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### ОПРЕДЕЛЕНИЕ ПРЕМИИ ЗА КОНТРОЛЬ БИЗНЕСОМ ПРИ ОЦЕНКЕ АКЦИЙ

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Вопрос обоснования использованных корректировок при оценке пакетов акций становится все более актуальным в последнее время в связи с увеличением количества предложений со стороны собственников. Предложена методика распределения рыночной стоимости бизнеса в зависимости от размера оцениваемого пакета. Полезность пакета зависит от нормативно подтвержденных прав участия в управлении компании будущего обладателя пакета. В предлагаемой методике фактическое количество членов в совете директоров моделируется на основании анализа реестра акционеров. Предлагаемая методика позволяет перейти от пропорциональной стоимости акции к ее рыночной стоимости в составе конкретного пакета. Переход осуществляется за счет назначения весовых коэффициентов, полученных методом итерационных вычислений. Весовые коэффициенты подбираются для компании с известной рыночной стоимостью стопроцентного пакета акций, на основании данных фондового рынка о рыночной стоимости акции в миноритарном пакете. На основании предложенной методики определяется стоимость акции в различных пакетах. Премию за контроль предлагается рассчитывать как отношение акции в контрольном пакете к акции в миноритарном пакете. Получены весовые коэффициенты для значимых пакетов акционерного общества и выведены рыночные премии за контроль по финансовой отчетности ПАО «Лукойл» на декабрь 2016 г. Получена рыночная премия на уровне 39,9 % для контрольного пакета размером более 90 %. Для других пакетов премии рассчитаны с применением линейной аппроксимации. Полезность пакета зависит от нормативно подтвержденных прав участия в управлении компании будущего обладателя пакета. Уточненная в данном исследовании методика позволяет перейти от пропорциональной стоимости акции к ее стоимости в составе конкретного пакета. Данная методика отличается от авторских наработок, представленных ранее, возможностью учесть влияние распределения акций среди собственников. Премии за контроль, полученные по предлагаемой методике, прошли эмпирическую проверку.

**Ключевые слова:** оценка бизнеса; премия за контроль; пакет акций; рыночная стоимость акции; миноритарная стоимость

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# DETERMINING THE CONTROL PREMIUM IN BUSINESS VALUATION OF SHARES

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Substantiating the adjustments used in the valuation of share packages has become especially important recently due to a growing number of offers on the part of owners. The paper proposes a methodology for distributing the business market value depending on the

size of the package to be assessed. The utility of a package depends on the legally certified rights of the future package holder to participate in the company's management. The suggested methodology models the actual number of members in the Board of directors on the basis of the analyzed register of shareholders. The methodology proposed in this paper allows making a transition from the proportional value of a share to the market value of a share within the specific package. The transfer is possible due to designation of weight coefficients obtained by the iterative calculation method. The weight coefficients are selected for a company with the specified market value of one hundred percent share package based on the data of the stock market about the market value of a share in the minority package. Based on the methodology proposed in the paper, the value of a share is determined in various packages. It is suggested that the control premium should be calculated as a ratio of a share in the controlling interest package to a share in the minority package. The paper describes the obtained weight coefficients for significant packages of the joints stock company and derived market control premiums according to the financial statements of PJSC LUKOIL for December 2016. In the paper, the market premium has been obtained at the level of 39.9 % for a controlling interest package as big as 90 %. For other packages premiums are calculated by using linear approximation. The methodology detailed in this paper allows making a transition from the proportional value of a share to the market value of a share in the composition of a certain package. The proposed methodology is different from the methods developed earlier as it makes it possible to take into account the effect of share distribution among owners. The control premiums, obtained in accordance with the methodology proposed in this paper, have been empirically checked.

