

JEL Classification: F210

UDC: 330.322.54:004.42

## FORECAST OF THE POSSIBLE AMOUNT OF INVESTMENT ATTRACTION USING MONTE CARLO IMITATION MODELING

N. O. FARION<sup>1</sup>

<sup>1</sup> Kyiv National University of Technology and Design, Ukraine

### Introduction and objective of the study.

Computer program The system of remote corporate governance (SRCG) is aimed at increasing the efficiency of the conduct of general meetings of shareholders by identifying the issues and their level of real support by shareholders. Building internal communications between shareholders, SRCG allows increasing the influence of small shareholders in making important management decisions, which in turn can increase the level of protection of their rights.

**Research hypothesis.** It is expected that SRCG will improve the investment attractiveness of public companies. To assess the potential investment resources it is necessary to make forecasts. Modeling of future based on construction scenarios was chosen among the various methods of forecast of the possible amount of capital raising. Developed scenarios (optimistic, pessimistic and average) were refined through the use of the Monte Carlo simulation modeling method.

**Objective:** making forecasts about possible amount of investment attraction by building scenarios using the Monte Carlo simulation modeling method.

### Research methods:

- modeling the future on the basis of building scenarios. This forecasting method was used to compile alternative economic forecasts;  
- Monte Carlo simulation modeling method was used to refine the forecast values of attracting investment resources.

**Results:** three scenarios of the possible amount of capital raising were developed: optimistic, pessimistic and average; composed forecast for PC "Volodarka" of the estimated amount of issue of the shares and their price; adapted the Monte Carlo simulation modeling method to calculate the probability of involvement of different amounts of investment resources; probability to attract investment in the amount from 1 to 7 mln UAH is about 71%; calculated the most likely (probability is about 22%) the amount of which may reduce the authorized capital – from 5 to 7 mln UAH; developed measures for reducing (neutralizing) the risk of depreciation of the shares.

**Conclusions:** based on the calculations, we can conclude that SRCG can be implemented in real-world economic conditions and provide significant attraction of investment resources into public companies.

**Keywords:** SRCG, Monte Carlo method, method of scenarios, price of the shares, attraction of investment resources.

**A problem statement.** Computer program "The system of remote corporate governance" (SRCG) is a new software product that was developed by an author (certificate of registration of copyright № 66939) [1]. SRCG involves maintaining the register of shareholders, giving them an opportunity to nominate their own initiative proposals on corporate governance and the implementation of the previous vote on these proposals shares [2].

---

SRCG, promoting partnership between shareholders, improves the protection of the rights of shareholders, including owners of small blocks of shares [2]. It is expected that the introduction of SRCG will help improve the reputation of public companies. That is, they will form the reputation of those who honestly support the interests of investors, and this will improve the investment attractiveness.

Relevance of the research is determined by the fact that the full use of SRCG on existing enterprises does not seem possible without an in-depth research on the real usefulness for public companies. Enterprises need to know exactly what they can benefit from the program to make a decision. These issues are particularly important in low investment attractiveness of domestic enterprises.

**Analysis of the recent researches and unsolved part of the problem.** Corporate governance issues were researched by many Ukrainian scientists, among which should be mentioned achievements of L. A. Wenger [3], O. V. Yevtushevska [4], O. V. Moroz [5], L. A. Ptashchenko [6], D. M. Rusak [7] and others. Formation of the system of corporate governance is described in the works of O. E. Popova [8], L. M. Prokopchuk [9] and others.

However, noting a significant contribution that scientists made to the development of the system of corporate governance, most aspects of this multifaceted problem remain relevant and require constant attention. The dynamic development of information technology identifies objective areas for improvement for the system of corporate governance. In addition, the constant change of the economic environment, preferably towards its worsening, is leading to a need to find new theoretical and practical approaches to improve (develop) the system of corporate governance.

**The aim** of the research is the adaptation of the Monte Carlo simulation modeling method for forecasting possible amount of investment attraction by building scenarios.

**Research results.** Implementation of SRCG will promote [2]:

- increasing the efficiency of the general meeting of shareholders by identifying the range of pressing issues and their level of real support by the shareholders;
- partnership between shareholders, resulting in forming a community of shareholders that effectively cooperate with each other;
- harmonization of relations between different groups of shareholders through the balance of interests of owners of small and large packages of shares;
- the growth of the real impact of minority shareholders.

All the above gives some assurance to shareholders that their rights will be considered. Respect the rights of shareholders will improve the investment attractiveness of public companies, which in turn will help to attract additional financial resources.

Of course, all the above-mentioned improvements will remain only assumptions, if they are not backed by appropriate calculations in the form of specific forecasts for the enterprise development. Among the various methods of forecasting, it is advisable to choose a modeling of the future based on constructing scenarios. As previously revealed, SRCG promotes investments, that is, it can give a very quick and noticeable effect, drive growth of capitalization of the public company. Therefore, we will evaluate the SRCG for this indicator, as a possible amount of the capital raising. The following is a description of three possible scenarios:

1st optimistic scenario: introduction SRCG will be extremely useful for the development of public companies and allow them to attract additional investments in the planned amount.

2nd base scenario (average, realistic, most likely): program (SRCG) will be useful for the development of public companies and positively influence their activity by attracting some amount of investments.

3rd pessimistic scenario: program (SRCG) will not bring any benefit to public companies, or even would be harmful for them. In this scenario, the implementation of SRCG will not help to attract investments. Moreover, the system may cause additional damage to the public company as a result of reduce (fall) of the share prices.

Then we will use the developed scenarios (optimistic, pessimistic, and most likely) to plan the amount of investments and the growth of an the own capital.

