



ECONOMIC ANNALS-XXI

ISSN 1728-6239 (Online)
ISSN 1728-6220 (Print)
<https://doi.org/10.21003/ea>
<http://www.soskin.info/ea/>

Volume 182 Issue (3-4)'2020

Citation information:

Frolov, Yu., & Bosenko, T. (2020). The impact of armed conflict on economic performance and enterprise value in the country. *Economic Annals-XXI*, 182(3-4), 49-55. doi: <https://doi.org/10.21003/ea.V182-06>

UDC: 355.018



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The impact of armed conflict on economic performance and enterprise value in the country

Abstract. The intensity of armed conflicts has peaked in the past 30 years over the past two centuries. The problems of war emergence affect not only social indicators, but also economic and legal aspects of existence of enterprises within the framework of unstable situation in the country. Even in such a difficult time, enterprises at various levels are trying to develop despite the falling economic and social indicators of the local economy. Over time, in places where local armed conflicts have turned into frozen ones (e.g. Transnistria, Gaza Strip, Syria), enterprises have learned to exist in unstable conditions, forming new strategies and reactions to events.

Before the World War II, researchers did not question that there was a connection between the decline in the economic performance of enterprises and the conduct of war or armed conflict in a country. However, the number of studies on this issue is small, which makes this paper relevant in the process of studying the issue. The analysis of experience of functioning of business in conditions of war can be useful for the enterprises of various industries. The purpose of the paper consists in research of influence of local armed conflicts on cost of the enterprises in the country.

Keywords: Armed Conflict; Frozen Conflict; Economic Performance; Enterprise Value; Business

JEL Classification: N10; N90; O14; H56

Acknowledgements and Funding: The authors received no direct funding for this research.

Contribution: The authors contributed equally to this work.

DOI: <https://doi.org/10.21003/ea.V182-06>

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Вплив збройного конфлікту на економічні показники та вартість підприємств у країні

Анотація. Інтенсивність виникнення збройних конфліктів за останні 30 років стала максимальною за останні два століття. Проблеми виникнення війни впливають не тільки на соціальні показники, а ще й на економічні та юридичні аспекти існування підприємств у рамках нестабільної ситуації в країні. Навіть у такий важкий час підприємства різних рівнів намагаються розвиватися, незважаючи на падаючі економічні й соціальні показники локальної економіки. Згодом у місцях, де локальні збройні конфлікти переросли в заморожені (наприклад, Придністров'я, Сектор Газа, Сирія), підприємства навчилися існувати в нестабільних умовах, формуючи нові стратегії та реакції на події, що відбуваються. До початку Другої світової війни вчені не ставили під сумнів тезу про те, що існує зв'язок між падінням економічних показників підприємств і веденням війни або наявністю збройного конфлікту в країні. Однак кількість досліджень з даного питання невелика, що робить дану статтю актуальною в процесі вивчення цього питання на сучасному етапі. Аналіз

досвіду функціонування бізнесу в умовах війни може бути корисний підприємствам різних галузей промисловості. Мета статті полягає в дослідженні впливу локальних збройних конфліктів на вартість підприємств у країні.

Ключові слова: збройний конфлікт; заморожений конфлікт; економічна ефективність; вартість підприємства; бізнес.

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Влияние вооруженного конфликта на экономические показатели и стоимость предприятий в стране

Аннотация. Интенсивность возникновения вооруженных конфликтов за последние 30 лет стала максимальной за последние два столетия. Проблемы возникновения войны влияют не только на социальные показатели, а еще и на экономические и юридические аспекты существования предприятий в рамках нестабильной ситуации в стране. Даже в такое тяжелое время предприятия различных уровней стараются развиваться, несмотря на падающие экономические и социальные показатели локальной экономики. Со временем в местах, где локальные вооруженные конфликты переросли в замороженные (например, Приднестровье, Сектор Газа, Сирия), предприятия научились существовать в нестабильных условиях, формируя новые стратегии и реакции на происходящие события. До начала Второй мировой войны ученые не задавались вопросом, что существует связь падения экономических показателей предприятий с ведением войны или вооруженного конфликта в стране. Однако количество исследований по данному вопросу невелико, что делает данную статью актуальной в процессе изучения этого вопроса. Анализ опыта функционирования бизнеса в условиях войны может быть полезен предприятиям различных отраслей промышленности. Цель статьи заключается в исследовании влияния локальных вооруженных конфликтов на стоимость предприятий в стране.

Ключевые слова: вооруженный конфликт; замороженный конфликт; экономическая эффективность; стоимость предприятия; бизнес.

1. Introduction

As a rule, the concept of losses is used to assess the destructive power of disasters (accidents). At the same time, the damage is considered as a universal way of comparing catastrophes with each other, since their different nature does not allow this to be done directly.

