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INVESTMENT SECURITY MODELS IN MERGERS AND ACQUISITION AGREEMENTS FOR INTERNATIONAL CORPORATIONS

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Abstract. The scientific paper identifies strategic motivational factors for using mergers and acquisitions to maintain a high level of investment security. Investment security models in mergers and acquisitions based on the concepts of value attractiveness and discounting corporate cash flows during growth has been developed and practically tested. A parametric relationship has been formed between the price of the shares of the integration corporate structure and the initial conditions of the integration transaction for both the acquiring corporation and the target corporation with a view to fair distribution of benefits from mergers or acquisitions.

Keywords: investment security, mergers and acquisitions, security model, equity, market capitalization, shareholding, transaction participants, corporate synergy, variations in corporate profits.

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JEL Classifications: C 42; F 23; F 39

1. Introduction

The relevance of the study is due to the fact that in the situation that has developed up to the present for international capital in the world of the economic situation a very acute problem is overcoming the crisis and getting out of it with the lowest possible losses. There is a need to search for effective in times of crisis models and methods for the development of corporations, solution of the challenges of g market presence maintainin, ensuring uninterrupted production. One of the modern methods of solving the problem of survival for corporations is the restructuring of property and mergers and acquisitions as one of the main elements of improving the efficiency of the company's capital.

Over the past decade, international agreements on mergers and acquisitions have been quite active, to which the economic literature has paid sufficient attention, focusing on the analysis of the prospects of these agreements. Any corporation has two principal options for its growth strategy — its own development based on internal resources or an acquisition of an external asset (Bilan, 2013). In the process of continuous development, within the framework of the existing strategy of the corporation, at any given moment the management determines that the most profitable for it is the acquisition of a new business, or the redistribution of resources within the framework of existing types of activities (Abrhám, Lžicar, 2018).

Accordingly, the purpose of acquiring a new business through mergers and acquisitions is to create a strategic

advantage by joining and integrating new elements of the business, which is considered more effective than their internal corporate development (*Drobyazko S., 2017; Drobyazko S., 2019*).

That is why the presence of a methodological approach to determine the deployment models of a merger and acquisition transaction, its future benefits and profitability for both the buyer and the seller, will help to increase their efficiency, which determines the economic relevance of the study.

2. Literature Survey

The following scholars have greatly contributed to the study of the problems and the empirical basis for the use of mergers and acquisitions among international corporations and structures: (Cassiman, Colombo 2006; Gaughan, 2007; Godbole, 2009; Hair, Lukas, 2014;; Roberts, et. al., 2010; Sherman, 2010; Tencati & Perinni, 2006; Čirjevskis, 2017; Načisčionis, et. al., 2018; Petrenko et al., 2018; Tvaronavičienė, 2019; Koval et al., 2019).

But at the same time, we can assert that the quality of planning and positive organizational and economic changes in the implementation of mergers and acquisitions are still at a low level, and planning of cost effects and stock price forecasting models after the end of the transaction becomes a special stage. This direction requires the improvement of new methodological approaches to the organization of integration interaction among international corporations and the improvement of the status of the indicator of the expected value of the transaction from mergers or acquisitions, as a leading guide for international investors (Tvaronavičienė, 2018; Girdzijauskaite et al., 2019).

The purpose of the article is to develop a methodological approach to the formation of models of the formation of cost benefits for the acquiring company and the evaluation of the investment value of the target company when using mergers and acquisitions.

3. Methods

Now the majority of business owners pay considerable attention to the strategic management of corporations, which is associated with increased market competition and capital concentration processes. At the same time, integration through mergers and acquisitions becomes one of the factors for the growth of market power for international corporations, which forms variations or patterns of organizational benefits for participants in these agreements (Boufarah, Spatoliatore, 2012; Galpin, and Herndon, 2010).

4. Results

Model "1"

Let's use the investment model of net present value (NPV) to analyze international mergers and acquisitions. For the selling corporation, this figure will be:

$$NPV_s = \delta \times P_{bs} - P_s + CASH\,, \tag{1}$$

where P_{bs} – value of the equity capital of a corporation formed by the DCF model (discounted cash flows);
P_s – value of the equity capital for the target corporation, determined by the DCF model;
$CASH$ – cash paid by the target corporation;
δ – share of shareholders of the target corporation in the new integration structure.

$$\delta = \frac{ER_b \times N_s}{N_b + ER_b \times N_s}, \tag{2}$$

where:
E_{Rb} – ratio of the exchange of shares of the target corporation for shares of the purchaser with the model «1»,

the most acceptable for the acquiring corporation;
N_s – number of shares of the target corporation (seller);
N_b – number of shares of the acquiring corporation

The minimum possible exchange ratio is lower because NPVs = 0 for the target corporation, while the purchaser takes all the enormous earning.

We can show that:

$$ER_b = ER_k \times F_b \tag{3}$$

where:

$$ER_k = \frac{N_b \times P_s}{N_s \times P_b} = \frac{P_s / N_s}{P_b / N_b}; \tag{4}$$

$$F_b = \frac{1 - \frac{CASH}{P_s}}{1 + \frac{CASH}{P_b} + \frac{SE}{P_b}}; \tag{5}$$

P_b – value of the acquiring corporation determined by the DCF model;
S_E – value of the synergistic effect of the integration of the two companies.