We will predict possible amount of attracting investments through the issue of shares on the example of PC "Volodarka". The quantity of public shares of PC "Volodarka" is 213,078 units. Each shareholder can be proposed instead of two shares of the previous issue buy one share of the new issue. For this purpose, on the general meeting of shareholders must be decided to issue additional shares amounting to 50% of the previous subscription (in this case issuing shares at the base of a public company). Thus the quantity of newly issued shares will be 106,539 units.

It is assumed that subscriptions to newly issued shares should be conducted among shareholders, and in case of failure, possible sale of shares on the stock exchange. The result of such subscriptions may be an additional issue of shares in the range from 0 to 106,539 units.

An important element of the additional issue of shares is pricing. Price of share is a monetary expression of the value that is paid per share. The share has the following price forms: nominal, currency (market), issuing and balanced [10, p. 260; 11, p. 115].

Balanced (book) price of a share is the amount of the own capital of the enterprise that is attributable to one share [11, p. 116]. If there were only issued ordinary shares, their value is determined by dividing the own capital on quantity of shares. If also issued preferred shares, then the own capital should be reduced on the total cost of preferred shares at par or redemption price (for recall shares).

Indicator of the balanced (calculated) rate of corporate rights characterizes the own capital structure of the company. It measures the amount of net assets attributable to one share (proportion, part) and is expressed as a percentage relation between the own capital (OC) and authorized capital (AC) [11, p. 115–116]:

$$\text{Balance course (BC)} = \frac{\text{OC}}{\text{AC}} \times 100\%, \quad (1)$$

where OC – the own capital; AC – authorized capital.

The estimated value of the share is determined by dividing the total net asset value (the own capital) on quantity of shares is kept in circulation on the date of calculation [12, p. 2–3]:

$$\text{The cost of share (CS)} = \frac{\text{The own capital}}{\text{Quantity of shares}} \quad (2)$$

or

$$\text{The cost of share (CS)} = \frac{\text{Total assets on the balance} - \text{Total obligations}}{\text{Quantity of ordinary issued shares}}. \quad (3)$$

Let us calculate the balance rate of a share according to the formula (1):

$$\text{Balance rate (BR)} = (24519000 / 4005866.4) \times 100\% = 612.08\%.$$

$$\text{Book value of shares} = (\text{Nominal value of shares} \times \text{Balance rate}) / 100\% = (18.8 \times 612.08) / 100 = 115.07 \text{ UAH}.$$

Let us calculate the value of a share according to the formula (2):

$$\text{The value of shares} = 24519000 / 213078 = 115.07 \text{ UAH}.$$

Let us calculate the value of shares by the formula (3):

$$\text{The value of a share} = (39674 - (2509 + 12646)) / 213078 = 24519000 / 213078 = 115.07 \text{ UAH}.$$

As we can see, different formulas give the balance rate of the shares equal to 115.07 UAH.

Since quantification of the future is complicated (yes, it is difficult to accurately determine the demand for shares), in the preparation of scenarios most commonly is used interval forecasts of indicators. The lower limit of the forecast level of price of the share will be considered their face value, and the top – the balance rate of the share. In the Table 1 are shown interval forecasts for the price of shares of PC "Volodarka", it will be in the range from 18.8 UAH to 115.07 UAH.

As we can see from Table 1, we have very large interval forecast of the price of share. The reason is that the nominal value of the shares does not fit us, which is not fully comparable with the current value of the shares. The nominal value is important only when establishing the public company, and later more relevant is only the market value.

*Table 1*

**Interval forecasts for the price of shares of PC "Volodarka"**

Title of PC	Authorized capital (total nominal value), UAH.	Year of shares issue (Issue date of registration).	Nominal share value, UAH.	The the own capital of the enterprise (calculated net asset value) thousands of UAH.	Share quantity, units.	Balanced value of shares, UAH.	Expected threshold per share, UAH.
1	2	3	4	5	6	7	8
PC "Volodarka"	4005866.4	15.12. 2010	18.8	24519	213078	115.07	18.8 – 115.07

\* compiled and calculated by the author according to the published information on the website [www.smida.gov.ua](http://www.smida.gov.ua) [13].

The market price or the stock prices is the price at which the shares are bought and sold on the market [14]. Thus, share nominal does not matter, and the share of smaller nominal may be sold at a higher price. For an investor is important, which income gives the share at the moment and what are the prospects for profit in the future.

The actual market price of the shares is determined by their supply and demand and may differ from the calculated [15, p. 267]. The most important deviation factor of the market price in either direction is correlation between supply and demand on a securities market [15, p. 267]. The price of shares on the market at any given time formed under the influence of such factors [14, 16]:

- 1) amounts of paid and expected dividends in the prospect;
- 2) the size of bank interest rate (lending rate);
- 3) profitability level of operations in alternative markets, including the bond market;
- 4) price of precious metals, fuel, commodities and real estate provided that investing money in them is becoming an alternative to investing in shares;
- 5) level of liquidity of shares is the possibility of converting them into cash without much loss;
- 6) exchange speculation, expected trends in market conditions securities;
- 7) inflation and trends of expected changes in the course of the inflationary process.

The difficulty of measuring and forecasting make evaluation process very difficult. One of the simplest is the method of calculating the share price based on the amount of paid dividends. The market price of the share ( $M_a$ ) can be calculated according to the formula [17]:

$$M_a = (S_n \times S_p) / 100\%, \quad (4)$$

where  $S_n$  – the nominal value of the share;  $S_p$  – stock price.

In turn, stock price ( $S_a$ ) is calculated [17; 18, p. 369]:

$$S_a = \left( \frac{D_s}{I_b} \right) \times 100\%, \quad (5)$$

where  $D_s$  – dividend on shares in %;  $I_b$  – bank lending rate in %.

For the bank lending rate we take the NBU discount rate [19]. The average discount rate of NBU = 10.625 %.

