

Diagnosis of Raider Capture to Ensure Business Entities Economic Security in the Conditions of Modern Challenges

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Abstract: The analysis of economic entities interaction for counteraction to raiding is carried out, stages of raiding development in Ukraine and their characteristics are determined, resonant raider attacks in Ukraine during various global challenges and imbalances are analyzed. The aggregation of factors and parameters of threats to economic entities security in relation to raiding counteraction is carried out. The approaches and estimation methods of factors and parameters of raider capture threats are analyzed. The influence of threat parameters on the enterprises raider capture risk is assessed and the influence of parameters which characterize the raiding threats on the q-Tobin index, which characterizes the investment attractiveness, is determined.

Keywords: Assessment of factors and parameters, Business entities, Global challenges and imbalances, Interaction of business entities, Raider attacks, Raiding counteraction, Threats

1. Introduction

Trends in Ukraine economy economic development, which are characterized not only by changes in the regulatory framework of economic entities taking into account of European legislation requirements, but also the negative impact of destabilizing factors of external and internal environment especially in the face of global challenges, increasing the number of raids in various fields, which requires, on the one hand, improving the mechanism of economic security to combat raiding in the direction of maintaining sustainable operation and development, protection of property interests, strengthening the financial situation in time and space, on the other hand – quality scientific and methodological tools for assessing the impact of raider capture threats which should be based on a complex, multidimensional approach. In this regard, the existence of the problem of enterprise raider attacks threats is due to internal circumstances (the state of corporate governance, the state of ownership of shares and assets, etc.).

2. Analysis of the recent research and problem definition

The various aspects of threats (risks or factors) of unfriendly takeovers (raider attacks threats) were devoted papers of such scientists as O.A. Burbelo [1], Z.S. Varnaliy [2], B.M. Grek [3], I.A. Dmitriev [4], S.S. Molodetsky [6], M.I. Pisarevsky [7] and others.

The study of the scientific literature in this direction [1-7] and analysis of TOP-10 raider attacks during Ukraine Independence [8] made possible to identify the main characteristics of raider attacks threats assessment and criteria of their identification. However, the analysis of

the literature requires the processing of all sets of parameters that can be set on the basis of indicators of the machine-building enterprises dependence on raider capture possibilities. Thus, the purpose of this research is assessment and analysis of machine-building enterprises raider capture threats which is especially relevant in the context of global challenges and imbalances.

3. Research results

On the bases of scientific approaches generalization and systematization, the parameters for assessing the machine-building enterprises raider capture threats were developed. Parameters that form the raider capture threats are grouped by status: group 1 is the state of shares and assets ownership; group 2 is the state of corporate governance; group 3 is the state of securities issue registration and owner publicity; group 4 is financial and economic state (bankruptcy probability). The difference of this approach is the inclusion of such parameter as the state of corporate governance; other parameters are formed taking into account the previous methodological support. The most important criterion for coefficients inclusion is the availability and reliability of information to determine these coefficients values.

To assess the coefficients significance, it is proposed to use the values of points from 0 to 1 (Tab. 1). The number of points is determined by dividing 1 on the according coefficient values number. Points are assigned in direct proportion to the coefficients value in terms of enterprise raider capture threats.

Score (expert) assessment of possible threats (economic and market) made possible to assess different scenarios, where the threats level by coefficients is determined by the indicator x from 0 to 1.

It is advisable to use the q-Tobin coefficient to select machine-building enterprises that can be the object of raider capture. The q-Tobin ratio is an analytical ratio that characterizes the investment attractiveness of firm (enterprise), named after the American economist James Tobin. This indicator is universal and estimates the market value of enterprise capital. There are two approaches to its definition [9]:

$$1) \quad q_{-T} = \frac{K_{market}}{NA}, \quad (1)$$

where K_{market} – enterprise market capitalization; NA – net assets.

$$2) \quad q_{-T} = \frac{P_{shares}}{A_{re}}, \quad (2)$$

where P_{shares} – total market price of enterprise shares and bonds; A_{re} – recoverable amount of assets.

The paper uses the first option for evaluation. Both options have exactly the same interpretation of the obtained values of q-Tobin coefficient:

1) if $q_{-T} < 1$ – the market value of the company's assets is less than their book value, which means that the market underestimates the company; an indication that the enterprise may be the object of unfriendly takeovers or raider capture;

2) if $Q_{-T} = 1$ – this is an ambiguous situation in terms of enterprise raider capture possibility.

