


ARTIFICIAL CRISES IN FINANCIAL MARKETS: PROBLEMS OF DIAGNOSIS AND PREVENTION

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ARTICLE INFO	ABSTRACT
<p>Article history: Received: April, 11th 2024 Accepted: June, 11th 2024</p>	<p>Purpose: The aim of this study is to diagnose and prevent crises in the country's financial markets by managing the connectedness of the attacked market with other.</p>
<p>Keywords: Financial Market; Economic Crisis; Financial Crisis; Financial "Attack"; Government Regulation.</p> 	<p>Theoretical Framework: Non-statistical changes in the largest connected markets and the parameters of the attacked market's connection with them. There is a need to consider ways to counter crises by managing the connection of the attacked market with other financial markets in the country.</p> <p>Design/Methodology/Approach: Methods for diagnosing crises are proposed to identify signs of a man-made crisis and strategies for its prevention. The proposed approach will prevent the actions of unscrupulous private financial market operators who want to receive unscrupulous income, stimulating volatility.</p> <p>Findings: Among the most important results, it was determined that there are serious shortcomings in the organization and structure of financial markets that require active government intervention. The state can not only legislative and administrative, but also financial methods prevent the actions of dishonest operators or minimize the consequences of the crises caused by them.</p> <p>Research, Practical & Social implications: This study makes it possible to identify signs of an artificial crisis and strategies for its prevention. Using the data of this study, the state operator in the financial markets can distribute its financial, administrative and informational resources in turn against its opponents and thus have a significant advantage over each of them.</p> <p>Originality/Value: The value of the study lies in the fact that various methods for diagnosing financial crises are offered by studying non-statistical changes in the largest connected markets and the parameters of the attacked market's connection with them. Using this information, the state can minimize the consequences of artificial financial crises.</p> <p>Doi: https://doi.org/10.26668/businessreview/2024.v9i7.3544</p>

CRISES ARTIFICIAIS NOS MERCADOS FINANCEIROS: PROBLEMAS DE DIAGNÓSTICO E PREVENÇÃO

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RESUMO

Objetivo: O objetivo deste estudo é diagnosticar e prevenir crises nos mercados financeiros do país, gerenciando a conexão do mercado atacado com outros mercados.

Estrutura Teórica: Mudanças não estatísticas nos maiores mercados conectados e os parâmetros da conexão do mercado atacado com eles. É necessário considerar formas de combater crises gerenciando a conexão do mercado atacado com outros mercados financeiros do país.

Projeto/Metodologia/Abordagem: São propostos métodos de diagnóstico de crises para identificar sinais de uma crise provocada pelo homem e estratégias para sua prevenção. A abordagem proposta evitará as ações de operadores inescrupulosos do mercado financeiro privado que desejam obter renda inescrupulosa, estimulando a volatilidade.

Conclusões: Entre os resultados mais importantes, foi determinado que há sérias deficiências na organização e na estrutura dos mercados financeiros que exigem uma intervenção ativa do governo. O Estado pode, não apenas com métodos legislativos e administrativos, mas também com métodos financeiros, impedir as ações de operadores desonestos ou minimizar as consequências das crises causadas por eles.

Implicações Sociais, Práticas e de Pesquisa: Este estudo possibilita a identificação de sinais de uma crise artificial e de estratégias para sua prevenção. Usando os dados deste estudo, o operador estatal nos mercados financeiros pode distribuir seus recursos financeiros, administrativos e informativos contra seus oponentes e, assim, ter uma vantagem significativa sobre cada um deles.

Originalidade/Valor: O valor do estudo está no fato de que vários métodos para diagnosticar crises financeiras são oferecidos pelo estudo de mudanças não estatísticas nos maiores mercados conectados e nos parâmetros da conexão do mercado atacado com eles. Usando essas informações, o Estado pode minimizar as consequências de crises financeiras artificiais.

Palavras-chave: Mercado Financeiro, Crise Econômica, Crise Financeira, "Ataque" Financeiro, Regulamentação Governamental.

CRISIS ARTIFICIALES EN LOS MERCADOS FINANCIEROS: PROBLEMAS DE DIAGNÓSTICO Y PREVENCIÓN

RESUMEN

Objetivo: El objetivo de este estudio es diagnosticar y prevenir las crisis en los mercados financieros del país mediante la gestión de la conexión del mercado atacado con otros.

Marco Teórico: Cambios no estadísticos en los mayores mercados conectados y los parámetros de conexión del mercado atacado con ellos. Es necesario considerar formas de contrarrestar las crisis gestionando la conexión del mercado atacado con otros mercados financieros del país.