Let us calculate dividends on shares in % for PC "Volodarka." Shareholder dividends ( $D$ ), UAH:

$$D = A_{nv} \times D_s \times Q_s, \text{ where } D_s = D / (A_{nv} \times Q_s),$$

where  $D$  – earned dividends per share, UAH ( $D = 5.74$  UAH);  $A_{nv}$  – nominal value per share, UAH;  $Q_s$  – quantity of shares owned by the shareholder, units.

$$D_s = 5.74 / (18.8 \times 1) = 0.3053 \times 100\% = 30.53\%.$$

Let us calculate the stock price  $S_p = (30.53 / 10.625) \times 100\% = 287.34\%$ .

The market value of shares for PC "Volodarka" will be:

$$M_a = (18.8 \times 287.34) / 100\% = 54.02 \text{ UAH.}$$

As a result, for PC "Volodarka" we received the following intervals of values of share prices and the estimated amount of additional issue of shares (Table 2).

Table 2

**Forecast of possible amount of the issue of shares and their price  
for the public company "Volodarka"**

Indicator title	Acronym name of the indicator (abbreviation)	Indicator measurement	Interval values of the indicator
1	2	3	4
Price of ordinary shares	$P_{ord. shr}$	UAH	from 54.02 to 115.07
The amount of shares issued	$Q_{shr}$	units	from 0 to 106539

\* calculated by the author according to the published information on the website [www.smida.gov.ua](http://www.smida.gov.ua) [13].

The amount of increasing of authorized capital based on additional issue shares can be found according to the simple formula  $P_{ord. shr} \times Q_{shr}$ .

---

---

If we take the median (average value) in each of the intervals, we get a possible increase in authorized capital:  $84,545 \times 53,270 = 4,503,670$  UAH. The result 4,503,670 is a median interval.

Due to such circumstances as:

we cannot know what will be the demand for the new share issue;  
market price of shares depends on many factors.

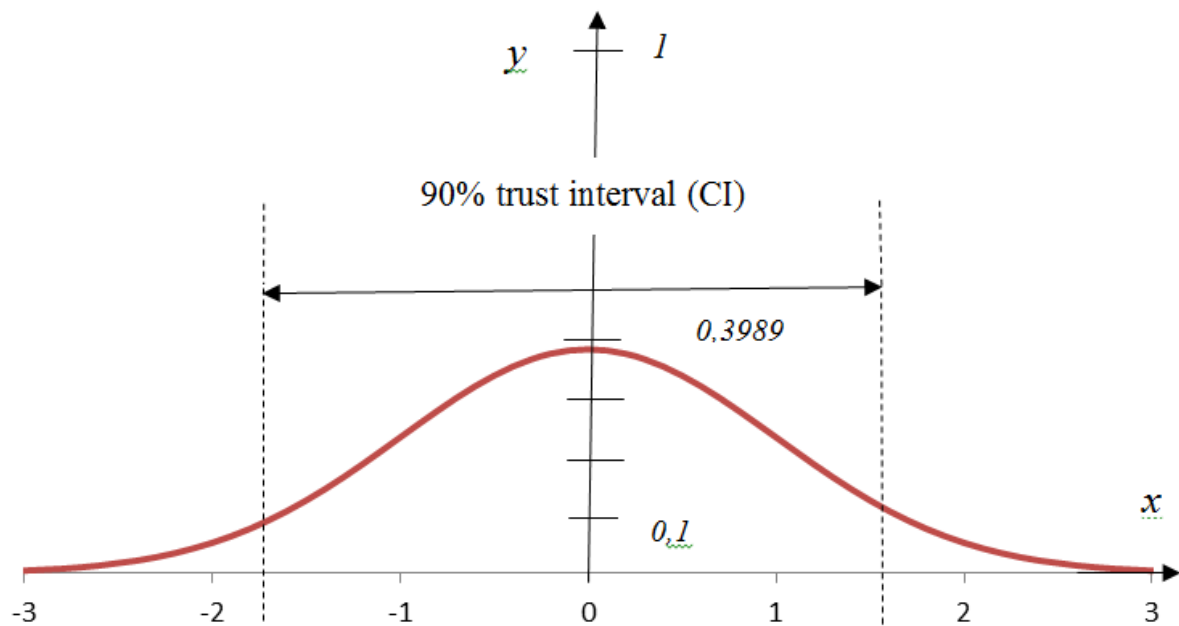
The market rate depends on correlation between supply and demand for securities. In turn, buyers and sellers of shares in making appropriate decisions take into account the following factors [14; 16]:

- 1) information on current and projected dividend payments;
- 2) size of bank interest rate (lending rate);
- 3) level of profitability of operations in alternative markets, including the bond market;
- 4) the price of precious metals, fuel, commodities and real estate, provided that investing money in them is becoming an alternative to investing in shares;
- 5) level of liquidity of shares, that is, the possibility of converting them into cash without much loss;
- 6) expected trends in market conditions securities;
- 7) inflation and trends of expected changes in the course of the inflationary process.
- 8) conclusions of analysts regarding the quality of the financial condition of the issuer;
- 9) assessment of the prospects in the field of industrial and economic enterprise;
- 10) general economic situation in the country and trends of its development (conjuncture, growth, stagnation etc.);
- 11) prospects of development of the relevant industry;
- 12) political influence through political and economic decisions and public financial policy;
- 13) psychological and speculative factors.

Impact of these factors complicates forecasting of demand for shares. Given the impact of these factors is not possible to perform simple calculations to answer the question: how much investment we could attract.

There are methods that allow under certain conditions find interval values of the resulting parameter for a range of values of the source data, including the Monte Carlo simulation modeling method [20, p. 77]. The Monte Carlo method is a method of direct selection of possible options [20, p. 77]. From the available intervals we select at random a lot of (thousands) the exact output parameters and calculate a lot of the exact values of an indicator of what we are looking for [20, p. 77].

