THE BANKING SYSTEM UNDER THE INFLUENCE OF THE SYSTEMIC RISK

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Abstract

The global crisis triggered in 2008 had a causal component deriving from the significant financial component, which triggered a high volatility in financial markets. The most affected by the crisis were the financial institutions that suffered the biggest losses. Banks, known as the main financiers of the economy, have transmitted the shock suffered further in the economy, triggering a kind of domino effect. This phenomenon has been defined as a systemic risk, that is, the risk that may have significant effects on a large part of the economy of a country, geographic area or sector of the economy. In the context of systemic risk, effects that can spread across the chain may occur.

Recently, there have been an increasing number of events in Romania that could trigger systemic risk situations. These are mainly associated with legislative changes adopted without a careful analysis of the impact on the economic system or state intervention in the economic mechanism.

Keywords: *systemic risk, financial market, economic system, bankruptcy, economic strategy.*

JEL Classification: G21, G32

Introduction

Romania has gone through the global crisis without the financial banking system suffering significant shocks and without the need for state aid to avoid bankruptcy of some banks, although the country faced a high level of systemic risk, and now it is in the situation to cope with severe systemic risk.

It is important to understand the factors that can trigger a crisis due to systemic risk, how the interconnection of financial institutions contributes to the spread of systemic risk, what are the factors that amplify the shock, and what measures can be taken to diminish - these shocks. What are the shock absorber measures that can mitigate the effects of disasters.

Literature review

Anghel, Diaconu and Popovici (2016) studied the main risk analysis models. Anghel, M.G. (2015) and Anghelache, Sfetcu, Bodo and Avram (2017) analyzed the risk categories and their management methods. Anghelache, Lilea, Sfetcu and Chiliment (2018) dealt with aspects of the efficiency of

banking activity under the assumption of risk. Anghelache and Bodo (2016) investigated essential elements of systemic risk. Bekaert, Engstrom and Xing (2009), and Goyal (2005) presented the implications of financial market risk. Claeysa and Vander Vennetb (2008) conducted a comparative analysis of bank interest rates. Colacito and Massimiliano Croce (2011) studied the correlation between long-term risks and the real exchange rate. Mirzaei, Moore and Liu (2013) studied the factors of influence of bank profitability and stability. Norden and van Kampen (2015) analyzed aspects of bank debt.

Research methodology, data, results and discussions

• Managerial considerations

Business dysfunctions are largely due to shortage of short-term liquidity. More specifically, although some companies assume that they have sufficient liquidity to cover future payments, but if this liquidity is not in cash, then surprises can occur. Suppose a firm owns a property valued at X EUR. For simplicity, assume that the same value is also recorded in the company's records as an asset. So, the firm owns (among others) assets that can be used to generate cash in simulations / modeling if needed - by selling it. Let's also assume that the manager of the firm is cautious (risk averse) and has taken into account a 10% safety factor that expects that in case of imminent necessity, the value at which the asset can be capitalized is lower with this percentage%. At any given time, the company, for any reason, needs urgent liquidity value Y and decides to capitalize on the asset. However, in the available time horizon, we can find a buyer only for a V value that is lower (assuming 25%) than the X value in the company's records. We can have the following cases:

- The debt V> Y, so the company has covered its needs - the one that can be considered that the event that generated the crisis did not cause a shock (it was absorbed).
- X (1-10%) <Y = <V <X where the safety coefficient covers the difference between market value and debt - the shock was absorbed by a preventive measure (shock absorber)
- Y> X> The firm remains uncovered, can not generate enough cash to cover the flow - it can not make the full payment and generates a deficit for the partner - the shock is passed on.

Perhaps if he had more time at his disposal, the manager could have been waiting for better deals, but the limited time forced him to sell to what was found at that time. Or even if he found a buyer and the terms of the deal were agreed, the promised money would enter into the account after a certain time delay. Hence the temporal aspect that influences the decision taken in this crisis (liquidity) situation.