With this ratio, the entire volume of the increase in the market value of integration falls on the purchaser (all the enormous earning is taken by the acquiring corporation).

The value of ER_k is the ratio of the market price of one share of the business selling corporation ($Vs = Ps / Ns$) to a similar value ($Vb = Pb / Nb$) of the acquiring corporation, and in a certain sense it can be interpreted as some initial, maximum for this option of estimating value of the share exchange ratio, which can further decrease depending on the value of the factor function F_b, which in turn is dependent on the value of the synergistic effect resulting from the integration of S_E corporations, cash, paid for the target corporation – *CASH* and equity values of both corporations P_s and P_b (Boone, and Mulherin 2007).

Thus, the ERk indicator is the stock exchange ratio for a swap merger of companies, when *CASH=0* (that is, there are no objects of acquisition) and all other values peculiar to the processes of mergers and acquisitions that are included in the expression for determining the net present value in proportion to the contribution of this corporation to the combined corporate structure (Fry, & Cheah, 2016). Thus, the price of one stock of the target corporation – V_s will be determined as the multiplying the exchange ratio ER_b by the price of one share of the acquiring corporation – V_b, that is:

$$V_s = ER_b \times V_b = ER_k \times F_b \times V_b \tag{6}$$

In other words, in proportion to the change in the factor function and the change in the exchange ratio, the price of shares of the target corporation will also change.

It can be argued that the enormous earning *EEb* that a purchaser of a business receives is equal to:

$$EE_b = SE - AC \tag{7}$$

where *AC* – presented value of additional costs of mergers and investments in a new corporate structure.

It can be shown that regardless of the distribution of benefits from mergers / acquisitions, the value of EE_b does not change and is equal to the total income, which, in turn, is determined as the difference between the revenues (the synergy effect S_E) and the costs (presented value of additional costs of mergers and investments ina new corporation - *AC*), which is assumed by the acquiring corporation (Brealey, et. al., 2001).

In addition, why the money paid for the object of acquisition - *CASH* was not included in formula (7) as part of the outflows in determining the enormous earning. The reason is that these funds are expenses for the acquiring corporation and their transfer within the new corporate structure. Moreover, cash for the object of acquisition can be only in the case of hostile takeovers, and in the case of swap mergers the value *CASH = 0*.

Since in the financial and economic sense more informative are not absolute values, such as *CASH,* S_E, *AC* and *Ps*, but their relative values, namely, cash for the object of acquisition, the synergistic effect and the presented value of the additional costs of a merger and investment in a new structure per unit value of the acquiring corporation, as well as the value indicating which part of the value of the main corporation is the value of the target corporation (Pavel and Qi, 2014). Thus, the expression for the factor function will be presented in the form:

$$F_b = \frac{1 - \frac{CASH}{P_s}}{1 + \frac{CASH}{P_b} \times \frac{P_s}{P_b} + \frac{SE}{P_s} \times \frac{P_s}{P_b}}, \tag{8}$$

$$F_b = \frac{1 - CASH_r}{1 + (CASH_r + SE_r)P_{sr}}, \tag{9}$$

where the *«r»* index means that this value is taken in relative units, that is:

$$CASH_r = \frac{CASH}{P_s}; \; SE_r = \frac{SE}{P_s}; \; P_{sr} = \frac{P_s}{P_b} \tag{10}$$

Thus, Fig. 1. clearly shows how the stock price of an industrial corporation changes.