In addition, a unified scale of the comparison of catastrophes (accidents) is necessary for planning protective and recovery operations. Usually, the intensity of a disaster is estimated by assigning it to two categories: by the number of victims, and the amount of damage.

In general, war can lead to such a chain: consequences-losses-damages-compensation.

The causes of armed conflicts are very diverse, and their scale and consequences differ significantly.

Losses are part of the consequences that are associated with negative changes in the main spheres of life in the state. This term also has a narrower meaning, when losses - sanitary and irrevocable - are meant as victims of war.

Damage is the result of a negative change due to some events, phenomena, actions of the condition of objects, expressed in violation of their integrity or deterioration of other properties; actual or possible social and economic losses (deviation of human health from the average value, i.e., illness or even death; violation of the normal economic activity; loss of a particular type of property, other material, cultural, historical, or natural values, etc.) and (or) deterioration of the natural environment or deterioration of the human environment.

2. Brief Literature and Theory Review

The consequences of armed conflicts are a chain of successive interrelated events. The number of links in this chain can be very large (Angstrom, 2003). Direct losses (losses) include destruction, damage, negative consequences of the impact of factors of destruction on objects of nature and national economy (land, people, flora and fauna, buildings, structures, equipment, goods, semi-finished products, raw materials, crops, livestock, etc.), that is, everything that is in the sphere of interests (conscious needs) of a person (Chojnaki, 2006). The impact of

these consequences on the condition and functioning of other objects of nature and national economy (not directly affected by the factors of destruction) is attributed to indirect damage (losses) (Cooley, 2011).

An aggregated approach is used to quantify these components at large scales (Gleditsch, 2006). It consists in the fact that if there are known damages in the corresponding region and their distribution, it is possible to allocate zones with destruction and damage to various degrees of structures, buildings, equipment. In the future, according to the known degree of damage and the cost of lost objects, their number in areas with the corresponding degree of damage, the share of the cost for different degrees of damage, the transition to damage in monetary terms is made (Gleick, 1994).

Indirect economic damage is caused by a decrease in output and services, reduced production efficiency, early retirement of funds and capacities, the need to create additional reserves, and other reasons (Goldin, 2013).

Most often, all groups of the consequences appear in the cycles of generating indirect damage. At the level of the state, regions, enterprises, and individuals, chain indirect risk can be analyzed by depicting it as a «risk tree» with the number of cycles. It is practical to take into account no more than 6-10 cycles (Henderson & Singer, 2002).

Analysis of the sequence of interrelated events in the event of armed conflicts prove that moving along their chain, first, weakens the influence of the original event, and, secondly, increases the difficulty of assessing indirect damage (Skaf & Mathbout, 2010).

In the indirect damage caused by war, a special role belongs to remote global changes, which, although they cannot be estimated in monetary terms from the perspective of the current generation, must also be taken into account (Mellow, 2010). Indirect damage may also reflect the impact of the war on such macroeconomic indicators as a decline, in gross domestic product, changes in the structure of import-export operations, unemployment, inflation, and the like (Huntington, 2005).

Macroeconomic analysis of the socio-economic consequences of war requires a comprehensive interdisciplinary approach, combining physical, technical, chemical, and biomedical concepts of the damage caused, based on the concept of resource depletion, reduced production, and public consumption, falling economic growth rates, and reduced generalized macroeconomic indicators (Stracan, 2019).

3. Purpose

The aim of the research is to develop theoretical and methodological approaches to assessing the value of an enterprise, assessing damage from war, and the mechanism of compensation for damage and restoration of objects.

4. Results

Defense complex enterprises constantly require financial income. And if the volume of financial inflow to defense industry is relatively small for most countries of the world in the times of peace, then, in a state of war it increases significantly, coming from the state budget. With the issue of financing the defense complex closely related the concept of proportionality in the distribution of public funds. Dynamics of change in military expenditures by last 20 years illustrates the following Table 1 (Stracan, 2019).

By data from Table 1, it is possible to make a range of conclusions which we present below.

For the last 20 years, all the countries without exception have increased their military spendings. Increase in expenses on the army, above all, related to the objective necessity of defense of their territories from the encroachments of other countries.

In addition, this trend is related to with gradual depreciation of money and, as a consequence, rising prices on military and technical equipment.

No less attention should be paid to private enterprises that engaged in manufacturing and selling military and technical equipment. For the last 100 years of war, except for political conflict, interested entrepreneurs with economic point of sale vision (Chojnacki, 2006).

There are other estimates of countries defense spending, including the share in GDP criterion (according to SIPRI, 2019).

According to SIPRI (2019), the first place in the ranking of countries with defense spending is occupied by the United States.