From this example there are five key elements (parameters):

- The value of the asset recorded in the records;
- Estimated market value;
- Actual liquidation value - transformed into liquidity;
- The time horizon he has at his disposal;
- The actual cash-flow term.

From the above analysis, the first two characteristic elements of the liquidity crisis are: the size of the shock, and its temporality.

It is worth mentioning that in this simplified model we did not take into account the internal cost of the activities involved in the recovery process. The sooner the buyer finds the lower the expense, so the company would stay with more cash. The manager has to balance all aspects and decide on what he intends to do. He may decide to sacrifice a portion of the sale value and obtain the most urgent liquidity (Fire sale), so that the actions taken do not generate a systemic crisis effect, since it is viewed in isolation and is not very large amplitude .

Going forward with generalizing the model, we're trying to add extra parameters. In the example above, we did not take into account the cause that generated the lack of liquidity. This case may be punctual for this firm, and suppose the manager does manage and find a timely solution, then they are all on the right track. If it does not find liquidity within the time horizon, it will generate an effect on the cashier (say the Provider). In turn, it will be faced with a lack of liquidity similar to what we described earlier. Here are two other conclusions / parameters - interconnection and contamination.

But what happens if the causes are originally from external sources to the economic system, and that can generate a significant turbulence in economic mechanisms, an event that few would have expected. An example would be economically politically unsound decisions, considered populist, sufficiently out of the ordinary to attract the attention of the vast majority of the voting population, but which may generate a shock in economic systems. Since the measure has effects on several economic factors at the same time, it determines the characteristic of simultaneity that is specific to systemic crises.

In the period before the financial crisis, the most profitable investments were in capital market investments, with returns / growth much higher than other segments. This has led some banks to invest in more volatile areas but with much higher expected revenues, thus exposing themselves to significantly higher risks.

Financial contracts known in the banking environment under the generic name forward, futures and options are derivative instruments through which banks wanted to secure their portfolio of exposures. By investing /

placing an amount now ensured that at maturity he has to collect a certain amount of money. All this has worked in a time of stability and growth in the markets, which has led to a considerable increase in the assets of some institutions (above a reasonable value - in managers' plus profit + personal bonuses). But as soon as the so-called economic bubble broke, it triggered an immediate liquidity crisis, it quickly spread across the American system and from there to all corners of the financial and banking world.

The blindness of high-income leaders, coupled with very large / practically endless success bonuses, a liberal oversight system (which was actually considered the engine of economic growth in the last 20-30 years). Managerial decisions taken without an objective analysis based on sentiments and past experience, myopic investors (blinded by the hope that *it will not happen to me*) could have led to the outbreak of the 2007 US financial crisis.

It seems that managers' decisions to move towards high but risky incomes were taken more by experience and subjective factors than by rigorous analysis based on objective calculations / simulations. Optimism / myopia about the attitude that ... it will not happen all at once, or I will not be hit by *the institution I lead*.

- **Interconnection - Network structure - Contamination**

Globalization, market opening and technological evolution lead to a very large interconnection of the financial system. Given the double role of banks (lender / borrower), interconnection is all the more complex and is achieved both at assets and liabilities, and is not limited to financial institutions but involves investors, the company and even individuals. The higher the complexity of the network, the more difficult the modeling of the system, the overlapping of the continuous change of the network scheme and of the connection parameters. Regulators in their attempt to prevent crises affecting the entire system, or even a significant part of it, are making considerable efforts to model the system and perform simulations on real sets of data gathered from players' mandatory reporting.

The exposure of a bank can be seen from two hypostases: the bank is both debtor (attracts deposits) and creditor (lending), and does so on two or even three different segments - clients, partner banks and capital markets (financial investment).

The exposure of a bank must be viewed from two perspectives: the bank is both debtor and creditor, that is, attracts deposits and gives / provides loans, and this on two or even three different segments (1) customers, (2) banks partner (3) capital markets / investment (financial).