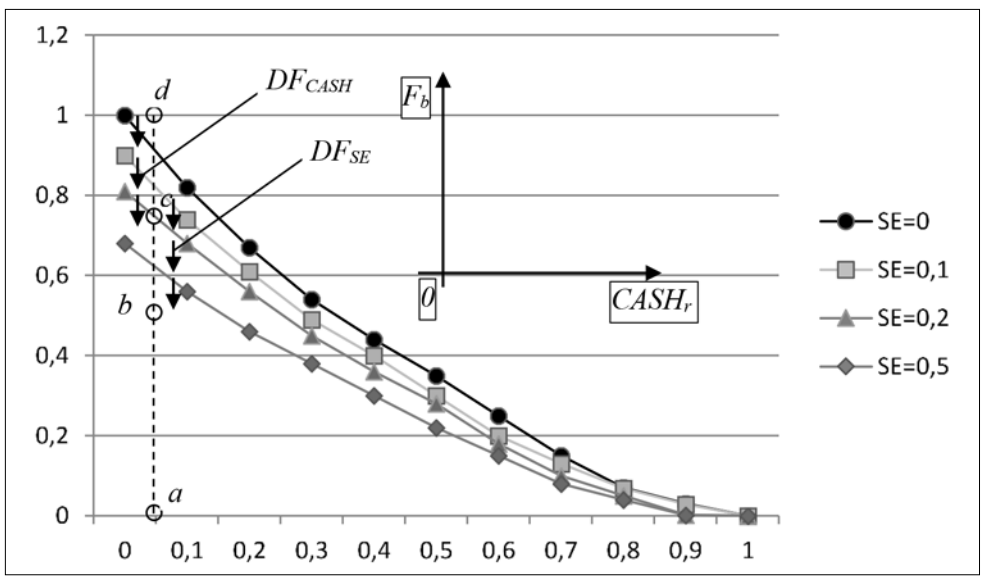

Fig. 1. Dependence of the share price of the combined corporate structure on the financial costs of the acquiring corporation, expressed through the factor-function F_b for the relative value of the target corporation P_{sr} = 0.5 and the four values of the synergistic effect S_E = 0.0, 0.1, 0.2 and 0.5.

Source: Designed by the authors

This change is formed using the family of parametric curves of the dependencies of the factor-function F_b on the relative amount of money spent on the object of acquisition - *CASHr*, with the parameter being the relative value of the synergistic effect. The figure is made for the relative value of the target corporation P_{sr} = 0.5 and four different values of the synergistic effect: 0,0; 0,1; 0,2; 0,5.

– area *«a-b»* is proportional to the price of the stock, corresponding to the value of financial costs at the point *«a»*.
– area *"d-b": DF_b* – value proportional to the total decrease in the share price both at the expense of funds for the object of acquisition, and due to the synergistic effect.
– area *"c-b": DF_{se}* – value proportional to the decrease in the share price due to the synergistic effect.
– area *"d-c": DF_{cash}* – value proportional to the decrease in the share price both at the expense of funds for the object of acquisition.

With an increase in cash for the object of acquisition, the fraction as a whole decreases, since CASH has a negative sign in the numerator and a positive sign in the denominator. Consequently, the share price of the seller of a business is a monotonously killing function and, therefore, the exchange ratio ER_b is inversely proportional to *CASH* for corporations, and B is calculated with already fixed values of equity *Ps* and *Pb* and synergistic effect S_E (Saint-Onge, Chatzkel, 2009; Srovnalíková, et. al., 2018).

In other words, the cash paid for the target corporation - *CASH*, can in a certain sense be considered as an "advance" issued by the acquiring corporation in the initial stage of the merger process, which is reflected in the calculation formulas of the *ER* coefficient..

Theoretically, the maximum value of cash for the object of acquisition can be equal to P_s. In this case *ER=0.* In fact, $CASH=P_s$ means that the target corporation is fully repurchased and the issue of share swap ratios automatically falls to the ground.

The nature of the curves of the dependencies of the factor function, as well as the above, becomes clearer if we consider the ordinate line, equal in value to one (line "a-d", Fig. 1.) for some point of the x-axis - *"a"*, corresponding to a certain value of funds by the target corporation. Two curves are considered, one of which corresponds to the merging of corporations with zero synergistic effect (the upper curve in Fig. 1.), and for the definiteness, as the second curve is taken the lowest with the value of *SEr = 0.5*.

The *«a-d»* line consists of three parts:
The *«a-b»* line is equal to the value of the factor function F_b at the point «*a"*. Proportional to this value, the exchange ratio decreases and, accordingly, the share price of the target structure of corporations for given values ias as follows: $CASH_r \neq 0$ *i* $SE_r \neq 0$.

As can be seen from Figure 1, the factor function decreases by $DF_b = 1 - F_{b.}$ The figure also shows that the decrease in the share price of the target structure of corporations is due both to the synergy effect and to the money spent on the object of acquisition, that is $DF_b = DF_{cash} + DF_{se}$, where:
– *"c-b"* line is the decrease of the share price only due to the synergistic effect.
– *"d-c"* line is the decrease in the share price only due to the money spent on the object of acquisition.

Finally, the factor function can be represented in the following form:

$$Fb = 1 - DF_{cash} - DF_{se}. \tag{11}$$

Substituting this expression in (12), we obtain the formula for calculating the price of one share of the selling corporation for this option of acquisition - the most acceptable for the acquiring corporation:

$$V_s = ER_k \times (1 - DF_{CASH} - DF_{SE}) \times V_b \tag{12}$$

It is clear that the «lost» shares of the share price depending on the money spent on the object of acquisition - LV_{cash} and on the synergistic effect - LV_{se} can be determined by the following formulas:

$$LV_{CASH} = ER_k \times DF_{CASH} \times V_b, \tag{13}$$

$$LV_{SE} = ER_k \times DF_{SE} \times V_b \tag{14}$$

Thus, we cen see that the question of whether to accept money or not from the purchaser is not simple and clear for the selling corporation.

Before deciding on the cash for the object of acquisition and on the *CASH* value itself, the management of the target corporation should assess the probability of one or another outcome of the merger process, the prospects for the future corporate structure, the life expectancy and the expected future dividends (Very, and Schweiger, 2001).

