MODEL OF CAPITAL RISK MANAGEMENT IN THE BANKING SYSTEM

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Abstract

Capital represents, in the banking system, an indispensable element of activity. Capital plays an important role in the overall protection of the credit institution against non-diversifying and pure risks. In this sense, capital plays a shock absorber and, for this reason, its size and, above all, its structure are essential in determining the bank's risk profile. Over the past 30 years, the evolution of bank capital has been dominated by two trends, namely: the decrease of the weight in the total balance sheet and the diversification of the patrimonial elements. The rise in the share of bank capital, in a broad sense, in the total balance sheet of banking companies was manifested during the sixth-eighty centuries of the last century. Under the terms of the period, characterized by the strong stability of banking structures and poor market competition, the fall in capital ratio was a way to increase the rate of financial return, highlighted by the leverage effect. Contrary to the declining interest rate trend, financial profitability rates have remained at relatively satisfactory levels.

Key words: *bank capital, Cooke rules, bank solvency, weighting, banking management*

JEL Classification: G21, G32

Introduction

The strategy of reducing the share of capital in banking companies has the advantage that it provides immediate results but, in the long run, it affects the credit institution's ability to cope with particular shocks. The crisis in the banking system in the eighth decade of the last century in most countries highlighted the downturn and brought back the issue of bank capital. The

Working Group of BRI - Basel has finalized the methodology for calculating some indicators by imposing minimum thresholds on OECD member states, more specifically, initially, for banks carrying out an important international activity. These indicators (the solvency ratio and the minimum capital threshold) are known as „Cooke rules" and have been imposed at national level by most countries and for all banks, especially those with international operations.

Literature review

Agoraki, Delis and Pasiouras (2011) argued that capital requirements generally reduce the risk, but for market-based banks, this effect weakens or can even be reversed. Aikaterini-Foteini, Girardone and Nankervis (2008) studied whether the size of the credit institution had an influence on estimated bank efficiency. Anghel, Diaconu, Niţă and Marinescu (2016) presented a model of credit risk study. Anghelache, Anghelache, Anghel and Niţă (2016) studied a number of theoretical aspects regarding bank risks. Anghelache and Anghel (2014) applied the instrumentation specific to economic modeling in the analysis of the main banking risks. Anghelache (2010) studied and presented the main banking risk analysis and management models. Beltratti and Stulz (2012) assessed the factors that generated poor banks' performance during the credit crunch. Blundell-Wignall and Atkinson (2010) investigated how Basel III proposals can help reduce the emergence of a new crisis. Bushman and Williams (2012) analyzes the consequences of discretionary provisioning of loan losses in risk taking by banks. Cetorelli and Goldberg (2012) considered that global banks manage global liquidity by actively using cross-border domestic funds in response to local shocks. Chaudhury (2010) addressed the practical aspects a bank faces in designing and implementing an operational risk capital model. Gasha et al (2009) summarized some progress in improving credit risk modeling for countries, corporations, financial institutions and financial instruments.

Research methodology, data, results and discussions

Under the conditions presented, there is a question of diversifying the structure of bank capital. The diversification of the constituent elements of bank capital is a relatively recent process as it dates back to 15-20 years. This process was initiated and fueled by the liberalization of the regulatory framework and innovations in the capital market. Liberalization has directly influenced the recognition or acceptance of new instruments by the authorities as well as indirectly by increasing competition in the financial markets and diminishing the interest shown for investments in bank capital. Capital market

innovations have allowed credit institutions to use financial instruments in line with their needs, with market conditions and attractive to investors. In particular, large banks with international activity have taken advantage of this offer and have reached a high degree of diversification in the capital structure. Although apparently this has had a secondary effect in complicating the risk capital management, in reality, the new forms of capital allow for a more appropriate way of attracting resources according to the financial needs of the banks.

- Sources of financing the banking activity have a direct effect on the risk of capital and on the degree of indebtedness of the bank. Banking has a much higher cost than deposits or loans because of the high uncertainty associated with financial returns. Therefore, in many cases, a banking company may reduce the cost of financing by increasing the indebtedness. As capital risk becomes more pronounced, these savings become uncertain. The cost of other sources of finance is mitigated to the extent that capital risk increases. Also, a number of banking operations, including the expansion of its own network of units or the purchase of other banking companies, may be blocked if it is estimated that the credit institution's capital risk is too high. Banking includes the funds the bank can use to finance long-term operations. The funds are grouped according to their procurement mode and delimit the two forms of bank capital, namely: small bank capital, made up of banks' own funds; other sources of capital, incorporating funds obtained through the issue of preferential shares and long-term subordinated debt.

