formula:

$$y = ax + b \quad (3)$$

Substituting the numerical data into the formula (3) and the obtained calculations are presented in the table

Table 3

	X	Y,	x^2	XY
1	1	1.1	1	1.1
2	2	0.7	4	1.4
3	3	2.1	9	6.3
4	4	1.2	16	4.8
5	5	2.3	25	11.5
6	6	3.2	36	19.2
7	7	3.3	49	23.1
8	8	5.2	64	41.6
9	9	2.2	81	19.8
10	10	1.2	100	12
11	11	6,9	121	75,9
total	66	29,4	506	216,7

Where do we get:

a = (29,4-0.087*66)/11=2.15

b = (11*216,7-66*29,4)/(11*506-506)=0.087

y = 2.15+0.087*11=3.1

As a result of the calculations, we obtain a multiplier equal to 3.1. This multiplier is taken as the basis for further calculations.

The analysis of the data obtained shows that in case of sufficient stability of the dynamics of the multipliers, the method for calculating the trend straight line gives the most accurate results than the arithmetic mean method.

Application of developed (normative) multipliers in the company's method - analogue.

To solve the problem of determining the cost of a comparative approach and the use of the developed multipliers it is proposed to use the following method:

✓ In market conditions, we select three construction companies that are analogous;

✓ 2. From the statement of financial results, we find revenue from sales and the cost of production;

✓ 3. Determine gross income by subtracting the cost of production from gross revenue

✓ 4. From the normalized balance sheet determine the wear;

✓ 5. From gross income by deducting depreciation, we determine cash flow before interest and taxes (EBT);

✓ 6. Calculate debt service (interest on loans);

✓ 7. Based on the calculation of interest on taxes, the actual value and by deducting them, we determine the net profit after taxes (EBIT);

✓ 8. Transform cash flow into net income on a tax-free basis by adding (adding) net profit and accrued depreciation;

✓ 9. By multiplying the annual tax-free income (E) by the market (normative) multiplier, we obtain the value of the construction company using the proposed method.

This technique has been tested on the materials of "Ok Oltin" manufacturing enterprise over the past ten years. To perform calculations based on the data of the studied enterprise, a normalized balance sheet and a report on financial results were compiled (see table)

Table 4

Normalized balance sheet as of December 31, 2019 for "Ok Oltin" manufacturing enterprise

ACTIV		PASSIV	
Tangible assets Fundamental assets	350663	Own capital	796727
Current assets (stocks, receivables, etc.)	657395	Long term liabilities	1045096

Liquid assets (cashier, bank account, etc.)	833765	Short-term liabilities (accounts payable with creditors, etc.)	1045096
TOTAL ACTIVITIES	1841823	TOTAL PASSIVES	1841823

Table 5

Normalized report on financial result as at 31.12. 2019 by Ok Oltin " manufacturing enterprise

№	Indicators.	Thousand/sum
1	Proceeds from sale.	1784265
2	Realized product cost.	1470849
3	Gross Income (Profit).	313416
4	Accumulated depreciation.	168141
5	Other expenses.	74652
	TOTAL.	3811323
6	Benefits to Fees and Taxes (EBIT).	114856
7	Debt service (interest payment).	----------
8	Benefits to tax payments.	114856
9	Taxation Benefits.	40135
10	Net profit	74721

Calculations on finding net profit for manufacturing enterprise "Ok Oltin" for the last ten years.

Assessment of the construction company by a comparative approach.

Under the conditions of the market, three enterprises A, B and C were selected. * The initial data were obtained on the basis of normalized balance sheet and financial performance report (see table). It is necessary to calculate the P / E multiplier. We will make calculations according to the method described above.

Decision:

To use the developed P / E multiplier, it is necessary to convert cash flow into net income on a tax-free basis (E).

Table 6

Indicators	Construction companies		
	A	B	C
Cash flow before interest and tax (EBIT) Debt service	348391	599189	660166
Taxes	«56808»	«41983»	«40720»
Net profit after payment Tax	291583	557206	619446
Accrued depreciation (plus)	97685	136024	150509
Annual tax-free Income (E)	389268	693230	769955

Now we use the P / E multiplier developed by us to estimate the cost of analogs. The cost of construction enterprises will be determined as follows:

Construction enterprise A: 389268 thousand. Sum × 3.1 = 1.206730 thousand. Sum; Construction company B: 693230 thousand sum × 3.1 = 2.149013 thousand sums; Construction enterprise C: 769955 thousand.sum × 3.1 = 2.386860 thousand soum.