As for the curves of the dependencies of the share price of the target corporation on the value of the synergistic effect S_E, the interests of the shareholders of the target corporation and the purchaser are diametrically opposite. No matter how paradoxical it may seem, but it is more profitable for shareholders of the target corporation to get small values of the synergistic effect, since they will have large values of the factor function F_b. However, upon careful consideration, it becomes clear that there is no paradox here. Of course, all shareholders benefit from the high values of the synergistic effect. And the higher the value of S_E *is*, the more successfully the combined integration structure of corporations works and the higher its value becomes. But this all will happen in the future. The synergistic effect is a parameter of the future, but it is not at all necessary that it turns out to be just that. Moreover, in case of unsuccessful process of integration of corporations, this value may even be negative, which means that the combined structure is unprofitable (IPO Watch Europe, 2018).

Although the synergistic effect is calculated at the initial stage of an integration agreement, it is purely a parameter of the future, when everyone will be shareholders of the joint corporate structure and, as members of one team, will have common goals aimed at increasing the profitability and value of the company (Waddock, et. al., 2006).

But in the initial stage of the integration process, shareholders of corporations unite, representing different "worlds", with opposite goals and interests. Thus, the managers of the selling corporation in order to increase the values of the share exchange ratios ER_b seek, by hook or by crook, to underestimate the synergy effect, to direct $SE \rightarrow 0$. And it is quite natural, as indeed it is natural that the task of the managers of the acquiring corporation will be to induce arguments in favor of high values of the synergistic effect ($SE \rightarrow max$).

For the target corporation, a zero value of the synergistic effect is beneficial for this variant of calculating share exchange ratios using the "1" model.

Model '2'.

Merger at the most profitable option for the corporation. We use the rule of net present value (*NPV*) to analyze acquisitions of industrial corporations.

For the acquiring corporation, this indicator will be equal to:

$$NPV_b = (1-\delta) \times \hat{P}_{bs} - P_b - CASH - AC \tag{15}$$

where:
P_{bs} – value of the equity capital of a corporation formed by the DCF model;
P_b – value of the acquiring corporation determined by the DCF model;
CASH – cash paid for the object of acquisition.
δ – share of shareholders in the target corporation in a new corporate structure.
AC – presented value of additional costs of mergers and investments in a new corporate structure.

The maximum possible exchange ratio at which a corporation's merger, from an economic point of view, loses all meaning for the acquiring corporation is when $NPV_b=0$. In this case, the entire enormous earning is taken by the selling corporation (Gupta, 2012).

Just as in the previous option, it can be shown that:

$$ER_s = ER_k \times F_s \tag{16}$$

where:

$$F_s = \frac{1 + \frac{SE}{P_s} - \frac{CASH + AC}{P_s}}{1 - \frac{CASH + AC}{P_b}} \tag{17}$$

Here, all the values and designations are similar to those adopted earlier, in the first option of the assessment (model "1"), and ER_k means the initial, but now the minimum value of the share exchange ratio for this option of acquisition, which can increase further depending on the synergy effect, funds paid for the object of acquisition, the presented value of additional costs of the merger and investments in a new corporate structure and equity values of both companies, determined using the DCF model (Puranam, et. al., 2006).

As in the model "1" discussed above, it is more convenient to present the factor function Fs in relative units:

$$F_s = \frac{1 + \frac{SE}{P_s} - \frac{CASH + AC}{P_s}}{1 - \frac{CASH + AC}{P_s} \times \frac{P_s}{P_b}}; \tag{18}$$

or:

$$F_s = \frac{1 + SE_r - (CASH_r + AC_r)}{1 + (CASH_r + AC_r)P_{sr}} \tag{19}$$

Similarly to the analysis carried out for option "1", we will analyze in terms of the share price of a new corporate structure, so the area of ordinate *"a-d"* (Fig. 2.), built for a certain point on the x-axis corresponding to a certain value of expenses (*CASHr + ACr*). Point "b" lies on the curve *SE* = 0, point "d" with *SE* = 0.5, and point "c" corresponds to the value of the exchange coefficient *ERs = ERk (Fs = l)*.