Diseño/Metodología/Enfoque: Se proponen métodos de diagnóstico de crisis para identificar indicios de una crisis provocada por el hombre y estrategias para su prevención. El planteamiento propuesto impedirá la actuación de operadores privados sin escrúpulos de los mercados financieros que desean obtener ingresos sin escrúpulos, estimulando la volatilidad.

Resultados: Entre los resultados más importantes, se determinó que existen graves deficiencias en la organización y estructura de los mercados financieros que requieren la intervención activa del Estado. El Estado puede, no sólo con métodos legislativos y administrativos, sino también financieros, impedir la actuación de operadores deshonestos o minimizar las consecuencias de las crisis provocadas por ellos.

Investigación, Implicaciones Prácticas y Sociales: Este estudio permite identificar los signos de una crisis artificial y las estrategias para su prevención. Utilizando los datos de este estudio, el operador estatal de los mercados financieros puede distribuir sus recursos financieros, administrativos e informativos por turnos contra sus oponentes y tener así una ventaja significativa sobre cada uno de ellos.

Originalidad/Valor: El valor del estudio reside en el hecho de que se ofrecen varios métodos para diagnosticar las crisis financieras mediante el estudio de los cambios no estadísticos en los mayores mercados conectados y los parámetros de la conexión del mercado atacado con ellos. Utilizando esta información, el Estado puede minimizar las consecuencias de las crisis financieras artificiales.

Palabras clave: Mercado Financiero, Crisis Económica, Crisis Financiera, "Ataque" Financiero, Regulación Gubernamental.

1 INTRODUCTION

The goal of any business is to make profits or even super-profits. The most effective method of making superprofits is a monopoly. However, full monopoly for a long time cannot be an economic goal, it is rather a political goal. It is quite easy to understand this thesis.

First, the existence of competition prevents long-term monopoly. That is, the goal of full monopoly is not the task of only one entrepreneur, but of all. And this struggle for monopoly is what will prevent one entrepreneur from holding a monopoly position long enough (Rodrik, 2011).

Secondly, in order to make a quick profit in any of the markets, the market has to work after all. That is, it must have both buyers and sellers of value. That is why the market cannot be a priori fully monopolistic.

Thus, the "attack" of the market by an individual operator or a group of operators is a short-term (not more than 3-6 months) operation aimed at causing an artificial unpredictable change of prices for desired values in a desired direction and gaining profit after that due to induced fluctuations.

2 LITERATURE REVIEW

In general, world science has paid little attention to economic and financial crises that are clearly artificial in nature, although they have been systematically warned about and continue to be warned about by George Soros himself (Frunza, 2016). He explicitly points to instability as an attribute of the financial market, which is unable to cope with its difficulties without the active help of the state (Farmer, 2017). Significant contributions to the study of financial crises have been made by Denis Rodrik, Douglas North, Hyman Minsky, Randal Ray, Lord Adair Turner, Alexander Kondratiev and others (Rodrik, 2015).

The resources of such an operator may be proprietary or temporarily borrowed from other markets. Even in developed countries, operators cannot rely solely on their own resources to carry out such operations, and there are no such operators in the national business at all (Atkins & Macpherson, 2022). Therefore, such an "attack" is usually preceded by some notable changes in other financial markets. The purpose of those changes is for the attacking operator to get additional funds for the attack. As a rule, the additional funds obtained in the developed broad markets, such as foreign exchange market, bank metals and international credit markets.

It is obvious that the attack is directed against a less developed market with smaller volumes of trade. That is, the base of the attack must be larger than its target.

In addition, if the attack is successful, the results of the attack can become collateral and thus expand the operator's financial base. For example, an attack is aimed at a short-term increase in the price of a particular instrument. A successful attack results in such an increase, a sufficient amount of the instrument in the hands of the operator increases its creditworthiness for the bank for the period of the attack and increases available funds.

After the end of the attack (achievement of its goal), the operator should realize the values on the market - to get the desired profits and to repay debts to creditors. It should be done as quickly as possible, because the market after the pressure on it is stopped gradually returns to a stationary state, which at noncatastrophic influences will be close to its state at the beginning of the attack. Catastrophic influence is not the goal of the operator, because the price of any instrument is close to zero in a completely destroyed market.

Closure of an operator's position leads to material losses for other operators and the state as a whole. Disturbance of stability and equilibrium in the market may not catastrophically affect an individual market, but it will negatively affect investment processes in this and related industries, sales volumes, production and, as a result, tax and employment levels in the region. It may even cause significant institutional changes in the economic structure of the region.