Table 1. Indicators for the machine-building enterprises raider capture threats assessing according to the established parameters

Parameter 1	Indicators (coefficients) 2	Values 3	Point 4
The state of shares and assets ownership	K1 – the degree of "dispersion" / consolidation of shares:	a) shares are scattered ("dispersed") more than 75%	1
		b) shares are scattered more than 51 %	0,75
		c) shares are scattered on 25-51 %	0,50
		d) shares are scattered less than 25 %	0,25
	K2 – asset ownership centers:	a) asset and profit centers are divided	0,5
		b) all assets are concentrated in one center	1
	K3 – the share of real estate market value in assets:	a) above 50 %	1
		b) 25-50 %	0,75
		c) 10-25 %	0,50
		d) less than 10 %	0,25
The state of corporate governance	K4 – the decision on reorganization was made:	a) yes	1
		b) no	0,5
	K5 – the decision on an additional shares issue was made:	a) yes	0,5
		b) no	1
	K6 – the decision to amend the statute (anti-raider barriers) was made:	a) yes	0,5
		b) no	1
	K7 – the decision to elect or terminate the powers of the chairman and members of the supervisory board, executive body was made:	a) yes	1
		b) no	0,5
	K8 – presence of committees in the supervisory board (strategic planning, audit, investment, others):	a) available	0,5
		b) missing	1
K9 – the presence in the statute items about conflict of interest, i.e. the contradiction between the personal interests of the official and the obligation to act in the company interests:	a) available	0,5	
	b) missing	1	
K10 – openness of information about the joint stock company activity:	a) open	0,5	
	b) confidential	1	
	a) yes	1	

	K11 – planning by the joint-stock company to include its own shares in the listing of stock exchanges for the next three years	b) no	0,5
	K12 – availability of own codex (principles, rules) of corporate governance	a) yes	0,5
		b) no	1
	K13 – violation of the procedure for holding shareholders' meetings and board meetings	a) happened	1
		b) did not happen	0,5
The state of securities issue registration and owner publicity	K14 – maintaining the register of the company	a) the register of shareholders is maintained by the corporation itself	0,5
		b) other (register kept by the depository)	1
	K15 – publicity of the real owner	a) the owner is known	0,5
		b) the owner is hidden	1
K16 – reliability of the registrar	a) in the registrar sure	0,5	
	b) there is no clear and reliable information about the registrar	1	
The financial and economic state (bankruptcy probability)	K17 – probability of financial and economic insolvency	a) probability of bankruptcy less than 50%	0,25
		b) probability of bankruptcy more than 50%	1
		c) the probability of bankruptcy is 50%	0,5

3) if $Q_{-T} > 1$ – the market value exceeds the book value of the company's assets. This means that the market value reflects some assets of the enterprise that cannot be accounted for; the high value of the coefficient q-Tobin pushes investors to decide to invest more in the company capital, because it is more expensive than it is paid;

The q-Tobin ratio is an indicator of raider capture risk. The results of the calculation of raider capture risk of selected machine-building enterprises are presented in Table 2.

On the bases of the presented information, from ten analyzed enterprises, only seven have q-Tobin coefficient value less than 1: PJSC Kharkiv Machine-Building Plant "Svytlo Shakhtarya"; PJSC "Novokramatorsk Machine-Building Plant"; PJSC "Kryukiv Carriage Plant"; PJSC "Beryslav Machine-Building Plant"; PJSC "Druzhkivka Machine-Building Plant"; PJSC "Dnipropetrovsk Aggregate Plant"; PJSC "Poltava Aggregate Plant".

The results of the calculation are given in Table 3, which shows the arithmetic mean values for each threat parameter.

The approach to estimating the impact of raider capture threats parameters on the indicator of machine-building enterprise market value assessment is based on methods of correlation and regression analysis, econometric modeling. Parameters that form raider capture threats are grouped by state:

group 1 – shares and assets ownership (x1);

group 2 – corporate governance (x2);

group 3 – securities issue registration and owner publicity (x3);

group 4 – securities issue registration and owner publicity – (x4).