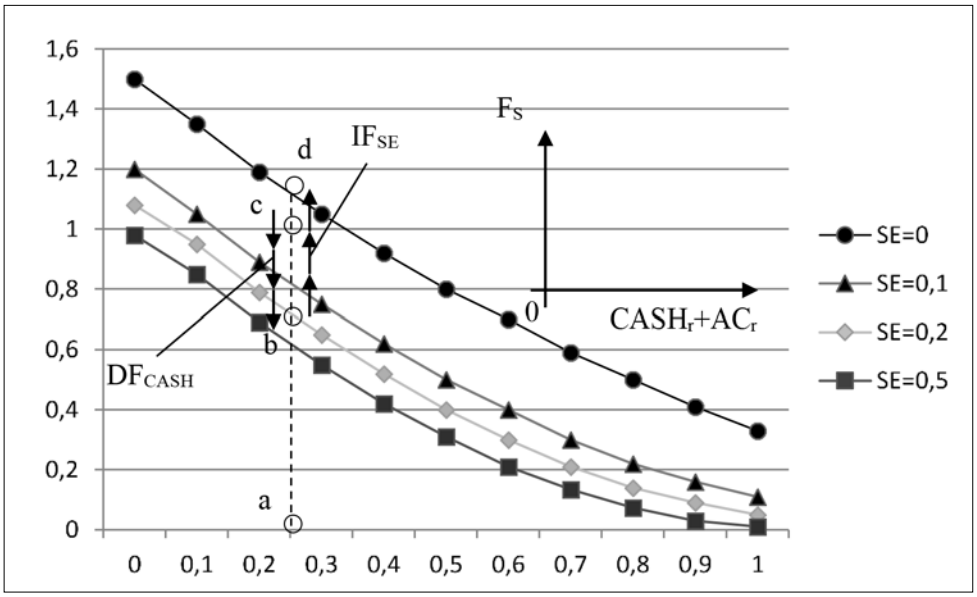

Fig. 2. Dependence of the share price of a new corporate structure of corporations on the financial expenses of the business purchaser by the merger option, most profitable for the business seller with the relative value of the target corporation P_{sr} = 0.5 and four values of synergistic effect *SE = 0.0, 0.1, 0.2 and 0.5*.

Source: Designed by the authors

In Fig. 2. the positions are given in the form of a family of parametric curves, the graph of dependencies of the share price of the integration structure of corporations on the financial costs of the acquiring corporation, expressed through the dependencies of the factor function *Fs* on the relative value of funds, the object of acquisition and the costs incurred by the acquiring corporation – ($CASH_r$+AC_r), where the function parameter is the relative value of the synergistic effect of *SEr*. Fig. 4.2. corresponds to the relative value of the target corporation P_{sr} = *0.5*.

– area *«a-b»*: proportional to the share price corresponding to the value of financial expenses at the point "a".

– area *"c-b"*: DF_{cash} – decrease in the share price due to the money paid for the object of acquisition.

– area *"b-d": IF_{se}* – increase in the share price due to the synergistic effect.

– area *"c-d":* difference IF_{sr}-DF_{cash} determines the value of the benefits or losses of the acquiring corporation due to varying the price of shares of a new corporate structure.

We see that the share price is a monotonously decreasing function of the total value of all financial expenses of the acquiring corporation, however, in contrast to the previous option, it is a monotonically increasing function of the synergistic effect value. The result is that in this model "2", when the entire enormous earning *EEs = SE-AC* is taken away by the target corporation, and the corporations change roles in the corporatisation model. Now the management of the target corporation with the aim of increasing the share price and, naturally, striving to move to higher F_s curves, seeks to substantiate higher values of the expected synergistic effect. ((*SE→max*) (John, 2010). It is also beneficial for them that the estimated value of additional costs for mergers and investments in a new structure is as low as possible, and, conversely, the minimum calculated (but, of course, not real) values of the synergistic effect and the maximum estimated financial costs become beneficial to the management of the acquiring corporation. (Makedon, et. al., 2019a).

As a result, if in the option "1" that is most suitable for the acquiring corporation, the selling corporation loses, both with an increase in funds for the object of acquisition, and with an increase in the synergistic effect, then in option "2" - the most acceptable for the selling corporation, it loses only with an increase in funds for the object of acquisition and acquires with an increase in the synergistic effect.

At the same time, if the expression for determining the loss in the share price - LV_{cash} at the expense of funds for the object of acquisition (13) remains unchanged, then the expression for the evaluation of acquisition - AV_{se}, due to the synergistic effect, have the following form:

$$AV_{SE} = ER_k \times IF_{se} \times V_b. \tag{20}$$

Therefore, the formula for determining the factor function will be as follows:

$$Fs = 1 - DF_{cash} + AC + IF_{se} \tag{21}$$

And the price of one share will be equal to:

$$Vs = ER_k \times (1 - DF_{cash} + AC + IFse) \times V_b \tag{22}$$

Let's determine whether there is a Model that is economically unprofitable for the acquiring corporation in real business conditions. At first glance, unreal. But on the other hand, the option of merger which is unattractive for the acquiring corporation, under certain conditions, can be quite real. First, if the target corporation is economically weak, that is, $P_s << P_b$, then all expenses (*AS* and *CASH*) will be sensitive for a large acquiring corporation, while the actual value of the synergistic effect can be significant (Scharpf, 2018). And, secondly, the acquiring corporation can use a deliberately unprofitable and unprofitable option of acquisition, as a forced agreement in tactical terms that will become a springboard for important and necessary in the future strategic plan for investment projects.

Model '3'.