3 DATA AND METHODOLOGY

The operator uses direct financial and virtual market influences to carry out an attack. Direct financial actions are the purchase or resale of one, or more, related instruments in order to cause, respectively, either an increase or decrease in the price of that instrument or group of instruments. Direct actions are accompanied by active virtual attacks by misinforming the public through mass media (television, radio, press and even Internet). The purpose of disinformation is to generate an artificial expectation of change in the desired direction. The main types of such disinformation are:

- expert speeches predicting change;
- speeches by public figures, especially unsuccessful refutations of the said expert information;
- an artificial price increase in a remote locality whose market has no significance for the region's market. For example, a rather truthful information that "in the settlement N a

dollar is bought for nine hryvnias". The information is reliable, but no one knows that this is the first time they have bought 100 dollars in the past three years.

4 RESULTS AND DISCUSSION

Market operators, having heard a lot of information from different sources and seeing that demand (or supply) of this instrument in the market has changed drastically (Klein et al., 2012), make a conclusion about the necessity to change their position in the market and buy or sell the instrument (Galbraith, 2019).

Thus, on the eve of the 2004 Presidential elections the national currency market was attacked. Despite all the logical calculations about the rapid growth of exports and revenues in a freely convertible currency, a powerful information attack at the non-verbal level (i.e. no one knew the sources of information about the fall of hryvnia) was conducted among the population, which has a high level of sensitivity to currency and inflation problems after the crises of the early 90s. At the same time the banks reduced or closed the currency sales at exchange offices (Rahadjeng et al., 2023). As a result, the frightened population was ready to buy dollar at almost any price, while some financial speculators made a super profit of several million hryvnias.

Before the changes in the currency market, significant reductions in volumes in any of the other financial markets were required. They happened – lending volumes decreased. Operators were preparing funds for the currency market. Since the volume of the cash currency market is much smaller than the volume of lending in the state, the "attack", as it is believed, was carried out from the strong market (credit market) to the weak market (cash currency). An illustration of this process is the growth of KIBOR rate on the eve of currency growth.

Interestingly, the dollars, which were bought by the population, they were deposited in the banks again. That is, the level of confidence in the banking system, in the state financial policy has not decreased, and the decrease in the level of confidence in the national currency was artificial.

A few figures to illustrate these theses:

- the National Bank of European country with a developing economy has sold \$1,500,000,000 worth of currency in cash;
- UAH 720 million were sold to households through banks;
- individuals' foreign currency deposits with European country with a developing economy banks increased by US\$650 million.

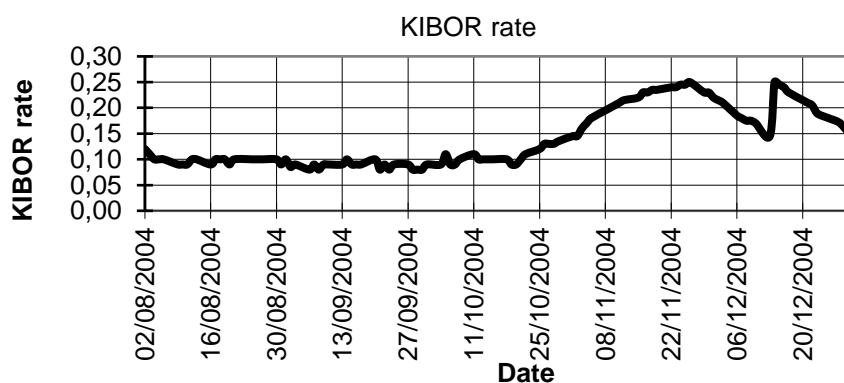
Figures 1 and 2 show the dynamics of the discount rate of KIBOR and the sales of freely convertible currency in cash during August-December 2004. These indicators show the same direction of dynamics, i.e. the maximum of currency sales volumes coincides with the maximum of the lending rate. Since the KIBOR rate grows when the demand for credit increases, it can be concluded that the volumes of lending increased to ensure circulation of cash currency in this period.

Provided that a significant part of dollars was sold to the population through private exchange offices, bypassing the law at a price of approximately 5.7 UAH / dollar (0.4 UAH / dollar more than the official rate), we can state that the currency market operators, who remained unknown, made super profits of over 280 million UAH. The goal of the "attack" was fully achieved at the expense of the state and the population (under-receipts to the Pension Fund and taxes from banks).

In order to make the processes more probable, the dynamics of the KIBOR rate and the EUR exchange rate should be consecutively considered during August -December 2004. For this purpose, we will use graphs of changes in the volume of currency sales and the KIBOR rate, the function values of which are brought to the same scale (Ukrstat, 2022).