Banking in a narrow sense is the classic, traditional form of bank capital and the exclusive form for most banks. The constituent elements are the paid-up share capital, the unpaid profit and the bank's own funds. Sourcing sources are internal (reinvestment of profits) or external (public or private issue of shares). The determination of the value of the capital can usually be done in three ways: at the book value as the difference between total assets and liabilities, being the amount used for reporting; at market value, using the stock of shares in circulation multiplied by their number and the issue value of the shares. Other forms of bank capital are those relatively recent financing arrangements that have emerged in the context of diversification of bank capital. The main forms are subordinated debt and preferential shares, both of which have priority over liquidation against precious capital. In the Anglo-Saxon specialty literature, the two forms are also referred to as „senior capital". Subordinated debt includes term loan instruments, with fixed or variable interest, notes and bonds. Most medium-term issues and relatively low total value are sold to the bank's clients. Other programs are bought by partner counterparties. Most of the long-term securities, even in the case of

high value issues, are privately placed on insurance companies, investment funds and pension funds.

Public broadcasts are made for very high values, being more expensive and the procedure (which involves the initial public offer) is more complicated. Equally variable or convertible instruments are not excluded. Indebted convertible bonds provide the holder with a time-limited right to convert into preferred shares. There are also bond issues with variable interest rates convertible into fixed interest bonds. Preferential shares warrant a fixed dividend and steady entitlements over the bank's assets. These instruments do not mature because they are not credit instruments. There are situations where some issues can be repaid or can be redeemed by the issuing bank at a predetermined fixed price. The credit institution may choose between a simple preference share issue or a preference share convertible into ordinary shares at a fixed price.

- Capital requirements planning is a very important element in banking management. The prudential regulation of the credit institution's solvency is based on the suitability of own funds for assumed risks, with own funds being the ultimate guarantor of solvency against all risks. The banking legislation in our country provides for the determination, in accordance with the Basel Agreements concluded under the auspices of the Bank for International Settlements, of two solvency ratios to ensure compliance with the rules on the adequacy of own funds, respectively:

$$Solvency = \frac{Own\ Funds}{Net\ Exposure} \geq 12\%$$

$$Solvabilitate = \frac{Own\ Equity}{Net\ Exposure} \geq 8\%$$

Each of the two solvency ratios must meet the set minimum limits of 12% for the Own Funds / Net Exposure ratio and 8% for the Equity / Net Exposure ratio. In turn, the net exposure is determined by:

Net exposure = Net balance sheet exposure + Net exposures from off-balance sheet items

The net balance sheet item includes the net assets of the credit institution after deducting the credit risk weighted items. Net exposures to off-balance sheet items are off-balance sheet items, converted into credit equivalent, in relation to the degree of conversion to credit risk.

In order to keep capital risk at a reasonable level from the point of view of the banking company and to ensure the development of the banking activity in compliance with the solvency rules imposed by the bank's global financial authority, the capital needs must be determined.

In planning the capital requirements, some preliminary steps are under way. In this respect, the process must begin by studying past performance and current status. Determine returns and risk indicators, and then analyze their dynamics. The bank's performance level needs to be assessed exhaustively, highlighting gaps and strengths. The second stage consists of forecasting the evolution of the main variables for the bank. Forecasts should not be extrapolations, but scenarios that include assumptions about market conditions and the evolution of bank policy. Also, the strategic objectives of the credit institution and the dynamic analysis of the data series should be included. In order to avoid many resources and to make the results relevant, it is advisable to select a small number of key variables such as deposit level / structure and loan level / structure. When there are restrictions on the development and development of banking activity (for example, average return on assets, development of own banking network, staff competence, etc.), these should be considered as key variables. The evolution of these variables is estimated for the chosen forecast horizon, the optimal size of which is 3-5 years, with an annual breakdown. The third step is the forecast of balance sheets and profit and loss accounts. Start with the forecast of liabilities (sources of funds) and continue with the forecast of placements (using sources of funds). As values, annual averages are preferable to simple forecasts. In doing so, there is a set of forecasts that can be used depending on the future evolution of the independent variables. Based on these data, the capital requirement is estimated using the residual method. After determining the global value, it is also necessary to establish the optimal structure of bank funds according to the evolution of the pieces and the banking regulations.