Simulation by the Monte Carlo method will be performed on a personal computer using the Excel program. For our task, we take 90% trust intervals [20, p. 78]. Then we need to determine the shape of the distribution curve. If 90% trust intervals is commonly used a curve of normal (Gaussian) distribution [20, p. 78]. It looks like a bell curve, where most of the possible values of the results are grouped in the center of the chart and only a few, less likely, distributed, going down to zero on its edges (Figure 1) [20, p. 78].



\* on the horizontal line there are numbers of sigmas.

\*\* average ( $\mu$ ) equals to 0, standard deviation ( $\sigma^2$ ) equals to 1.

\*\*\* compiled by the author.

*Figure 1. Gaussian curve (normal distribution curve) [20, p. 78]*

Features of the normal distribution [20, p. 78]:

values that are located in the central part of the schedule, are more likely than the values on the edges;

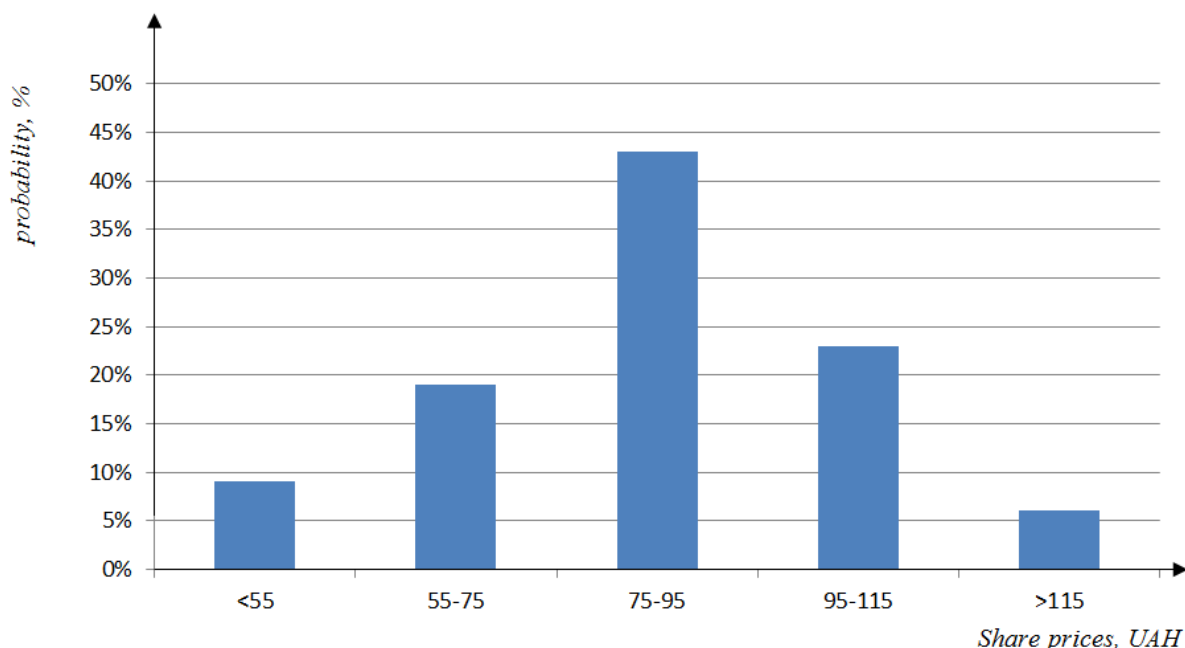
symmetrical distribution, the median is located exactly in the middle between the upper and lower limits of 90% trust interval (CI);

schedule "tails" are endless; values outside the 90% trust interval are unlikely, but still possible.

Speaking of normal distribution, it is necessary to mention an associated thing as a standard deviation [20, p. 79]. In a 90% trust interval there are 3.29 standard deviation [20, p. 79].



In our case, in the spreadsheet there should be created a generator of random numbers for each range of values [20, p. 79]. We start, for example, from the price of ordinary shares ( $P_{ord. shr}$ ). Distribution of price size of ordinary shares for 100 normally distributed values (Figure 2).



\* on the horizontal line there are deferred size ranges of share price, and on the vertical axis there is a part of share scenarios that occur in the specified range.

\*\* compiled by the author.

**Figure 2. Probability of distribution  $P_{ord. shr}$  for the range of values**

When calculating the 100 random values, distribution is not perfectly symmetrical. However, 85% of values fell in the price range of ordinary shares  $P_{ord. shr}$  from 55 UAH to 115 UAH.

Let us construct a table based on trust interval parameters  $P_{ord. shr}$  and  $Q_{shr}$  (Table 3). Calculations of the  $Q_{shr}$  distribution probability for the range of values are conducted similarly as for  $P_{ord. shr}$ . We will not use 100 random values now, but create in Excel 10000 line-scenarios.

The last column shows the results of calculations based on data from two previous columns. In the column "The value of capital increase" is shown the possible value of capital increase (possibly attracting investments), in each line is calculated one of the possible 10,000 scenarios. For example, in the case of scenario 2 the value of capital increase will be:  $58.1 \times 37,823 = 2,197,320.6$  UAH.