Mergers / acquisitions with equitable distribution of benefits among participants. Equitable distribution of benefits from mergers or acquisitions among international corporations occurs if:

$$\frac{NPV_s}{NPV_b} = \frac{\delta}{1-\delta} \tag{23}$$

Substituting into this equation formulas (11) and (15) for NPV_s i NPV_b respectively, and formula (12) for δ and, having made the transformations, we will get:

$$ER_j = ER_k \times F_j \tag{24}$$

where:

$$ER_k = \frac{N_b \times P_s}{N_s \times P_b} = \frac{P_s / N_s}{P_b / N_b}; \tag{25}$$

$$F_j = \frac{1 - \frac{CASH}{P_s}}{1 + \frac{CASH}{P_b} \times \frac{AC}{P_b}} \tag{26}$$

This is a fair distribution of merger / acquisition benefits, in which the share of each participant is proportional to the effect it receives. In terms of relative units, the expression for the factor function *Fj* will take the form:

$$F_j = \frac{1 - \frac{CASH}{P_s}}{1 + \frac{CASH}{P_s} \times \frac{P_s}{P_b} + \frac{AC}{P_s} \times \frac{P_s}{P_b}}, \quad (27)$$

or:

$$F_j = \frac{1 - CASH_r}{1 + (CASH_r + AC_r) \times P_{sr}}; \quad (28)$$

With a careful analysis, we can see that *Fj* and *Fb* are determined by the same expression, only instead of the synergistic effect *"SE"* for the factor function *Fb*, for the function *Fj* there is the value of additional costs for mergers and investments in a new integration structure of corporations – «*AT*» (Lin, and Piesse, 2004). Therefore, the family of parametric curves *Fj* (Figure 3) repeats the same for F_b.

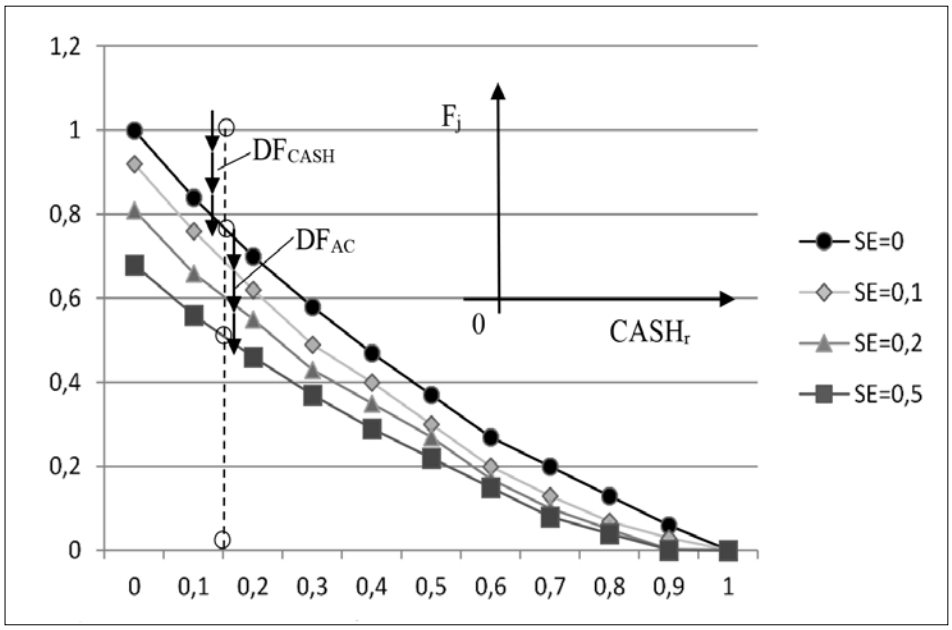

Fig 3. Dependence of the share price of the integration structure of corporations on the financial costs of the acquiring corporation with an equitable distribution of benefits from acquisition, for the relative value of the integration structure of corporations P_{sr} = 0.5 and the four values of additional costs of merger and investments in a new integration structure *AC = 0.0, 0.1, 0.2* and *0.5*

Source: Designed by the authors

– area *"a-b"*: proportional to the share price at costs corresponding to the point «a».

– area *"d-b"*: DF_j –proportional to the total decrease in the share price, both at the expense of money paid for the object of acquisition, and at the expense of investment costs.

Figure 3 shows that the share price monotonously decreases depending on any costs and funds for the object of acquisition, and additional costs for mergers and investments in a new structure, which are borne by the acquiring corporation. All considerations regarding the share exchange ratio made above for model "1" can also be applied to model "2" with one exception: everywhere, instead of the synergistic effect *"SE"*, it is necessary to use expenditures *"AC"*. Thus, for the purchaser to reduce the share price of the integration structure, it is advantageous to use in the calculation formulas large values of additional costs for mergers and investments in a new structure, while the role of investment expenses becomes zero for the target corporation (Makedon, Korneyev, 2014b).

5. Discussion

In this case, the expression for determining the price of one share, the lost parts of the share price for the spent funds, the object of acquisition of LV_{cash} and additional funds for mergers and investments in the new integration structure LV_{ac} are similar to the expressions for the model "1" (formulas 22-24, respectively), only the value *"SE"* should be replaced by "*AC*".