Figure 1

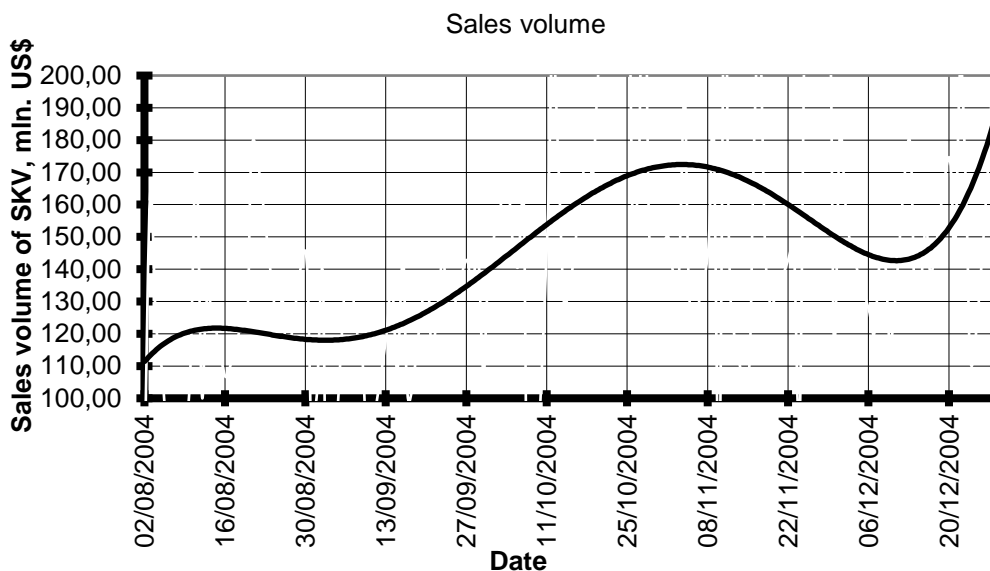
Dynamics of the KIBOR rate during August-December 2004



Source: Prepared by the authors (2023).

Figure 2

Dynamics of Euro sales on the European country with a developing economy cash market during August-December 2004

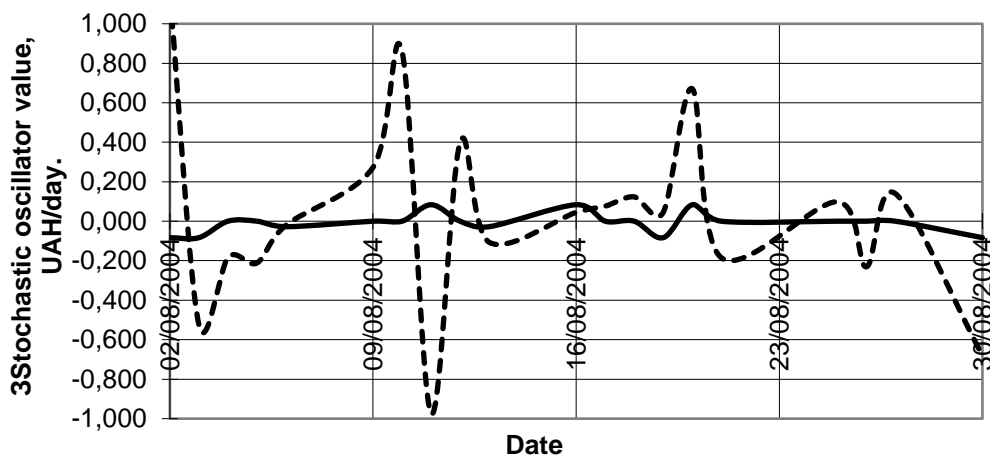


Source: Prepared by the authors (2023).

During August and October (Figure 3, 4 and 5) there was a gradual "loosening" of the market in order to cause instability and increase devaluation expectations of the population. It can be seen that short-term rate increases outpaced the increase in currency market turnover by several days. In other words, the attacking operator firstly received credit resources (increasing the rate on the market as a whole), and then started active operations. At the end of October the moment of currency buying came and the volume of market turnover began to grow sharply.