**Keywords:** business valuation; control premium; share package; market value of a share; minority value

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*Introduction*. The publication of the federal standards on valuation «Business Valuation (FVS No. 8)1» has caused a new wave of discussions and disputes in the valuating community regarding the issue of substantiating adjustments used in share package valuation. It should be noted that the transaction method in the comparative approach as well as the methods of income and cost approaches in business valuation allow calculating the preliminary value of one hundred percent share package. If a smaller package is subject to valuation, the valuator has to correct the proportional (to the participation share in the equity capital) package value according to the correcting reduction coefficient, which takes into account the utility of the package for the future owner. The utility of the package depends on the legally<sup>2</sup> certified rights of the future package holder to participate

in company management. The methodology proposed in [1, 2] and detailed in this paper allows making a transition from «the proportional value of a share to the market value of a share in the composition of a certain package». The proposed methodology is different from the methods developed by different authors [3-20], making it possible to take into account the effect of share distribution among owners. The control premiums, obtained in accordance with the methodology proposed in this paper, have been empirically checked.

Methodology. «The market value of a company is understood as the market value of one hundred percent share package of the company owned by a single holder» [1]. As described in [2], «an objective to determine the market value of packages is reduced to the distribution of the company market value between packages according to the rights associated with it».

It is proposed to conditionally break the calculation of equity capital market value distribution between the packages of various sizes into 10 phases.

<sup>&</sup>lt;sup>1</sup> Federal valuation standards «Business Valuation (FVS No.8)», approved by the Order of the Ministry of Economic Development of Russia on 01 June 2015 No. 326.

<sup>&</sup>lt;sup>2</sup> Federal Law «On Joint Stock Companies» No.208-FZ (last edition), passed by the State Duma on 24.11.1995. URL: http://www.consultant.ru/document/cons\_doc\_LAW\_8743/ (Date of visit 05.05.2017).

Table 1

### Вес специальных преимуществ пакетов разных размеров

#### The weight of special advantages for packages of different sizes

| Right   | Package size $-J$      | Weight coefficient $-k_j$ |
|---|------------------------|---------------------------|
| Share in a negligibly small package, allowing receiving dividends, demanding the share's repurchase | Less than 10 %         | 1                         |
| Right to conduct audit and call an extraordinary meeting  | 10 %                   | 2                         |
| Bringing one personal representative to the Board of Directors (BoD)                                | 1<br>1 + members _ BoD | 3                         |
| Blocking some decisions   | 25 %+1 share           | 4                         |
| Selecting the Managing Director   | 50 %+1 share           | 5                         |
| Insurance of taking any decisions (lack of blocking package)  | 75 %                   | 6                         |
| Insurance of taking any decisions (lack of 10 %)  | 90 %+1 share           | 7                         |

1. The minimal size of the package (share in the equity capital) for obtaining a seat in the Board is determined by the formula [1]:

$$c = \frac{1}{O+1} + 1 \text{ action}, \tag{1}$$

where c is the required and sufficient size of the package; Q is the total number of members in the Board of directors, stipulated in the company charter.

2. The calculated value of the number of members in the Board (q) whose election the package owner can reliably provide, not depending on how the rest of the shares are distributed, is determined as:

$$q = C_i (Q+1), (2)$$

where Q is the total number of members in the Board governed by the company charter;  $C_i$  is the size of an i-th package.

- 3. Appointment of the actual number of members in the Board which the package owner can reliably expect in the current situation. The actual number of members in the Board is modeled on the basis of the analyzed register of shareholders.
- 4. Determination of the composition of rights belonging to every package.

The packages are broken down into parts, ensuring the most significant rights. First, it is necessary to segregate the part of the package which ensures the most significant power among those described in [2, Tab. 1]. The remainder,

which makes it possible to additionally give shares vested with certain legal powers, is divided into components until the remaining part becomes smaller than the significant package allowing to bring the holder's representative into the Board of Directors.

5. Determination of the «preliminary» weight for every package.

In order to obtain the value of packages, the «preliminary weight» is calculated depending on the special advantages, which are powers enacted in the Federal Law «On Joint Stock Companies»<sup>3</sup>.