Table 2. Dynamics of the q-Tobin coefficient

Year	Net assets, thousand UAH	Capitalization, thousand UAH	q-Tobin coefficient
PJSC Kharkiv Machine-Building Plant "Svytlo Shakhtarya"			
2016	656467	33533,3	0,05
2017	738248,5	50299,9	0,07
2018	811654,5	50299,9	0,06
2019	967715,6	50299,9	0,05
PJSC "Novokramatorsk Machine-Building Plant"			
2016	3670586,0	893256	0,24
2017	3958748,5	893256	0,23
2018	9887635,0	893256	0,09
2019	10678534,0	1228227	0,12
PJSC "Starokramatorsk Machine-Building Plant"			
2016	159003,0	2899931,92	1,82
2017	144684,0	2899931,92	2,0
2018	148786,0	3426269,70	2,30
2019	142574,0	3056260,70	2,14
PJSC "Dniprovagonmash"			
2016	1577296	100768,0	0,06
2017	1600158	2611820,6	1,63
2018	1505275	1996296,0	1,33
2019	1533315	1780030,6	1,15
PJSC "Kryukiv Carriage Plant"			
2016	2769053	2637629,696	0,95
2017	2442384	2064231,936	0,84
2018	2054358	1295878,938	0,63
2019	2367861	1541224,478	0,65
PJSC "Dnieper Machine-Building Plant"			
2016	67325	125495,92	1,86
2017	45468	85565,40	1,88
2018	39531	85565,40	2,17
2019	35172	85565,40	2,43
PJSC "Beryslav Machine-Building Plant"			
2016	27438,0	15275,29	0,56
2017	-3585,0	15911,76	-4,44
2018	-54333,0	15911,76	-0,27
2019	-53362,0	15911,76	-0,30
PJSC "Druzhkivka Machine-Building Plant"			
2016	716107	118830,921	0,17
2017	405015	51883,921	0,13
2018	283357	51883,921	0,18
2019	322511	51883,921	0,16
PJSC "Dnipropetrovsk Aggregate Plant"			
2016	76350	65199,64	0,85
2017	63055	65199,64	1,03
2018	69850	65199,64	0,93
2019	97590	65199,64	0,69
PJSC "Poltava Aggregate Plant"			
2016	1120	201726	18,1
2017	-87136	201726	-23,1
2018	-122896	201726	-1,64
2019	-104525	201726	-1,92

Table 3. Assessment of machine-building enterprises raider capture threats

Enterprise	Year	Parameters for assessing the raider capture threats			
		The state of shares and assets ownership	The state of corporate governance	The state of securities issue registration and owner publicity	The financial and economic state (bankruptcy probability)
PJSC Kharkiv Machine-Building Plant "Svytlo Shakhtarya"	2016	0,7	0,75	0,8	0,25
	2017	0,7	0,75	0,8	0,25
	2018	0,7	0,75	0,8	0,25
	2019	0,7	0,75	0,8	0,25
PJSC "Novokramatorsk Machine-Building Plant"	2016	0,83	0,8	1	0,25
	2017	0,5	0,8	1	0,25
	2018	0,5	0,8	1	0,25
	2019	0,5	0,8	1	0,25
PJSC "Kryukiv Carriage Plant"	2016	0,7	0,75	0,83	0,25
	2017	0,7	0,75	0,83	0,25
	2018	0,7	0,75	0,83	0,25
	2019	0,7	0,75	0,83	0,25
PJSC "Beryslav Machine-Building Plant"	2016	0,83	0,7	1	0,25
	2017	0,83	0,7	1	0,25
	2018	0,83	0,7	1	1
	2019	0,83	0,7	1	1
PJSC "Druzhkivka Machine-Building Plant"	2016	0,6	0,7	1	0,25
	2017	0,75	0,7	1	0,25
	2018	0,75	0,7	1	0,25
	2019	0,75	0,7	1	0,25
PJSC "Dnipropetrovsk Aggregate Plant"	2016	0,5	0,7	1	0,25
	2017	0,5	0,7	1	0,25
	2018	0,63	0,7	1	0,25
	2019	0,63	0,7	1	0,25
PJSC "Poltava Aggregate Plant"	2016	0,5	0,7	1	0,25
	2017	0,5	0,7	1	0,25
	2018	0,5	0,7	1	0,25
	2019	0,5	0,7	1	0,25

To build econometric models we take the indicators of the q-Tobin coefficient value, which less than 1 and the arithmetic mean values of the coefficients, which characterize the machine-building enterprises raider capture threats in 2016-2019.

It is possible to state significant differences in the value of machine-building enterprises indicators, therefore for further estimation the grouping of enterprises by the level of q-Tobin coefficient was carried out, which further made possible: to generalize general tendencies of state of machine-building enterprises; to allocate groups of the machine-building enterprises on the investigated indicators of raider capture threats; to analyze the peculiarities of sectoral development taking into account the spatial and dynamic characteristics; determine the nature of the impact of parameters that characterize the raider capture threats; to develop targeted management measures to prevent and counteract raider attacks on the factors and parameters of threats.