The average value of the cost of the construction company will be 1 billion 914201 thousand.sum.

Thus, it is clear that the calculations performed with the help of (normative) multipliers give reliable results and reflect market conditions.

Note that the comparative approach gives the most accurate results if there is an active market for similar properties.

In order to verify the correctness of the calculations is now comparable with the normalized balance sheet (see table).

Table 7

Normalized balance sheet on the financial results of LLC "Ok Oltin" as of December 31, 2019

№	Indicators	Value indicator According to the balance thousand sums
Assets		
1	Intangible assets	
2	Fixed assets	350,663,
3	Inventories	657395
4	Debtors of all	747802
5	Cash	85963
6	**Total asset balance**	**1841823**
Liabilities		
7	Source of own funds	796727
8	Current responsibility,	1045096
9	Debt to suppliers and contractors	290481
10	Advances received	732232
11	Debt payments to the budget	22241
12	Insurance arrears	142
	Total liabilities balance	**1841823**

The calculations performed using the developed multiplier showed the result of the assessment in the amount of 1914201 thousand. amounts, and the results of the balance sheet indicate that the estimated cost is 1841823 thousand sum - 1045096 thousand sums = 796727 thousand sums.

However, the cost approach does not fully take into account market conditions and therefore the calculations performed are correct.

Advantages and disadvantages of the comparative approach

The advantages of the comparative approach:

If there is sufficient information about analogues, accurate results are obtained;

The approach reflects the market, taking into account the real ratio of supply and demand for similar objects, since is based on a comparison of the valued enterprise with its peers, which have already been bought recently or whose shares are freely traded on the financial markets.

The price of an enterprise reflects the results of its production and business activities.

Disadvantages of the comparative approach:

• is based only on retrospective information, almost without taking into account the prospects for the development of the enterprise;

• it is difficult and sometimes impossible to collect financial information about peers (due to insufficient development of the stock market, many joint-stock companies do not give their quotes to the stock market, and closed joint-stock companies do not disclose financial information);

Conclusions and offers

As a result of the research in the dissertation it was found:

1. In the valuation activity, when assessing the value of an enterprise, cost-based, comparative and income approaches are used;

on the basis of the theoretical studies carried out, the following objectives have been established: the main goals, objectives and the conceptual apparatus have been improved; developed classification schemes of approaches and methods for estimating the cost; revealed advantages and disadvantages both in foreign practice and in the Republic of Uzbekistan;

2. A method of forming a business valuation system has been developed; a distinctive feature of which is the implementation of the principles of a systems approach; identified and systematized the main issues of concern associated with the introduction in the Republic of Uzbekistan on a scientific basis of a comparative approach to assessing the value of business;

3. In the comparative approach, the following methods are used: the capital market (the company's analogue method), transactions and industry relations. In the thesis, a special place is given to the method of the company - an analogue, on the basis of which studies have been carried out to determine market multipliers with the help of which the tasks of assessing the value of an enterprise are solved by a comparative approach.

4. To solve the problem by a comparative approach in the dissertation, a financial analysis and analysis of financial ratios were carried out. An analysis of financial indicators of the "Ok Oltin" production enterprise for 2015-2017 shows the following: - The average annual amount of the enterprise's economic resources during the period under review has considerably increased. The mobility of vehicles has grown. The share of funds increased from 5.4% to 11.5%. Increasing the amount of funds will

5. - Even though Ok Oltin (manufacturing enterprise) has a decline in solvency in 2017, its high solvency is high. The rapid liquidity ratio is very high throughout the year. This parameter should be between 0.7 and 0.8. The fast liquidity ratio was between 1.29 and 0.75.

- Net revenue from sales of products (goods, works, services) of the enterprise has increased during the analyzed period. The revenues in 2017 amounted to 1711,866 thousand sums, which is 2,5 times more than in 2015, and by 2 times more than in the previous year. The profit of the gross domestic product amounted to 556 736 thousand sums and increased at the same rate.

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