- calling an extraordinary meeting and conducting an audit (10 % share package);
- appointing a member of the Board (the threshold  $\ll 9.09 \% + 1$  share» corresponds to *ten* members of the Board in case of cumulative voting);
- blocking some decisions (25 % + 1 share);
- taking most decisions and selecting the Managing Director (50 %+1 share);
- taking any decision (75 % and more).

Initially, every secondary right adds 1 conventional unit, see Tab. 1.

In order to obtain the «preliminary» weight, the allocated shares within the package are to be multiplied by the relevant weight coefficient from Tab. 1. For example, it is suggested in [1, p. 160] that the value of packages amounting

<sup>&</sup>lt;sup>3</sup> Federal Law «On Joint Stock Companies» No.208-FZ (last edition), passed by the State Duma on 24.11.1995. URL: http://www.consultant.ru/document/cons\_doc\_LAW\_8743/ (Date of visit 05.05.2017).

to 95 % (V95 %) and 42 % (V42 %) of the assumed quantity of voting shares presented in the General Meeting of Shareholders, should be calculated in the following way (in conventional units):

$$V_{95\%} = (90\% \cdot 7 + 5\% \cdot 1)N;$$

$$V_{42\%} = (25\% \cdot 4 + 12.5\% \cdot 3 + 4.5\% \cdot 1)N,$$

where N is the total quantity of the company's voting shares.

If the structure of the company capital is such that the minority part of the package gives it a secondary right to select a member in the Board, then the coefficient of the minority part of the package is calculated as

$$k_{\min} = (k_3 - k_2) q_{\text{add}} + k_1,$$
 (3)

where  $k_{\min}$  is the the coefficient for the minority part of the package, giving a secondary right to elect a member in the Board,  $k_3$  is the coefficient for the package giving the right to elect one member in the Board,  $k_2$  is the coefficient for the package giving the right to call an extraordinary meeting and conduct an audit,  $k_1$  is the coefficient of the minority package giving the right to receive dividends,  $q_{\rm add}$  is the the number of additional representatives in the Board.

6. The dividend value («package dividends» in the example) for every package is calculated by the formula:

$$D_i = \frac{d}{Y_o} n_i, \tag{4}$$

where  $D_i$  is the dividend value of an *i*th package, d is the number of dividends per share,  $n_i$  is the number of shares in an *i*th package,  $Y_o$  is the capitalization rate (calculated in accordance with the weight-average capital cost (WACC) model).

The dividend value is calculated with an assumption that dividends per share remain constant throughout a long period.

7. Calculation of the additional value of the *i*th package. The additional value of the package can be obtained by distributing the rights, depending on the weight appointed in phase 5, by the formula:

$$V'_{i} = \frac{w_{i}}{\sum w_{i}} \left( V_{100\%} - \sum D_{i} \right), \tag{5}$$

where  $V_i$  is the additional value,  $w_i$  is the weight of the *i*th package,  $V_{100\%}$  is the value of the company.

8. Calculation of the package value

$$V_i = V_{i_0} + D_i, \tag{6}$$

where  $V_i$  is the value of the *i*th package,  $D_i$  is the dividend value of the *i*th package.

9. Calculation of the value of one share in the package. The ratio of the package value to the number of shares in the package gives the value of one share in the package.

$$V_{sh_i} = \frac{V_i}{n_i},\tag{7}$$

where  $V_{sh_i}$  is the value of one share in the *i*th package,  $n_i$  is the number of shares in the package.

10. Calculation of weight coefficients.

Since the value of one share in the minority package is known, the «preliminary weights» of the significant packages can be adjusted by the iterative calculation method so that the value of one share, confirmed by the stock market, would be equal to the preliminary expected value of one share in the minority package of the model. The distribution of «weight coefficients» between packages is changing according to linear dependency.