Figure 3

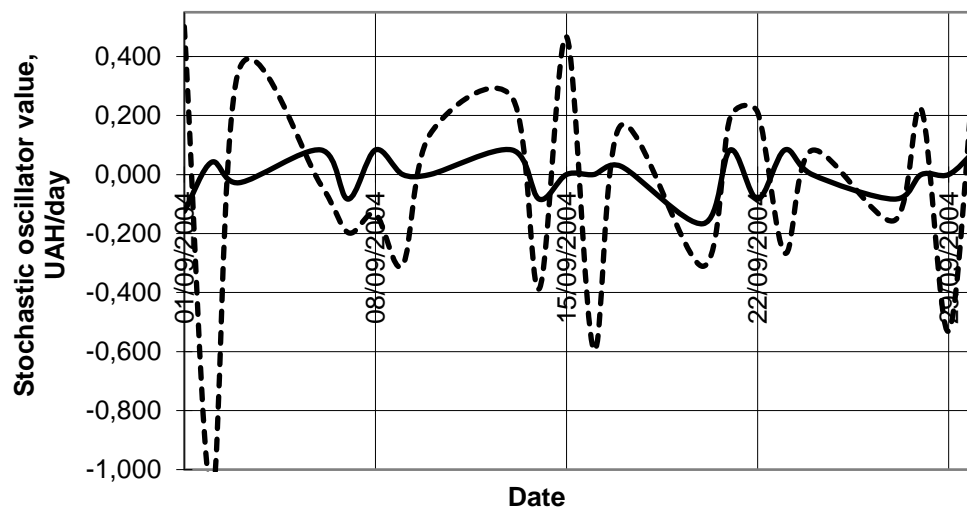
Changes in the stochastic oscillator value for the KIBOR rate (solid line) and the volume of euro sales on the European country with a developing economy cash market (dotted line) in August 2004



Source: Prepared by the authors (2023).

Figure 4

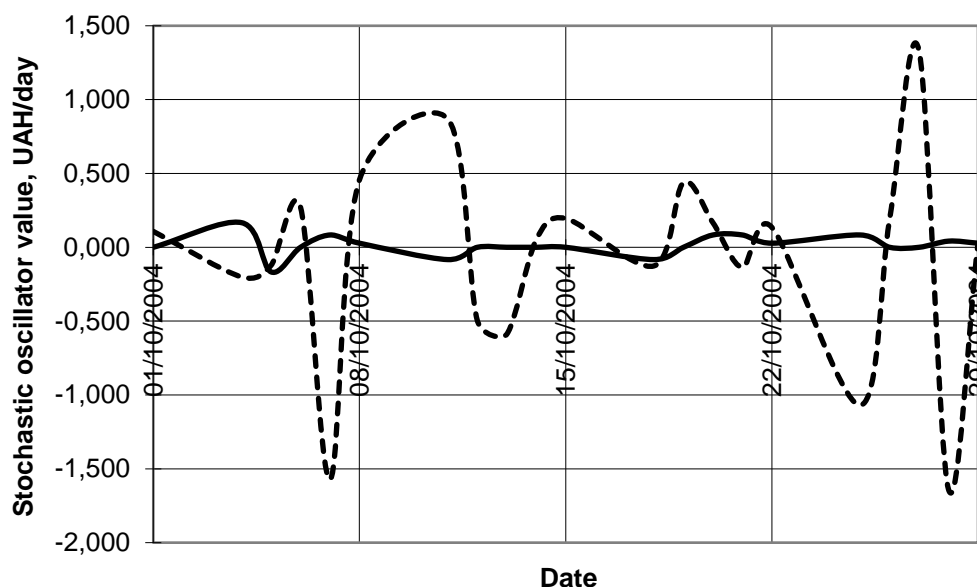
Changes in the stochastic oscillator value for the KIBOR rate (solid line) and the volume of euro sales on the European country with a developing economy cash market (dotted line) in September 2004



Source: Prepared by the authors (2023).

Figure 5

Changes in the stochastic oscillator value for the KIBOR rate (solid line) and the volume of euro sales on the European country with a developing economy cash market (dotted line) in October 2004



Source: Prepared by the authors (2023).

In November there was a culmination - dynamics of KIBOR rate is stabilized, and market turnovers fluctuate with a very short period of time. This is precisely characteristic of the process of profit capitalization, i.e. sale of purchased currency to the population at an increased rate (Figure 6).

Since most of the transactions took place in the shadows using private "money changers," it is virtually impossible to obtain acceptable currency rate analysis results (Huang, 2017). But even the analysis of changes in trading volumes allows us to analyze the process of preparing and executing an attack on the market (Sornette, 2014).