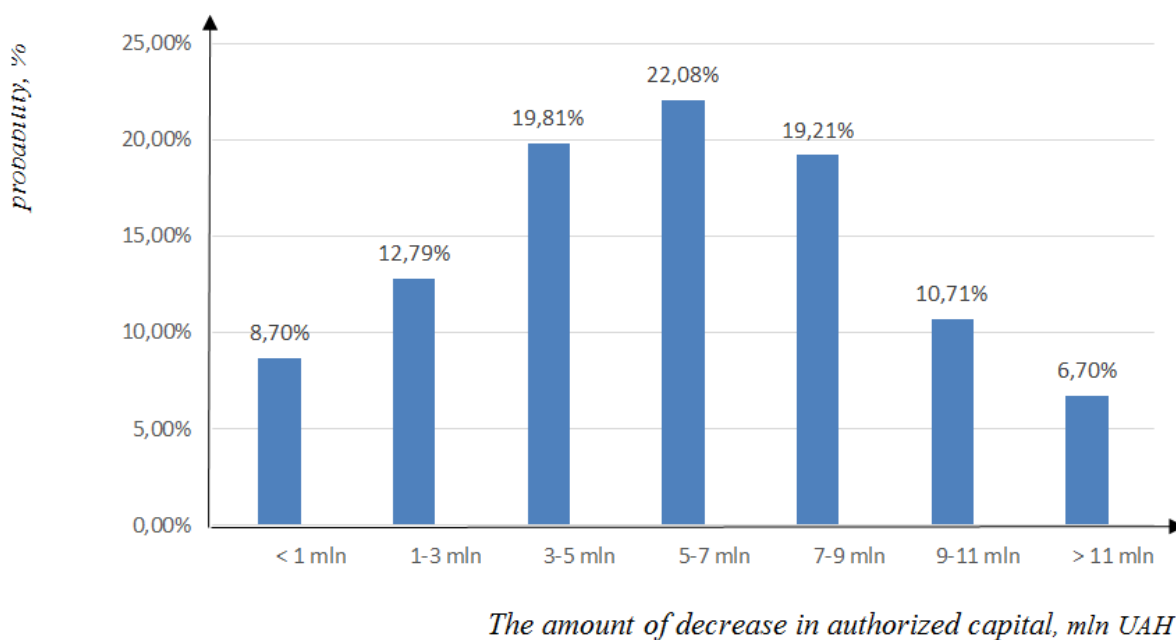
In order to evaluate the results, we build a summary table that will allows to calculate the number of scenarios in each 2-million range. Then we build a graph that shows the calculation results (Figure 3).

Table 3

**Calculation of possible scenarios of increasing the value of the authorized capital of the Monte Carlo method in Excel**

Scenario №	Ordinary share prices (UAH)	The amount of shares issued (units)	The amount of capital increase (UAH)
1	69,52679	19167,03050	1332622,05568
2	58,09446	37823,23980	2197320,55781
3	58,14521	49136,50265	2857052,37417
4	82,25140	17106,39333	1407024,77445
5	82,02296	79431,60974	6515215,55950
6	87,67378	27321,90569	2395414,79325
7	94,00078	25188,79628	2367766,37310
...			
9999	60,43956	27765,26726	1678120,53944
10000	73,46286	18747,40819	1377238,23330

\* author calculations.



\* on the horizontal line there are deferred 2 million size ranges of increasing of authorized capital, and on the vertical axis there is a part of share scenarios that occur in the specified range.

\*\* compiled by the author.

**Figure 3. Distribution of value of authorized capital increase by the range of values**

---

---

This graph shows what proportion of the 10,000 scenarios designed for our rate (the amount of capital increase) falls in a particular range of values. For example, about 7.43% of scenarios will attract investment of more than 9 mln UAH.

From all obtained value measures of authorized capital increase approximately 11% would be less than 1 mln UAH. This means that the probability of attracting minimum investments is 11%. The given number represents an assessment of meaningful risk. However, the complete lack of investment is virtually impossible. The probability to attract investment in the amount of 1 to 7 mln is about 71%. The probability of attracting significant investment (more than 7 mln UAH) is quite high and is about 19%.

Thus, we calculated the most likely (probability is 27.65%) value of which will increase the authorized capital – from 3 mln UAH to 5 ml. UAH.

Increase in authorized capital (the own capital) allows [14]:

Implement a new investment project. Private (authorized) capital is the financial basis for launching new projects to expand its activities.

Additionally increase capital raising through credit resources. Authorized capital is a kind of loan collateral for creditors of the company. The bigger the own capital of a company, especially authorized capital, the more losses the company may suffer without the threat of creditors' interests, therefore, the higher is its creditworthiness.

Improve liquidity and solvency of the enterprise. Contributions to the own capital, together with facilities, equipment, securities and other material assets can be money. They can be used to finance operating and investment activities of the enterprise, and for repayment of loans. This in turn increases the liquidity of the enterprise, on the one hand, and the potential of long-term funding on the other.

Improve the reputation of the enterprise. Solid authorized capital (the own capital) of the enterprise forms the basis for credibility not only among investors, but also from input suppliers and consumers of finished products. In addition, the enterprise with a solid own capital is much easier to attract qualified personnel.

In addition, the increase the own capital (authorized capital) is of great importance not only for creditors, but also for the enterprise and its owners. The higher the own capital, the better the enterprise is protected from effects of threatening to its existence factors [14].

In addition to the optimistic scenario, must be also considered the development of the pessimistic scenario. Under this scenario, as mentioned above, SRCG may harm the company. For example, PC "Volodarka" let us forecast a possible amount of losses in the case of the pessimistic scenario. Under this scenario, the enterprise may incur losses due to lower stock prices (Table 4).

Table 4

**Intervals of possible falling of share prices  
for the public company "Volodarka"**

Indicator title	Acronym name of the indicator (abbreviation)	Indicator measurement	Interval values of the indicator
1	2	3	4
Price of ordinary shares	P <sub>ord. shr</sub>	UAH	from 0 to 54.02
The amount of shares issued	Q <sub>shr</sub>	units	213078

\* calculations of the author.

The amount of reduce of the own capital due to falling stock prices can be found according to the simple formula  $P_{ord. shr} \times Q_{shr} - P_{ord. shr}^{\downarrow} \times Q_{shr}$ .

If we take the median (average) falling stock prices on shares, we will get a possible reduce of own capital:

$\Delta$  The own capital =  $54.02 \times 213078 - 27.01 \times 213078 = 11510473.56 - 5755236.78 = 5755236.78$  (UAH.).