The fairness of the distribution of the benefits of acquisition is that each company receives a portion of the total income of the combined corporate structure (WE) in proportion to its contribution, namely:

– the income of the target corporation will be equal to:

$$EE_s = \delta \times (SE - AC), \tag{29}$$

– and the income of the acquiring corporation will be:

$$EE_b = (1 - \delta) \times (SE - AC) \tag{30}$$

It can be shown that:

$$EE_s = \frac{P_s - CASH}{P_s + P_b + AC} \times (SE - AC) \tag{31}$$

$$EE_b = \frac{P_s + AC + CASH}{P_s + P_b + AC} \times (SE - AC) \tag{32}$$

Thus, we have clearly determined the parameters for the dependence of the share price of a new corporate structure on certain actions and starting conditions for an integration transaction for both the acquiring corporation and the target corporation with a view to fair distribution of the benefits from mergers or acquisitions.

Conclusions

The models of formation of investment security for international corporations from the implementation of mergers and acquisitions were developed. Thus, Model "1" determines a synergistic effect at the initial stage of integration, it is purely a parameter of the future, when everyone will be shareholders of the joint structure of corporations and, as members of one team, will have common goals aimed at increasing the profitability and market value of the company. The entire increase in the market value of corporate integration becomes the "property" of the acquiring corporation.

Model «2» of mergers / acquisitions at the most advantageous option for the target corporation, when the maximum possible exchange rate is formed, at which the merger of corporations from an economic point of view loses all meaning for the acquiring corporation. In this case, all the enormous earning is taken by the selling corporation.

Model «3», using which there is a fair distribution of benefits between participants in a merger / acquisition transaction. The fairness of the distribution of the benefits of acquisition is that each company receives a portion of the total income of the combined corporate structure in proportion to its contribution.

Such investment security models clearly determine the parameters of the share price of the joint corporate structure of certain actions and the starting conditions of the integration transaction for both the acquiring corporation and the target corporation.

References

Abrhám, J., Lžicar, P. (2018). Risk management in the sustainable development: analysis of a selected key industry. Journal of Security and Sustainability Issues, 8(2), 171-180. https://doi.org/10.9770/jssi.2018.8.2(5)

Bilan, Y. (2013). Sustainable development of a company: Building of new level relationship with the consumers of XXI century. Amfiteatru Economic Journal, 15(Special No. 7), 687-701. URL: http://www.amfiteatrueconomic.ro/temp/Article_1234.pdf

Boone, A., Mulherin J.H. (2007). How Are Firms Sold? Journal of Finance, 62 (2), 847-875. https://doi.org/10.1111/j.1540-6261.2007.01225.x

Boufarah, B., Spatoliatore, L. (2012). Merger and Acquisiton Considerations for Alternative. Energies, Deloitte Development LLC

Brealey, R.A., Myers, S.C., and Marcus, A.J. (2001). Fundamentals of Corporate Finance, 3rd edn. New York: McGraw-Hill. https://doi.org/10.12691/jfa-2-1-2

Cassiman, B., Colombo, M.G. (2006). Mergers and Acquisitions: the innovation impact. Edward Elgar Publising, p. 567.

Čirjevskis, A. (2017). Acquisition based dynamic capabilities and reinvention of business models: bridging two perspectives together. Entrepreneurship and Sustainability Issues, 4(4), 516-525. http://doi.org/10.9770/jesi.2017.4.4(9)

Drobyazko S. (2017). Formation of competitive positions as providing of economic security of insurance companies. International scientific journal "Internauka". Series: "Economic Sciences", №2. URL: https://doi.org/10.25313/2520-2294-2017-2-4784

Drobyazko S., Hryhoruk I., Pavlova H., Volchanska V., Sergiychuk S. (2019). Entrepreneurship innovation model for telecommunications enterprises. Journal of Entrepreneurship Education, 22, 2, 2019. URL: https://www.abacademies.org/articles/entrepreneurship-innovation-model-for-telecommunications-enterprises-8097.html

Fry, J., & Cheah, E. T. (2016). Negative bubbles and shocks in cryptocurrency markets. International Review of Financial Analysis, 47, 343-352. URL: https://www.sciencedirect.com/science/article/pii/S1057521916300163

Galpin, Timothy J., and Herndon M. (2010). The complete guide to mergers and acquisitions: Process tools to support M&A integration at every level. John Wiley & Sons, p. 546.

Gaughan, P.A. (2007). Mergers, Acquisitions, and Corporate Restructurings. John Wiley & Sons. URL: http://www.r-5.org/files/books/ethology/enterprise/Patrick_Gaughan-Mergers_and_Acquisitions-EN.pdf

Girdzijauskaite, E., Radzeviciene, A., Jakubavicius, A. (2019). Impact of international branch campus KPIs on the university competitiveness: FARE method. Insights into Regional Development, 1(2), 171-180. https://doi.org/10.9770/ird.2019.1.2(7)

Godbole, Prasad G. (2009). Mergers, Acquisitions and Corporate Restructuring, Edition 1: 58-68. URL: https://ru.scribd.com/document/367880552/mergers-and-acquisitions-pdf

Gupta, P.K. (2012). Mergers and acquisitions (M&A): the strategic concepts for the nuptials of corporate sector. Innovative Journal of Business and Management, 1(4), 60-68. URL: http://innovativejournal.in/index.php/ijbm/article/view/389/374

Hair, Jr., Lukas, J.F. (2014). Marketing research (Vol. 2). McGraw-Hill Education Australia, p. 73.