The results of calculations for the 1st group of enterprises (Fig. 1) show that the direct regressive nature of interconnection is observed only between the q-Tobin coefficient and the

parameters of the machine-building enterprises raider capture threats in the direction of the state of shares and assets ownership. The progressive direct nature of the interconnection is observed between q-Tobin coefficient and: the state of securities issue registration and owner publicity; the financial and economic state (bankruptcy probability). Progressive feedback is established between the q-Tobin coefficient and the state of corporate governance.

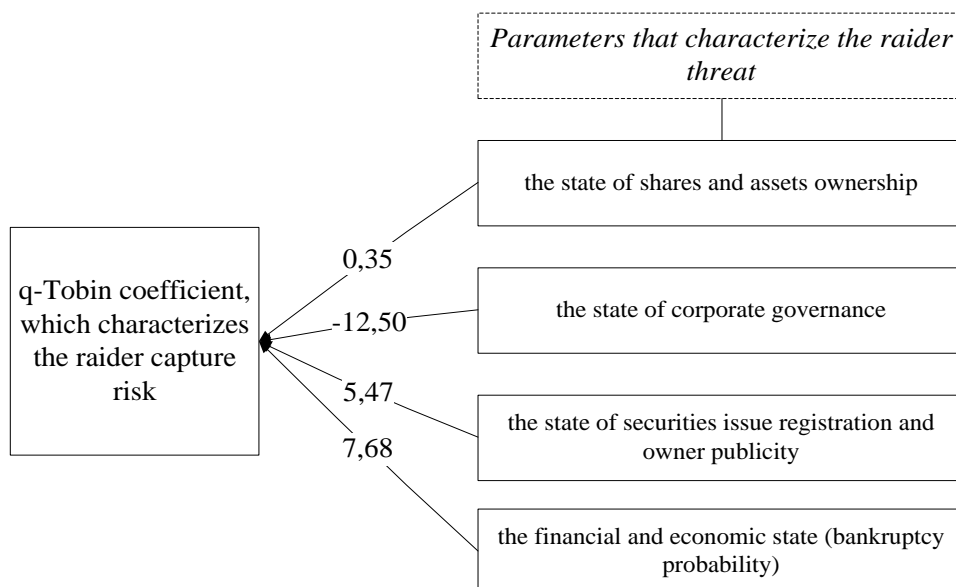


Fig. 1. The nature of the parameters influence characterizing the raider capture threats on the q-Tobin index (in terms of elasticity coefficient) for machine-building enterprises of the 1st group

From the results of calculations for the 2nd group of machine-building enterprises (Fig. 2) it is established that for PJSC "Beryslav Machine-Building Plant" the increase of the q-Tobin coefficient by 1% will be observed in case of decline of the financial and economic state indicator (bankruptcy probability) on 2,3% (progressive feedback), and for PJSC "Poltava Aggregate Plant" – in the case of increase on 152,7% (progressive direct nature of interconnection).

The nature of the influence of the parameters of the state of shares and assets ownership on the coefficient q-Tobin is determined by the following values of the elasticity coefficient (Fig. 3): progressive direct character of growth for PJSC "Beryslav Machine-Building Plant" of q-Tobin by 1% will be observed in case of increase of the indicator of the state of shares and assets ownership by 232,4%; for PJSC "Poltava Aggregate Plant" – in case of reduction by 22.79% – progressive feedback.

Thus, the proposed assessment of the impact of the parameters of raider capture threats on the q-Tobin indicator of machine-building enterprise will make possible to assess the threats impact level on the enterprise market value, to identify the factors which have the greatest impact on its formation, to determine development priorities and will be a tool to support management decisions within the mechanism of ensuring the economic security of the machine-building enterprise to combat raiding.