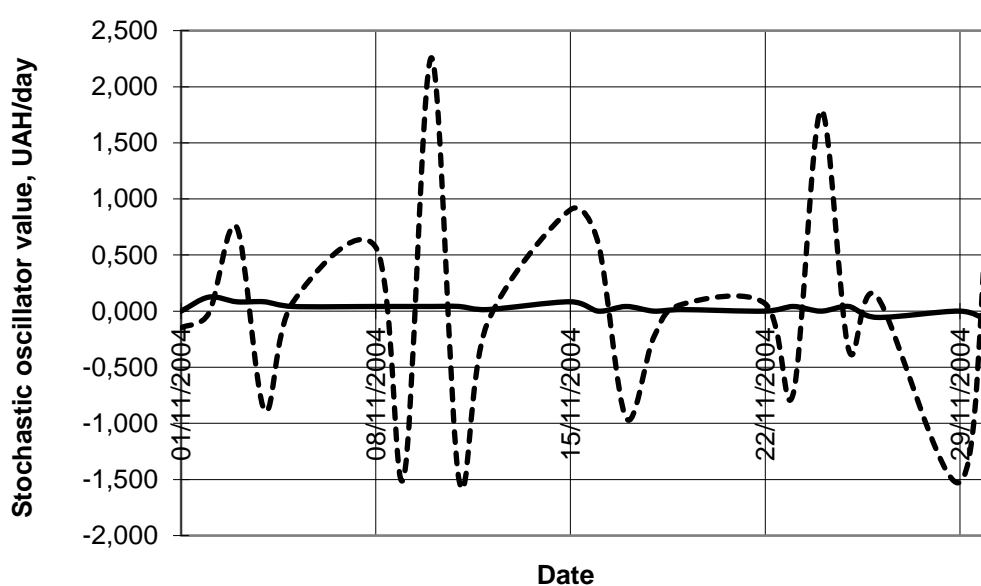
Obviously, to maximize the effect of the attack, the initiator must divide the process of preparing and executing the operation into three parts (Bae, 2021).

The first of these will take place as confidentially as possible for competitors and state regulatory authorities. For this purpose, fundraising at the first stage is not carried out from one of the powerful markets, but from several small markets. It is more expensive and takes more time, but allows with minimal external manifestations to significantly increase the attack base and increase the ability to maneuver funds, which at the first stage of the attack is the main thing (Urachmansyah et al., 2023). At the same stage the process of focusing the attention of

experts and the state on the market to be attacked, by placing the media analytical materials in the latter. At this stage, it does not matter whether analysts make positive or negative forecasts - it is simply important to draw attention to the object of attack, to raise expectations of changes in this market.

Figure 6

Changes in the value of the stochastic oscillator for the KIBOR rate (solid line) and the volume of euro sales on the European country with a developing economy cash market (dotted line) in November 2004



Source: Prepared by the authors (2023).

At the second stage the attacking operator starts pressuring the market, is the target of the attack, but in the opposite direction from the desired one. That is, if the operator wants to buy back the shares of the corporation, he first starts selling them in order to cause fears on the part of minority owners of the shares and their desire to get rid of the falling shares. This will reduce the market price of the stock and make it easier for the operator to achieve its goal. It is important that news and analytical reports support this pressure, for example by expressing doubts about the market value of the said shares. Thus, on the eve of the temporary currency crisis at the end of 2004. In some academic and banking circles there was an active promotion of the thesis about a possible revaluation of hryvnia. It is obvious that this was done in order to push the owners of the currency to sell it below the market price. At this stage, the operator begins to release funds from the powerful market, gradually attracting it as a base of attack.

The third stage is characterized by massive fundraising from major markets and a powerful attack in the desired direction. If we continue with the stock example, it is active stock buying.

When the initiator has achieved his goal - obtained a state of monopoly on the market, there comes a rather paradoxical stage - the completion of the operation. It is paradoxical in that the operator, in order to make a profit (the ultimate goal of any business operation), needs to give up this monopoly. More precisely, he has to sell that monopoly to other market players. The difficulties of this stage are caused by the necessity to realize profits sooner, on the one hand, and to artificially keep the state on the market for some time so as not to lose the profits, on the other hand (Chatzis, 2018). At this stage, information activity is aimed at maintaining dynamic stability in the market (Bahrammirzaee, 2010).

In order to maintain market stability (Yoon, 2014) and prevent unpredictable shocks to the economy (Soloviev, 2019), government authorities must prevent the attack described above (Arsic, 2021). To this end, it is necessary to:

- identify the most powerful markets that could be the base of attack;
- identify the parameters of links to other markets as opportunities for launching an attack;
- identify an indicative list of powerful operators who are capable of planning and executing a powerful attack;
- identify the fundraising capacity of these operators - potential volumes and sources of funding.

Three simultaneous events are the signal for the state operator of financial markets about the planned attack. Firstly, it is a reduction in volumes in one of the powerful markets by a level exceeding the statistical one by 30-40%. Second, there is a simultaneous, albeit small, reduction in volumes in smaller markets. And, thirdly, information emissions regarding potential shifts in the market with limited volumes in the press, Internet, official statements and the like. At the same time, it should be understood that the market in which the volumes are not statistically reduced, will become the base for the organization of the attack, and the market, became the object of information impact - the target of the attack.

The following actions are possible for the public operator.