IPO Watch Europe (2018). PricewaterhouseCoopers LLP Outlook. Available on the Internet: https://www.pwc.co.uk/audit-assurance/assets/pdf/ipo-watch-europe-annual-review-2018.pdf

John, C. Coates, V. (2010). Mergers, Acquisitions and Restructuring: Types, Regulation, and Patterns of Practice, Oxford Handbook on Corporate Law and Governance, forthcoming). https://doi.org/10.1093/oxfordhb/9780198743682.013.29

Koval, V., Duginets, G., Plekhanova, O., Antonov, A., Petrova, M. (2019). On the supranational and national level of global value chain management. Entrepreneurship and Sustainability Issues, 6(4), 1922-1937. http://doi.org/10.9770/jesi.2019.6.4(27)

Lin, L. Piesse, J. (2004). Financial risk assessment in takeover and the change of bidder shareholders' wealth. International Journal of Risk Assessment and Management, 4(4), 332–347. https://doi.org/10.3390/jrfm12030117

Makedon, V., Korneyev, M. (2014b). Improving methodology of estimating value of financial sector entities dealing in mergers and acquisitions. Investment Management and Financial Innovations, 11(1), 44-55. URL: https://mpra.ub.uni-muenchen.de/52697/1/MPRA_paper_52697.pdf

Makedon, V., Drobyazko, S., Shevtsova, H., Maslosh, O., Kasatkina, M. (2019a). Providing security for the development of high-

technology organizations. Journal of Security and Sustainability Issues, 8(4), 1313-1331. https://doi.org/10.9770/jssi.2019.8.4(18)

Načisčionis, J., Skrastiņa, U., Tumalavičius, V. (2018). Secure development of public administration, Sustainability Issues. Journal of Security and Sustainability Issues, 8(1), 87–102. https://doi.org/10.9770/jssi.2018.8.1(8)

Pavel, G. Savor, Qi, Lu (2014). Do Stock Mergers Create Value for Acquirers, Working Paper. Available at: https://ssrn-id881513.pdf

Petrenko, E., Pizikov, S., Mukaliyev, N., Mukazhan, A. (2018. Impact of production and transaction costs on companies' performance according assessments of experts. Enterpreneurship and Sustainability Issues, 6(1), 398-410. http://doi.org/10.9770/jesi.2018.6.1(24)

Puranam, P., Singh, H. & Zollo, M. (2006). Organizing for Innovation: Managing the coordination autonomy dilemma in technology acquisitions. Academy of Management Journal, 2: 263-280 https://doi.org/10.5465/amj.2006.20786062

Roberts, A., Wallace, W., Moles, P. (2010). Mergers and Acquisitions, Edinburgh Business School. URL: https://www.ebsglobal.net/EBS/media/EBS/PDFs/Mergers-Acquisitions-Course-Taster.pdf

Saint-Onge, H., Chatzkel, J. (2009). Beyond the Deal: Mergers & Acquisitions that Achieve Breakthrough Performance Gains. McGraw-Hill.

Scharpf, F. W. (2018). Games real actors play: Actor-centered institutionalism in policy research. Routledge. URL: https://www.taylorfrancis.com/books/9780429968822

Sherman, A.J. (2010). Mergers and Acquisitions from A to Z. Third Edition. New York. American Management Association. URL: https://www.academia.edu/2433717/Mergers_and_Acquisitions_From_A_to_Z_Second_Edition_by_Andrew_J._Sherman_Milledge_A._Hart

Srovnalíková, P., Havierniková, K., Guščinskienė, J. V. (2018). Assessment of reasons for being engaged in clusters in terms of sustainable development. Journal of Security and Sustainability Issues, 8(1), 103–112. https://doi.org/10.9770/jssi.2018.8.1(9)

Tencati, A., & Perinni, F. (2006). Sustainability and Stakeholder Management: the Need for New Corporate Performance Evaluation and Reporting Systems. Business Strategy and the Environment, 15, 296-308. https://doi.org/10.1002/bse.538

Tvaronavičienė, M. (2018). Toward efficient policymaking: forecasts of vulnerability to external global threats. Journal of Security and Sustainability Issues, 7(3), 591-600. https://doi.org/10.9770/jssi.2018.7.3(18)

Tvaronavičienė, M. (2019). Insights into global trends of capital flows' peculiarities: emerging leadership of China. Administratie si Management Public, (32), 6-17. https://doi.org/10.24818/amp/2019.32-01

Very, Philippe, Schweiger David M. (2001). The Acquisition Process as a Learning Process: Evidence from a Study of Critical Problems and Solutions in Domestic and Cross-Border Deals. Journal of World Business, 36(1), 11-21 https://doi.org/10.1016/S1090-9516(00)00052-3

Waddock, Sandra A., Graves, Samuel B. (2006). The impact of mergers and acquisitions on corporate stakeholder practices. Journal of Corporate Citizenship, 22, 91-109. URL: https://pdfs.semanticscholar.org/a9a9/817d7b151f29c72c7b95903b1231e2570ced.pdf

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