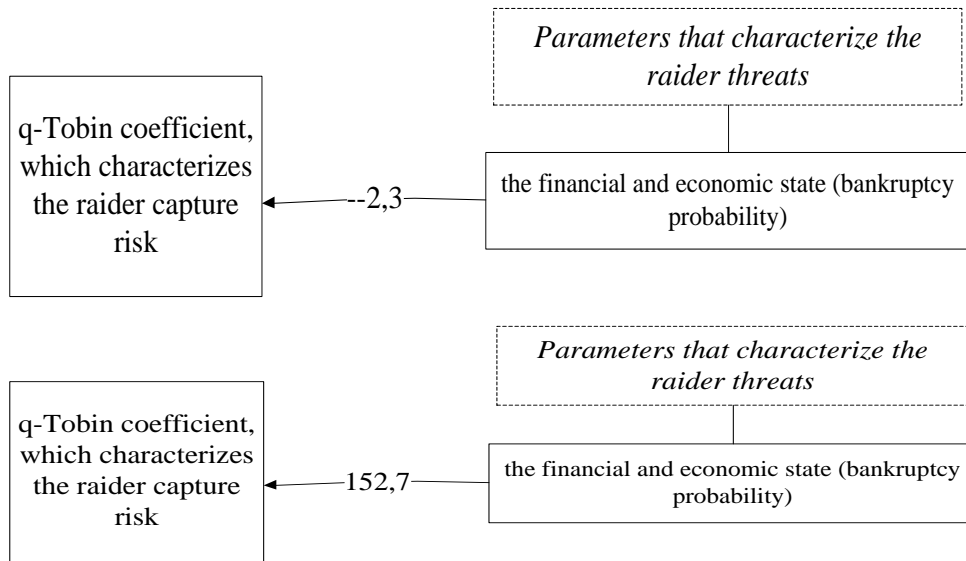


Fig. 2. The nature of the parameters influence characterizing the raider capture threats on the q-Tobin index (in terms of elasticity coefficient) for machine-building enterprises of the 2nd group

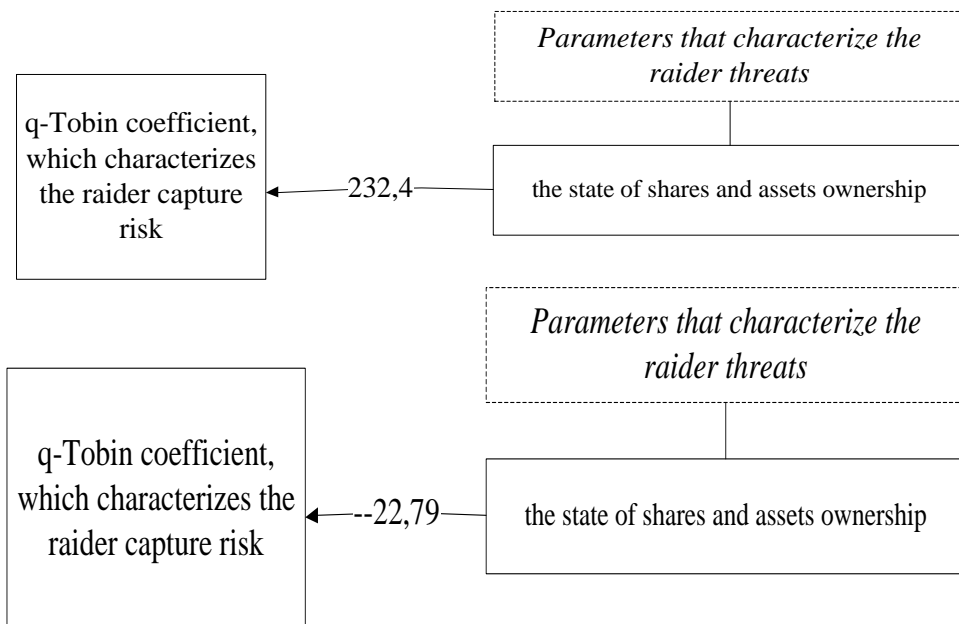


Fig. 3. The nature of the parameters influence characterizing the raider capture threats on the q-Tobin index (in terms of elasticity coefficient) for machine-building enterprises of the 2nd group

4. Conclusion

Thus, the evaluation toolkit is proposed taking into account the parameters that form the raider capture threats by groups (the state of shares and assets ownership, the state of corporate governance, the state of securities issue registration and owner publicity, the financial and economic state (bankruptcy probability) which are evaluated on the basis of appropriate coefficients, which creates an information base for effective management decisions in conditions of limited access and reliability of special statistics.

The analysis of machine-building enterprises raider capture risk is carried out by calculating the indicator – q-Tobin coefficient, which reflects the assessment of the enterprise market value and is an indicator of raider capture risk.

The influence of the established parameters of threats on the machine-building enterprises raider capture risk (q-Tobin coefficient) is analyzed, which provides the econometric model construction and characterizes the dependence of the q-Tobin coefficient level from the set of indicators that are parameters of raider capture threats for two selected groups of machine-building enterprises, which differ in the dependent variable value.

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