The simplest one is to change the position of such an operator to the opposite of the position taken by the initiator of the attack with an increase in volumes. That is, if the attack initiator demonstrates demand for one unit of an instrument, then the state operator must demonstrate supply of two units of the same instrument. This can be called a direct

"counterattack". It makes sense when the initiator of the attack does not have enough funds for a sufficiently long and powerful attack. If not, sooner or later the volume of supply may exceed the actual volume of production (or imports) of the primary (underlying) asset of the specified financial instrument. In this case confidence of market operators in the instrument will fall to a minimum. In other words, the market will actually disappear. This cannot be a goal of any government body. On the contrary, the goal is to preserve confidence in the market, its stability.

A public operator may use indirect action opportunities aimed at preventing the activation of such attacks, their extension beyond the initiator of the attack's own funds. After that the "aggressor" should be forced to withdraw from the market on its own. In this case, losses are predicted for him.

This can be achieved in the following ways.

First, reduce the attacker's ability to access the credit and other money markets. This can be achieved by:

- increased reserve requirements for credit institutions for certain speculative transactions;
- a counter-attack aimed at the credit (interest) market will significantly increase the cost of credit for the "aggressor";
- actively offering new, more lucrative markets (equity instruments, for example) to credit institutions;
- inability to quickly release money in the markets related to the attacked market by activating operations in these markets;
- other similar operations.

Second, by sharp attacks to reduce the connectivity of the market that is attacked from the sites of other markets, primarily markets powerful, with large volumes. It should be understood that if the initiator of the attack buys a certain instrument, the money he pays to sellers can escape from this market only to related markets (Putri et al., (2023)). The larger these markets are, the easier it is for the money to exit.

When the initiator of an attack, on the contrary, sells a certain instrument, the money that buyers pay him comes only from related markets, above all from the most powerful ones.

Therefore, a sharp decrease in the connectedness of the attacked market with other markets leads to a reduction of money maneuvering opportunities, primarily in the market that became the "base of attack". This shrinks the market (Nguyen et al., 2023). Even if the initiator can offer favorable terms to counterparties, they will not be able to take advantage of them.

Thus the attack is directed into an amorphous environment, with each step becoming more and more difficult to reach, more and more difficult to promote. Each new step becomes more and more expensive. Therefore, the attack becomes slow, too expensive and gradually loses power.

Third, after the results of the first and second step, you should quickly and purposefully organize a counterattack to force the initiator of the attack to abandon its continuation and leave the market to stabilize on its own, without outside influences.

To plan this counterattack, an isochronic map is used to show the relationship between the markets and the instruments in these markets. It clearly demonstrates how and which markets need to be influenced in order to target the attacked market.

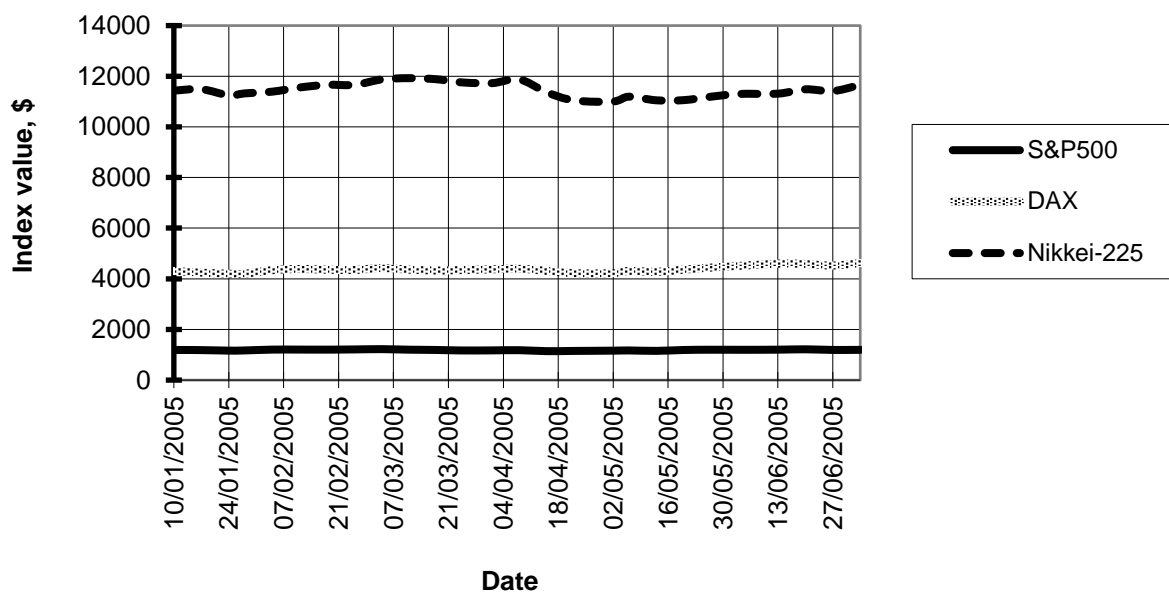
If there are several markets in the system that can create an impact with a coefficient of connectedness greater than unity, the simultaneous impact on these markets, which in size does not lead to significant changes in them, can cause the desired changes in the attacked market. The initiator of the attack as a result of introducing all these steps does not obtain the desired result, or the obtained result does not meet the expectations of the operator and its creditors. Under such conditions the operator either on its own or at the request of creditors who need to return the borrowed money will be forced to leave the market (Figure 7).