Table 1:

Dynamics of changes in military expenditures of countries according to Stockholm International Peace Research Institute (SIPRI) (2019), USD million

A country	1998	2002	2006	2010	2014	2018	2019 (forecast)	Growth rate of the military expenditures (1998 to 2019), %
USA	305141	271417	301697	464672	621131	684780	640221	209.81
PRC	12494	15022	22190	40014	91658	167712	188460	1508.40
Russia	4070	15826	9228	20955	56184	81079	87837	2158.16
France	45123	46404	33814	53031	66009	60058	61228	135.69
Germany	41965	38989	28150	38025	48081	46488	48790	116.26
Japan	32927	42550	45976	45585	46755	59564	48604	147.61
Italy	25003	23443	22411	34132	41244	33746	32657	130.61
Canada	10789	8616	8299	11337	19342	20379	18460	171.10
Israel	8613	9584	9932	11040	14663	15066	16032	186.14
Netherlands	7904	7829	5972	9381	12375	10596	30328	383.70
Poland	1882	3083	3146	4779	9351	8986	9257	491.87
Iraq	-	-	-	614	2873	6054	7896	1285.99
Norway	3804	3537	2922	4887	6371	7143	7235	190.19
Sweden	6419	6203	4861	5515	6025	6239	6519	101.56
Greece	3623	4613	4564	6270	10574	5917	5939	163.92

Source: Cited by Stracan (2019)

US spending in 2018: USD 649 billion, the share of defense spending in GDP: 3.2%, change since 2009: minus 17%.

China ranks second: spending in 2018 - USD 250 billion, defense spending as a share of GDP: 1.9%, change since 2009: plus 83%.

Third place - Saudi Arabia: spending in 2018: USD 67.6 billion, defense spending as a share of GDP: 8.8%, change since 2009: plus 28%.

Fourth place - India: spending in 2018: USD 66.5 billion, defense spending as a share of GDP: 2.4%, change since 2009: plus 29%.

Fifth place - France: spending in 2018: USD 63.8 billion, defense spending as a share of GDP: 2.3%, change for the period with 2009: plus 1.6%.

Russia is in the sixth place. Spending in 2018: USD 61.4 billion, defense spending as a share of GDP: 3.9%, change for the period with 2009: plus 27%.

These countries are followed by Great Britain, Germany, and Japan. Closes the TOP 10 countries by defense spending South Korea.

At the beginning of XXI century, the leader among countries where trade is developing weapons, were USA. American leadership observed and today, but after coming to power of Barack Obama, sales volumes of military equipment significantly reduced. This explains why the United States have reduced their presence in the conflict zones of the world, accepted a number of laws, which are aimed at development exactly social sphere, not a military one. And despite the overall decrease in sales weapons in the United States, there are a number of companies, which continue to increase the production of military industry goods under Obama as well as Trump presidency.

Let us make conclusions regarding the US military industry companies based on data from Table 2:

- in the sphere of US military industry, efficiently work more than 1 million people;
- among the listed private military companies, there are no unprofitable ones;
- the largest accent manufacturers do on military-air equipment and artillery.

In the issues regarding development of private entrepreneurship in the military sector reached Israel providing military equipment in large quantities (Melunder, 2009).

By data from German magazine Spiegel, for the last 10 years in Israel the whole branch of the military-technical industry has grown significantly.

Also, important is development of scientific research institutions and laboratories engaged in the modernization of military equipment and selling technology to the interested companies. For example, the Israel Weapon Industries (IWI) consider the development of Sudan automated war machine G-Nius which includes the latest scientific and technical achievements of engineers all over the world to be among their best scientific projects (Goldin, 2013).

90% of IWI and related companies' products go for export. Export of IWI and related companies grew so much that delivery to the Israeli army comprises only a small part of the country's

Table 2:
Major manufacturers of military equipment in the USA

Company name	Direction of activity	Average volume sales, billion us dollars	Average profit, billions of dollars	Number of employees
United Technologies	Military-air equipment, electronics	58.2	5.3	199900
L-3 Communications	Electronics	15.2	0.96	61000
Finmeccanica	Military-air equipment, electronics, artillery	24.1	3.2	70470
EADS	Military-air equipment, electronics	68.3	1.4	133120
Northrop Grumman	Military-air equipment, electronics, ships, space stations instrumentation	26.4	2.1	72500
Raytheon	Electronics	24.9	1.9	71000
General Dynamics	Artillery, electronics, military vehicles, equipment	32.7	2.5	95100
BAE Systems	Artillery, electronics, warships, equipment, military-air equipment	30.7	2.3	93500
Boeing	Military-air equipment, electronics	68.7	4	171700
Lockheed Martin	Military-air equipment, electronics, space technology equipment	46.5	2.7	123000

Source: Stracan, 2019

defense industry. Except for automating transport and techs, the country actively produces complex solutions systems like drones. Interesting is the fact that what was Israel doing in 2013, was ahead of the USA by the volume of produced and exported drones, although the USA had taken a leading position in this area for many years (Goldin, 2013).