The result 5,755,236.78 is a median of the interval.

Given that we cannot know the exact falling in stock prices on shares, to forecast possible reduce of the own capital we will use also the Monte Carlo simulation modeling method.

Let us construct a table based on trust interval parameters P<sub>ord. shr</sub>, Q<sub>shr</sub> we take as equal 213,078 units. Calculations will be conducted in Excel by creating 10,000 line-scenarios (Table 5).

Table 5

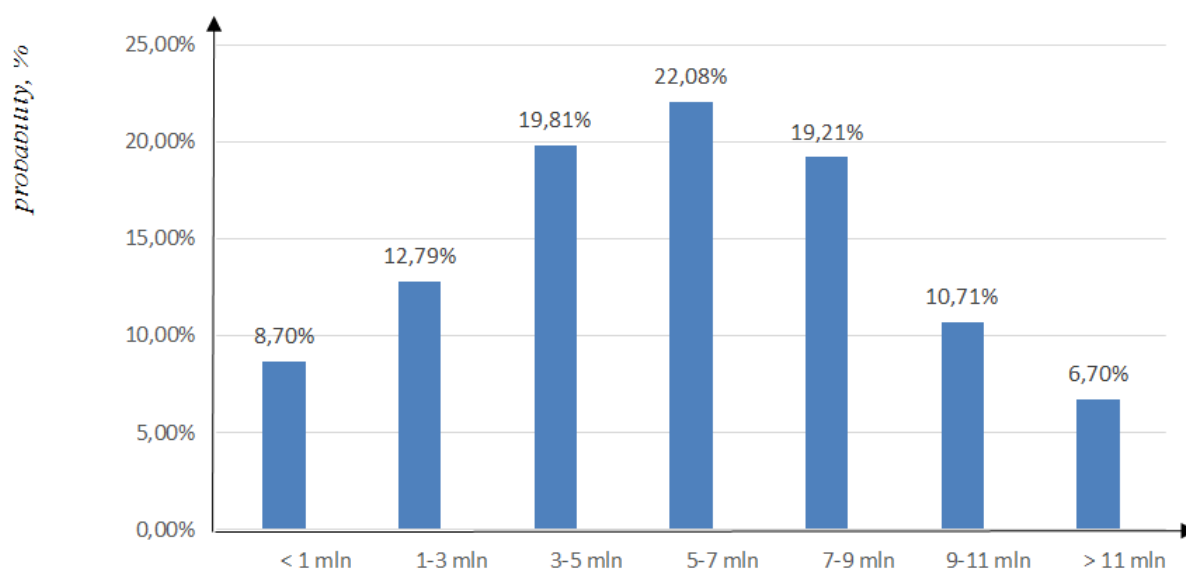
**Calculation of scenarios by the Monte Carlo method in Excel**

Scenario №	Ordinary share prices	The estimated level of price reduction of common stock (UAH)	Quantity of placed shares (units)	The amount of reduce of the own capital (UAH)
1	54,02	23,1	213078,0	6 582 459
2	54,02	18,2	213078,0	7 638 663
3	54,02	26,0	213078,0	5 960 379
4	54,02	28,9	213078,0	5 357 695
5	54,02	24,2	213078,0	6 364 202
6	54,02	27,8	213078,0	5 587 601
7	54,02	32,2	213078,0	4 653 430
8	54,02	14,6	213078,0	8 396 765
9	54,02	20,3	213078,0	7 182 324
10	54,02	25,1	213078,0	6 153 570
...	...	...	...	...
9999	54,02	42,6	213078,0	2 432 379
10000	54,02	31,0	213078,0	4 907 843

\* compiled by the author.

The last column shows the results of calculations based on data from the previous columns. In the column "The amount of reduce of the own capital" is shown the possible value reduction of the own capital (possible losses of the enterprise), in each line is calculated one of the possible 10,000 scenarios. For example, in the case of scenario 2 the value of capital increase will be:  $54.02 \times 213,078 - 18.2 \times 213,078 = 7,638,663$  UAH.

In order to evaluate the obtained results, we build a summary table that allows to calculate the number of scenarios in each 2-million range. Then build a graph that shows the calculation results (Figure 4). This graph shows what proportion of the 10,000 scenarios designed for our rate (the amount of reduce of the own capital) falls in a particular range of values.



*The amount of decrease in authorized capital, mln UAH*

\* on the horizontal line there are deferred 2 million size ranges of decreasing of the own capital, and on the vertical axis there is a part of share scenarios that occur in the specified range.

\*\* compiled by the author.

**Figure 4. Distribution of value of authorized capital reduced by the range of values**

From all obtained value measures of reduce of the own capital is approximately 7% that will be more than 11 mln UAH. This means that the possibility of maximum reduction of the own capital is 11%. The given number represents the assessment of meaningful risk.

Thus, we calculated the most likely (probability is about 22%) amount on which the own capital can reduce from 5 mln UAH to 7 mln UAH. The probability of reducing of the own capital in the amount from 3 to 9 mln is about 61%.

Reducing of the own capital leads to:

- increased risk of bankruptcy;
- deteriorating liquidity and solvency of the enterprise;
- reduced profitability;
- damage to the reputation of the company.

The less its own capital has the enterprise, the lower is its creditworthiness; worse enterprise is protected from effects of threatening to its existence factors [14]. In addition, the potential for long-term financing is reduced. Thus, the reducing of the own capital has a negative influence for the enterprise and its owners.

For increasing the likelihood of successful implementation of SRCG it is necessary to identify in detail all significant risks, collect and analyze information about them. For reducing the level of risk it is necessary to develop measures for its neutralization.

Risk assessment we will produce according to the following pattern: determination of risk; risk assessment and identification of measures for its prevention. The experts stated that SRCG may harm the enterprise through the identification of such factors affecting as:

1. Risk: a leak from the register of shareholders, which is expected to conduct by SRCG. Shareholder information (personal data) may fall into the hands of raiders who can use it to their advantage.