Main Part. Let us consider how the proposed methodology can be used in a specific context. According to the data [14, p. 6], the value of the equity capital of PJSC LUKOIL as of 31.12.2016 comprised 3,220,880 mil. rubles. There are only ordinary shares in the company in the amount of 851 mil. The face value of shares is 21 mil. rubles. «Dividing the obtained result by the total number of the company's shares gives a proportional value of one share within the one hundred percent package, as if it was owned by a single holder» [1]. The structure of the equity capital of the company is presented in Tab. 2.

The sufficient size of a package (number of votes at the general meeting of shareholders) for electing one representative in the Board of Directors of PJSC LUKOIL must be 1/11 = 9.09 %.

Tab. 3 shows a distribution model of representatives in the Board of Directors from every shareholder, given the cumulative voting at the meeting of shareholders.

By a majority vote, an additional representative in the Board of Directors is taken by the principal shareholder.

Let us use Tab. 4 to determine the content of rights for every package by breaking the existing packages down to significant shares with additional advantages.

Table 2

Структура акционерного капитала ПАО «Лукойл»

The structure of the equity capital of PJSC LUKOIL

| Shareholder's name  | Share in the Equity Capital, % |
|---|--------------------------------|
| Non-bank financial institution, closed joint stock company National Settlement Depository (NSD) | 92.56 %                        |
| Specialized depositary company<br>Garant (SDC Garant)   | 2.52 %                         |
| Minority packages (MP)  | 4.92 %                         |
| Total   | 100 %                          |

According to the data of PJSC LUKOIL http://www.lukoil.ru/

Table 3

# Расчет числа представителей в Совете директоров (СД)

## The calculated number of representatives in the Board of Directors (BoD)

| Shareholders | Package<br>size | Expected value of the number of members in the BoD (q) | Additional representative in the BoD |
|--------------|-----------------|--|--------------------------------------|
| NSD          | 92.56 %         | 9 ≈ 0.7767/0.0909                                      | 1                                    |
| SDC Garant   | 2.52 %          | 0 ≈ 0.1186/0.0909                                      | 0                                    |
| MP           | 4.92 %          | 0  | 0                                    |

In the next phase let us calculate the weight  $(w_i)$  for every package, using the coefficients presented in Tab. 1. Additional advantages of the principal shareholder are considered with the difference of weights of two packages, for example, the weight of 9.09 % package, allowing

appointing one representative in the Board of Directors, and that of the package preceding in terms of rights. This difference can be called a contribution per one vote in the Board of Directors. Let us calculate the weight coefficients of packages:

$$W_{92.56\%} = 90 \% \times 7 + 2.56\% \times ((3 - 2) + 1) = 6.35;$$
  
 $w_{2.52\%} = 2.52\% \times 1 = 0.03;$   
 $w_{4.92\%} = 4.92\% \times 1 = 0.49;$ 

In December 2016, it was decided at a meeting of shareholders to pay dividends in the amount of 75 rubles per share. The return rate on invested capital is determined in [14, p. 60] as 10 %.

The dividend value is calculated assuming that dividends per share remain constant throughout a long period. Let us calculate the dividend value by packages, using formula (4). The calculation of the additional value and redistributed value are given in Tab. 5.

Table 4
Определение состава прав
принадлежащих каждому пакету

# Determination of the content of rights belonging to every package

| Package size/<br>Right    | Ensuring that any decision is taken by a general meeting of shareholders (lack of 10 % package) | Receiving dividends |
|---------------------------|---|---------------------|
| Weight coefficient $-k_j$ | 7   | 1                   |
| 92.56 %                   | 90 %  | 2.56 %              |
| 2.52 %                    |   | 2.52 %              |
| 4.92 %                    |   | 4.92 %              |

Table 5

# Pасчет стоимости пакетов акция с предварительными весами Calculation of the value of share packages with preliminary weights

| Shareholders | Weight | Package dividends,<br>mil. RUR | Add. package value, mil. RUR | Calculated package value, mil. RUR | Preliminary value of share, RUR |
|--------------|--------|--------------------------------|------------------------------|------------------------------------|---------------------------------|
| NSD          | 6.35   | 590,465                        | 2,553,053                    | 3,143,518                          | 3,993                           |
| SDC Garant   | 0.03   | 16,065                         | 10,123                       | 26,188                             | 1,223                           |
| MP           | 0.05   | 31,393                         | 19,782                       | 51,175                             | 1,223                           |
| Total        | 6.43   | 637,922                        | 2,582,958                    | 3,220,880                          |                                 |