The above considerations allow us to draw the following conclusions:

- despite appeals from the world organizations, most countries of the world continue to arm up;
- in countries where the armed conflicts are taking place, many companies are quickly starting to appear that specialize in the production of weapons and military equipment;
- weapons and military equipment manufacturing is very profitable business and therefore, independent experts of global organizations do not exclude participation of companies in maintaining conflicts;
- speaking about military logistics, it is worth to pay attention on foreign experience in organization of logistics support structures by the private sector.

Principles and key performance indicators of property objects of the enterprise taking into account the factor wars

Rating cost of the factor of wars as the component part of property values can be based on the same principles as in general cost estimation of property. Considering the company as a righted object for conducting business activities and as a property complex - real estate, let us remind and briefly list some of the basic principles for the estimates: utility, substitution, future income expectations, added productivity, contribution (marginal productivity), demand and offers, correspondences, the fullest usage (Mellow, 2010).

As far as in progress of property appraisals interaction of three elements (subject, object and market environment) is observed, all the principles can be classified into three groups:

- 1) principles based on the user's views;
- 2) principles related to with object rating;
- 3) principles related to with the market environment.

Let us first consider the company as market entity of economy, and external environment, such as the war factor that negatively affects effective (profitable) use of the enterprise and let us explore these interactions in the aspect of their impact (factor of war) on the level of profitability (value) of the enterprise.

The ability of an enterprise to operate in a competitive environment condition of armed conflict, and at the same time exceed its limits of expenses (if compared with base period - without war) you can interpret as getting damages, additional losses, lost profit. Theoretically, this one influence factor limited (full destruction of the enterprise and the impossibility of it functioning), and so with economization positions can be claimed about the cost characteristic of this factor.

If we assume that limited asymmetric «power» factor war allows you to realize losses related to it at level S, then the SC line corresponds to recoil (harm) units of these losses. Since the curve as reflects the locus points possible VDAC (loss) losses from About to S, then the total volume there will be no losses defined by the area OACS. Area of OZCS represents the volume of capital

(income) required for compensation for losses from the war. Area OZCS, what is left, is the capital that under certain conditions can determine the cost of property object (the businesses).

Let us assume there is a decline losses related to factor of war, in accordance with their requirements level to OF. Then the FB line will be response times (harm) from units of these losses, and the area ODBF, respectively, - the volume capital (income), compensates for these losses when downgrading given asymmetric «power» of the factor wars. Area DAB is the amount of capital enterprises at the same time reducing the set value limitations of the asymmetric «power» factor, what also happens when specific conditions can determine the cost property object (businesses).

Hence, the graphic the model confirms the opinion about the fact that when relative humidity factor of war returns increase (decrease) from loss unit (capital investment), but the cost changes accordingly property object (businesses).

When evaluating the impact negative factors wars on the cost of the property object (enterprises), based on principle the best possible and the most effective use of these tools therefore, it is necessary to minimize this impact on cost property object (businesses) (Stračan, 2019):

$$\max V_{MK} = V_{MK} - [\min (Z + WATT)] + [mB], \quad (1)$$

where:

$\max V_{MK}$ - cost of a property complex taking into account the impact factors of war;

V_{MK} - potential cost property complex (excluding the impact factors of war - exogenous sliding system);

Z - losses from activity of an enterprise (property complex);

$WATT$ - losses from factor of war;

mB - compensation of losses to the recipient.

Therefore, maximum cost property object taking into account the impact factors of war determined when minimal losses ($Z + W$) and maximum size compensation for damages recipient.

5. Conclusion

The authors have analyzed the dynamics of defense spending in the TOP 10 countries in this indicator and found that a group of leading countries has formed in terms of defense spending. It is also important to keep in mind the share of defense orders for domestic needs of the country and for sales in foreign markets. Therefore, in the future, it is desirable to include in this analysis information on sales of weapons produced by countries on foreign markets. This comparison will allow us to get a more objective picture of the level of militarization of individual countries of the world.

The authors have also analyzed the volume of revenue from the sale of weapons by the largest private companies. Most of these companies are located in the United States.

Armed conflicts are an incentive for the development of the arms production business, since the production of weapons and military equipment is a very profitable business and therefore independent experts of global organizations do not exclude the participation of arms manufacturers in maintaining these conflicts. The most important trend is huge investments in the development of research institutes and laboratories engaged in the modernization of military equipment and the sale of know-how technologies.

In this paper, we propose a model that allows us to estimate the speed of cost compensation for enterprises at the risk of war.

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Received 11.01.2020
 Received in revised form 22.02.2020
 Accepted 27.02.2020
 Available online 15.04.2020