Measures to prevent the risk: this risk can be neutralized by not disclosing the real data of shareholders of the enterprise.

2. Risk: the majority shareholders can use the system for buying missing votes of the shareholders.

Measures: registration of shareholders under pseudonyms.

3. Risk: the majority shareholders may use information about the results of the previous vote in their favor, as SRCG shows the number of votes that can redeem for promoting the necessary decisions.

To avoid this risk or weaken its negative impact there should be taken the following measures: to publish information on critical issues advisable shortly before the general meeting. That is, to enabled the option when the results of voting on individual initiative proposals will be published shortly before the general meeting of shareholders.

4. Risk: during the introduction of the program product and during its maintenance is often manifested its weaknesses and shortcomings.

Risk management: an important role in the effective development takes extensive testing and debugging the system (application).

5. In the process of implementation of the system must be taken into account the risk of non-viability of the project: the lack of interest of the shareholders to the new system. As a result, it may cause an insufficient number of shareholders who registered in the system. As a result, it reduces the effectiveness of the implemented system, it does not give accurate results. D.M. Rusak said that the reasons for the rejection of innovations at the level of public companies are rooted in objective features of the system of corporate governance, a relatively high concentration of ownership, the actual closure of the bulk of public companies, self-financing, "pocket" supervisory councils [7, p. 10–11].

A way to reduce risk is promoting SRCG among shareholders, as well as encouraging participation in the system. The best measures to attract shareholders to the system are: constant work with them, and help to study the program. In addition, it is necessary to improve corporate culture and corporate consciousness in shareholders.

If we take all possible measures to reduce the risk, we can expect an optimistic scenario in which is expected to attract from 1 to 7 mln UAH with the probability of 71%. It should be noted, that measures to reduce risk are to be conducted in advance for the entire duration while working with SRCG.

**Conclusions and suggestions for further research.** Based on calculations, we can conclude that the effect from the implementation of SRCG will be quite noticeable for the enterprise. Implementation of SRCG, as confirmed by the relevant calculations will increase the own capital of the company. PC "Volodarka" can attract investment in the amount of 1 to 7 mln UAH with a probability of 71%. This in turn will improve the financial stability of the company.

In addition, SRCG will: improve the performance of the general meeting of shareholders; ensure adequate protection of the minority of shareholders; prevent the emergence of new corporate conflicts and facilitate the settlement of corporate conflicts existing between the minority and majority of shareholders; strengthen corporate social partnership between the shareholders; and improve the image of the enterprise. Based on the above said, SRCG can be implemented in the public companies in order to improve corporate governance.

Thus, today it is appropriate to intensify the implementation of SRCG in practice of public companies. Designed the system of remote corporate governance may be useful also for the enterprises that are not public companies.

References

1. Farion N. O. Kompiuterna prohrama «Systema dystantsiinoho korporatyvnoho upravlinnia». Svidotstvo pro reiestratsiiu avtorskoho prava na tvir # 66939 vid 29.07.2016 r. – Kyiv: Derzhavna sluzhba intelektualnoi vlasnosti Ukrainy, 2016.
2. Farion N. O. Systema dystantsiinoho korporatyvnoho upravlinnia v publichnykh aktsionernykh tovarystvakh // Aktualni problemy ekonomiky. – 2016. – № 12 (186). – S. 425–438.
3. Venher L. A. Orhanizatsiino-ekonomichni mekhanizmy korporatyvnoho upravlinnia v promyslovosti Ukrainy: Dys... kand. ekonom. nauk: 08.00.03 / Derzhavna ustanova «Instytut ekonomiky ta prohnozuvannia Natsionalnoi akademii nauk Ukrainy». – Kyiv, 2011. – 190 s.
4. Yevtushevska O. V. Rozvytok korporatyvnykh vidnosyn v rynkovii ekonomitsi: Dys... kand. ekonom. nauk: 08.00.01 / KNU im. Tarasa Shevchenka. – Kyiv, 2010. – 228 s.
5. Moroz O. V., Karachyna N. P., Khalimon T. M. Korporatyvne upravlinnia na pidpriemstvakh Ukrainy: postpryvatyzatsiinyi etap evoliutsii: Monohrafiia. – Vinnytsia: UNIVERSUM-Vinnytsia, 2008. – 180 s.
6. Ptashchenko L. O. Naukovo-metodychni zasady korporatyvnoho upravlinnia v ekonomitsi Ukrainy: Dys... doktora ekonom. nauk: 08.00.03. – Poltava, 2009. – 411 s.
7. Rusak D. M. Udoskonalennia korporatyvnoho upravlinnia v Ukraini v konteksti svitovoho dosvidu: Dys... kand. ekonom. nauk: 08.00.02 / KNU im. Tarasa Shevchenka. – Kyiv, 2007. – 208 s.
8. Popov O. Ye. Formuvannia systemy korporatyvnoho upravlinnia aktsionernymy tovarystvamy mashynobuduvannia: Dys... doktora ekonom. nauk: 08.00.04 / KhNEU. – Kharkiv, 2010. – 494 s.
9. Prokopchuk L. M. Formuvannia i rozvytok systemy korporatyvnoho upravlinnia v aktsionernykh tovarystvakh: Dys... kand.