Although some aspects are limited, it nevertheless reveals certain interdependencies, which may require more and more sophisticated models. The challenge is to find out which are the factors that determine that a certain socio-political-economic event is considered as a systemic risk generator.

Network theory, and company balance modeling are theoretical tools that allow researchers and supervisors to build dynamic models to help prevent crisis situations or at least limit their effects.

• Economic conjuncture in Romania that could generate systemic risk

At this point in Romania, the severe systemic risk is the political factor, which by means of populist measures intervenes in the economic mechanisms, and by adopting a exchange rate that defies the economic reality attacks on the macroeconomic stability of the Romanian financial-banking system (the state of equilibrium) . Also, some political decisions that have not been sufficiently analyzed and economically substantiated and are to be applied retroactively tend to produce devastating effects in the Romanian economic system.

According to a survey carried out by the NBR among the largest credit institutions in Romania in December 2018, they identified in the current exercise a severe risk, four high risks that can generate systemic risk. In the survey, credit institutions were consulted on the possible implications of the entry into force of Government Emergency Ordinance no. 114/2018 regarding the introduction of measures in the field of public investments and fiscal-budgetary measures, the modification and completion of some normative acts and the extension of some deadlines.

Credit institutions have for the first time identified a serious risk to the stability of the domestic banking sector, originating from the uncertain and unpredictable legislative framework in the banking and financial sphere, with implications for the sector's solvency. Banks appreciate this risk as a severe one, difficult to manage and with a very high impact on the financial system. Among the most important effects estimated by the domestic banks are:

- decrease in profitability, with potential effect on own funds and total own funds ratio;
- distortions in the functioning of the money market;
- the depreciation of the national currency;
- accelerating inflationary effects;
- the increase of the credit and the decrease of interest on deposits;
- the contraction of lending to the sectors of the population and companies with an effect on economic growth;
- the withdrawal of investors from the banks in Romania;
- lowering the quality of local banking services (by diminishing or

abandoning planned investments) and accelerating the presence of fintechs on the market.

Under risk conditions, decisions are made taking into account certain factors that can influence the expected outcome and a relationship based on statistical calculations that take into account the probability and impact of those bills on the results / objectives. From the modeling of risk decision modeling methods we can mention the decision tree method. This method is used to solve complex problems in risk conditions, and consists in developing a decisional system built in the form of a tree. Tree branches are both decisions and developmental alternatives and are represented by weighting the consequences of each decision variant with the probability of achieving that state. Another method used refers to Risk Modeling Algorithms, which are based on software programs based on programmed algorithms and procedures, and which can perform very many simulations to determine the optimal decision solution within a relatively short period of time. The results of previous decisions are kept in the historical databases of the various models, and they can be used in subsequent simulations.

In the literature, we find new approaches used to model the economic mechanisms as faithfully as possible and at the same time to reduce the effect of the hazard in managerial decisions. Thus, in the last period, we are witnessing the development of increasingly complex IT solutions, which are based on large data volumes, which from a statistical point of view can estimate the effect of an error decision in less and less - better approximation.

Conclusion

The risk exposure to a financial-banking institution is specific and must be considered from two perspectives: on the one hand, the bank is a debtor, and at the same time it is a lender, that is, attracts deposits from customers and at the same time provides loans. This is done simultaneously on two or even large banks, even three different segments: the first is clients, the second the partner banks and the third the financial investments (capital markets). Thus, in the event of a financial institution collapse, the exposure is significantly higher than that of an ordinary firm, and the domino effect affects both bank depositors or creditors (individuals and firms) as well as partners (other financial institutions and investments).

Knowledge of the business environment, and especially the careful follow-up of the economic context, can provide key indications for experienced managers who knowingly engage in speculative operations assuming the associated risk. This factor, however, is strongly influenced by the experience and the subjectivity of the decident factor (flair), but with the technological

evolution it offers more and more analytical tools and large data data to help modeling performance statistics to make decisions based on well-grounded objective criteria.

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