But the conditions of market exit are worsened as a result of the mentioned measures. Therefore, exit from the market is possible only on the condition of significant losses on its part. The state operator has all rights to these revenues.

Thus, the goal of protecting the market from speculative attacks by individual operators has been achieved, there is an opportunity to generate substantial profits for the state.

Figure 7

Changes in the S&P 500, DAX, Nikkey indices in 2005



Source: Prepared by the authors (2023).

In the future, when financial market participants get experience of such "punishments" of incorrect operators, when the authorities demonstrate their activity, determination and purposefulness in their efforts to maintain stability and balance of the economy, it will be enough just to inform that the plans of "aggressors" are known and will not be left without an adequate response. It will be enough for them to give up the attempt to carry out their plan.

Consider the case when an "attack" on a certain market is organized by several operators simultaneously. When several operators act simultaneously, combining their efforts may proceed differently.

First, operators can pool their financial and media resources completely under the leadership of either one of them or in a consortium that requires unanimity in decision-making on the direction, volume and nature of operations.

Secondly, operators can act independently, coordinating individual joint actions. In this case, each operator independently selects its object, its market. They only coordinate the time and volume of operations. Or they operate in one market, but carry out operations independently and do not share the risk between them. It is the attitude to future risks that is the main reason for such segregation. As a rule, the degree of risk acceptable for one operator is less acceptable for another due to different financial and media capabilities, degree of business diversification, determination and other personal qualities of managers.

In the first case in such a consortium the same techniques should be used as to a single operator. It is just necessary to take into account the increase of opportunities to influence the market - financial, organizational, administrative, media, etc. That is, the essence of counteraction does not change, but their scale and the need for resources increases.

In the second case, one should expect the existence of differences in the positions of such operators in different markets, which in turn causes significant differences in the choice of the timing of the start of operations. Full agreement on the timing of the start and sequence of stages of the operation between "allies" is not possible, since such agreement leads to the emergence of a formal or informal consortium, which appears in the first case.

Especially dangerous would be a simultaneous "attack" by two or more private operators on one object - a market or an instrument, as happened during the currency crisis of 2004. The main danger in this case lies not even in the financial power of the initiators, but in the speed with which their influence will be exercised. In general, the speed of pressure (change of position) of the operator depends not only on its financial capacity, but also on the speed of making and implementing investment decisions. One financially powerful operator has several levels of decision making. Passage of information through these levels takes time. The larger the operator, the more time it takes to make a decision.

Several operators acting in concert according to a single plan create a horizontal structure and lose in the quality of decisions, but greatly benefit in the pace of their adoption and implementation. For financial markets, the pace can be much more important than the volume of resources. Moreover, decentralization of investment decisions generates decentralization of sources of resources for their implementation. And their significant decentralization makes it difficult for them to be correctly identified and blocked by both regulatory state structures and the market state operator. In other words, the financial basis of the attack becomes less vulnerable, less dependent on external influences, and the attack itself becomes more dangerous. If such an attack is massive, i.e. several dozens or several hundreds of operators take part in it, it becomes actually disastrous for the market and may take the form of a panic. Although the likelihood of coordinated action by so many operators can be considered almost impossible in terms of keeping the plan a secret.

The possibility of almost simultaneous attack of several operators - up to ten at most - can be considered the most probable. Signs of such an attack are the same as those of a single operator:

- resource mobilization;
- the media attack is headed in the same direction;
- non-statistical changes in large financial markets.

The vulnerability of such a plan is the phrase "almost simultaneous attack" used above. The time divergence in attracting and channeling resources allows an informed state operator to split the use of its resources over time and counter individual initiators in the same markets, but at different times. Using such a strategy, a public operator in the financial markets can allocate its financial, administrative and information resources against its opponents in turn and thus have a significant advantage over each of them.

5 CONCLUSION

A number of conclusions can be drawn from the above:

There are serious organic deficiencies in the organization and structure of financial markets that require active government intervention.

Unscrupulous private financial market operators can and do take advantage of these deficiencies in order to make unscrupulous profits by stimulating volatility.

The state can not only prevent such operators by legislative and administrative, but also by financial methods, and at least minimize the consequences of crises caused by them. The basic principles and approaches of such actions are described in the article.

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