Література

1. Фаріон Н. О. Комп'ютерна програма «Система дистанційного корпоративного управління». Свідоцтво про реєстрацію авторського права на твір № 66939 від 29.07.2016. – Київ: Державна служба інтелектуальної власності України, 2016.
2. Фаріон Н. О. Система дистанційного корпоративного управління в публічних акціонерних товариствах // Актуальні проблеми економіки. – 2016. – № 12 (186). – S. 425–438.
3. Венгер Л. А. Організаційно-економічні механізми корпоративного управління в промисловості України: Дис... канд. економ. наук: 08.00.03 / Державна установа «Інститут економіки та прогнозування Національної академії наук України». – Київ, 2011. – 190 с.
4. Євтушевська О. В. Розвиток корпоративних відносин в ринковій економіці: Дис... канд. економ. наук: 08.00.01 / КНУ ім. Тараса Шевченка. – Київ, 2010 – 228 с.
5. Мороз О. В., Карачина Н. П., Халімон Т. М. Корпоративне управління на підприємствах України: постприватизаційний етап еволюції: Монографія. – Вінниця: UNIVERSUM-Вінниця, 2008. – 180 с.
6. Птащенко Л. О. Науково-методичні засади корпоративного управління в економіці України: Дис... доктора економ. наук: 08.00.03. – Полтава, 2009. – 411 с.
7. Русак Д. М. Удосконалення корпоративного управління в Україні в контексті світового досвіду: Дис... канд. економ. наук: 08.00.02 / КНУ ім. Тараса Шевченка. – Київ, 2007. – 208 с.
8. Попов О. Є. Формування системної корпоративної управління акціонерними товариствами машинобудування: Дис... доктора економ. наук: 08.00.04 / ХНЕУ. – Харків, 2010. – 494 с.
9. Прокопчук Л. М. Формування та розвиток системи корпоративного управління в акціонерних товариствах:



- ekonom. nauk: 08.00.04 / Podilskyi derzh. ahrarno-tekhnichnyi un-t. – Kamianets-Podilskyi, 2012. – 260 s.
10. Mykhalchyshyna L. H. Tsinni papery: vydy ta systematyzatsiia dlia oblikovykh tsilei // Naukovyi visnyk Mizhnarodnoho humanitarnoho universytetu. Seriia: Ekonomika i menedzhment. – 2015. – Vypusk 12. – S. 258–261.
11. Shubenko Ye. S. Vlasnyi kapital yak ob'ekt oblikovoho doslidzhennia v umovakh reorhanizatsii hospodarskykh tovarystv // Visnyk ZhDTU. – 2016. – # 4 (78). – S. 110–122.
12. Andreiuk S. F. Otsinka investytsiinoi pryvablyvosti aktsii emitentiv enerhetychnoi haluzi // Efektyvna ekonomika: Elektronne naukove fakhove vydannia. – 2012. – # 8. – S. 1–4.
13. Natsionalna komisiia z tsinnykh paperiv ta fondovoho rynku. URL: <http://www.smida.gov.ua> (accessed March 10, 2017).
14. Tereshchenko O. O. Finansova diialnist subiektiv hospodariuvannia: Navch. Posib. – K.: KNEU, 2003. – 554 s.
15. Savych O. V. Tekhnichniy analiz rynku kapitalu. URL: [www.irbis-nbuv.gov.ua](http://www.irbis-nbuv.gov.ua) (accessed March 10, 2017).
16. Demkivskyi A. V. Hroshi ta kredyt: Navchalnyi posibnyk. – K.: Dakor, 2007. – 528 s.
17. Kurs aktsii. URL: <https://delo.ua/wiki/kurs-akcij-111012> (accessed March 10, 2017).
18. Matseliukh N. P. Strukturuвання та ціноутворення на ринку цінних паперів // Aktualni problemy ekonomiky. – 2015. – # 6 (168). – S. 363–369.
19. Natsionalnyi bank Ukrainy: oblikova stavka NBU. URL: <http://bank-ua.com> (accessed March 10, 2017).
20. Khabbard D. U. Kak izmeryt vse, chto ugodno. Otsenka stoimosti nemateryalnogo v byznese / Per. s anhl. E. Pesterevoi. – Moskva: Olymp, 2009.
- Дис... канд. економ. наука: 08.00.04 / Подільський держ. аграрно-технічний ун-т. – Кам'янець-Подільський, 2012. – 260 с.
10. Михальчишина Л. Г. Цінні папір: виділяється систематизація для облікових цілей // Науковий вісник Міжгалузевого гуманітарного університету. Серія: Економіка та менеджмент. – 2015. – Випуск 12. – С. 258–261.
11. Шубенко Є. С. Власний капітал, як об'єкт облікового дослідження в умовах реорганізації господарських товариств // Вісник ЖДТУ. – 2016. – № 4 (78). – С. 110–122.
12. Андрюк С. Ф. Оцінка інвестиційної привабливості акції емітентів енергетичної галузі // Ефективна економіка: Електронне наукове фахове видання. – 2012. – № 8. – С. 1–4.
13. Національна комісія з цінних паперів та фондового ринку. URL: <http://www.smida.gov.ua> (дата звернення 10.03.2017).
14. Терещенко О. О. Фінансова діяльність суб'єктів господарювання: Навч. посіб. – К.: КНЕУ, 2003. – 554 с.
15. Савич О. В. Технічний аналіз ринкової капіталу. URL: [www.irbis-nbuv.gov.ua](http://www.irbis-nbuv.gov.ua) (дата звернення 10.03.2017).
16. Демківський А. В. Гроші та кредит: Навчальний посібник. – К.: Дакор, 2007. – 528 с.
17. Курс акції. URL: <https://delo.ua/wiki/kurs-akcij-111012> (дата звернення 10.03.2017).
18. Мацеліух Н. П. Структурування та ціноутворення на ринку цінних паперів // Актуальні проблеми економіки. – 2015. – № 6 (168). – С. 363–369.
19. Національний банк України: облікова ставка НБУ. URL: <http://bank-ua.com> (дата звернення 10.03.2017).
20. Хаббард Д. Ю. Как измерить все, что угодно. Оценка стоимости нематериального в бизнесе / Пер. с англ. Е. Пестеревой. – Москва: Олимп, 2009.