Table 6

# Pасчет стоимости пакетов акция с рыночно обоснованными весами Calculation of the value of share packages with market-substantiated weights

| Shareholders | Weight | Package dividends, mil. RUR | Add. package value, mil. RUR | Calculated package value, mil. RUR | Market value of share, RUR |
|--------------|--------|-----------------------------|------------------------------|------------------------------------|----------------------------|
| NSD          | 1.43   | 590,465                     | 2,455,455                    | 3,045,920                          | 3,869                      |
| SDC Garant   | 0.03   | 16,065                      | 43,160                       | 59,225                             | 2,765                      |
| MP           | 0.05   | 31,393                      | 84,342                       | 115,735                            | 2,765                      |
| Total        | 1.51   | 637,922                     | 2,582,958                    | 3,220,880                          |                            |

Table 7

### Рыночные премии за контроль и скидки за отсутствие контроля

#### Market control premiums and discounts for the lack of control

| Package size           | Package weight coefficient | Control premium | Discount for lack of control |
|------------------------|----------------------------|-----------------|------------------------------|
| Less than 10 %         | 1                          | 0 %             | 0 %                          |
| 10 %                   | 1.09                       | 6.7 %           | 6.2 %                        |
| 1<br>1 + members _ BoD | 1.19                       | 13.3 %          | 11.7 %                       |
| 25 %+1 share           | 1.28                       | 20.0 %          | 16.6 %                       |
| 50 %+1 share           | 1.37                       | 26.6 %          | 21.0 %                       |
| 75 %+1 share           | 1.47                       | 33.3 %          | 25.0 %                       |
| 90 %+1 share           | 1.56                       | 39.9 %          | 28.5 %                       |

Given that one share costs 2,765 rubles on the stock market (05.05.2017) [15], let us find the weight coefficients of significant packages. Using the iterative calculation method, let us pick up the weight for the 92.56 % package so that the preliminary value in the minority package would be equal to the market value. The weight in preliminary packages from the minority package up to 90 % is distributed linearly. The result of share revaluation with the market-substantiated weights is given in Table 6.

Thus, the calculation has shown that the market value of one share in the structure of the 92.56 % share package of PJSC LUKOIL amounted to 3,869 RUR per share.

The obtained control premiums and recalculated discounts for the lack of control are given below in Tab. 7. The control premium for 92.56 % is calculated as a ratio of the value of one share in the controlling interest package to the value of one share in the minority package.

In other packages the premium changes linearly. The discount for the lack of control is calculated by the formula [10]:

$$Discount = 1 - \frac{1}{1 + premium}.$$
 (8)

Thus, the control premium for a package ensuring that any decision is taken by a general meeting of shareholders is 56 % in case there is no 10 % package.

Conclusion. In order to obtain the market value of the share package, the valuator must apply final adjustments, which allow showing the utility of the package purchased at the market value for the owner in monetary terms,. This paper proposes a methodology for market value distribution of a hundred percent share package among shareholders owning various packages. The distribution occurs due to the appointed weight coefficients proportionally to the utility of

the purchased package. The weight coefficients, which allow redistributing the value, are selected by using the iterative calculation method based on the data of the stock market about the market value of shares in the minority package.

Given the market-selected weight coefficients of packages, the redistributed market value of one share is defined in every package. It is suggested that the control premium should be calculated as

a ratio of one share in the controlling interest package to one share in the minority package. In the paper, the market premiums have been obtained at the level of 39.9 % for a controlling interest package as big as 90 %. The premium has been calculated according to the financial statements of PJSC LUKOIL, made for December 2016 and officially presented on the website of the company.

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