Establishing capital requirements is a very important concern at the level of bank management. The main factors that influence the capital needs of a banking company over a period of time are the destination of bank capital and the degree of indebtedness as a factor of banking profitability. As the destination of bank capital is multiple, it is difficult to define quantitatively. The following bank capital functions are considered: loss support, bank creditors protection, bank growth limitation, capital investment financing. Of these, the primary function is to maintain customer confidence, trusting them to be crucial to the success of a bank. We talk about the trust of uninsured depositors, bankers ,trust and shareholders' confidence. Compared to this feature, the others appear to be of secondary importance. It is obvious, especially for a new bank, that there is a need for capital to start the business by buying commercial premises, equipment and staffing.

It is important, depending on the amount of available capital, to assess the credit institution's ability to develop, and in this respect the bank

authority may use solvency ratios to limit this growth beyond management's management capabilities, including by limiting or blocking acquisitions or mergers. Another secondary function is that of shock shock for bank risks, respectively, for pure and partial, for speculative (unanticipated) speculation.

The degree of indebtedness as a factor of banking profitability represents an external pressure on the relative level of bank capital to reduce it. A higher indebtedness provides the bank's shareholders with a superior financial return for a given level of economic return. The central objective of a bank is to maximize the value of equity investments, so maximizing indebtedness becomes an objective underlying it. The degree of indebtedness must be as high as possible, but banks avoid excessive indebtedness. The rise in this indicator is limited by the prudence of creditors, the maximization of the bank shares' course, the banking authority's regulations.

Even if we take into account all these elements, it is difficult to appreciate what is the optimal size of bank capital. There are important differences between credit institutions due to the size of the banking society and the managerial policies applied. As a share, the capital is higher in small banks and lower at the largest. Banking companies have a higher economic return, and feel the need for greater capital.

At the above presented, the reduced diversification of the investments from the sectoral point of view requires the addition of a higher capital. Large banking companies have the necessary staff to base their management decisions optimally and use arbitrage on the interbank market as a source of funds. By doing so, they may, subject to the preservation of creditors' confidence, operate with less capital. In absolute terms, this confidence is justified by the colossal values of these banks, the world's largest, of billions of dollars.

- Bank solvency, capital control element

The risk of capital or bankruptcy is not specific to banks, with any company exposed to this risk. However, the risk is „oversized" in the banking sector through the function of financial intermediation of banks. As credit institutions place borrowed money, deposited by their clients, and from these operations earn the main part of their income, banks are interested in attracting as many deposits as possible, making as many assets as possible, and thus to a given share capital, to achieve a higher dividend rate. Thus, the share of capital in total bank liabilities decreases, so also the risk of bankruptcy. The Bank only allows smaller losses, covered by capital, to a growing volume of assets. This trend is countered by two positive phenomena, namely: increasing the share of banking services revenues in total banking revenues (these revenues are not affected by the total volume of banking assets than indirectly, as a rule,

are affected by the quality of real assets and bank staff) bank reserve funds and risk that strengthens equity. The overall trend is to lower the capitalization to the minimum required by the rules for all banking companies in the system.

- Minimum capital is an objective of banking management

The banking authority regulates the banking capital regime, namely: its minimum value, the way of payment, the structure of the paid-up capital used for reporting, the relative size of the bank's assets. In Romania, these rules are issued, controlled and sanctioned by the National Bank of Romania. The capital must be fully subscribed and paid as follows: 50% at the time of establishment and the remaining within two years from the date of incorporation of the banking company (10% in the first semester, 20% in the second semester, 30% in the third semester and 40% in the fourth semester). Banking capital must be set up on a cash basis by reinvesting profits, and by using other sources. New sources may include: the issue premiums, the proceeds from the profit before operating authorization, the in-kind contribution to the capital, the dividends from the net profit after the payment of the dividend tax, the net profit, the reserves recorded as reserves exchange rate differences.

Since the different national regulations in the field required different country-to-country conditions that affected the conditions of competition on the international market, an international agreement on these capitalization rules was reached. The rules are called „Cooke," after the name of the English banker who chaired the Basel Committee.

The Cooke capitalization rules are similarly determined and express the percentage share of capital in total risk-weighted assets: the Cooke indicator 1 expresses the share of primary capital, and the Cooke indicator 2 is the share of primary and secondary capital. Under the conditions of developed financial markets, the structure of bank capital is complex, especially due to the different characteristics of property titles (voting rights, dividends, etc.). Long-term hybrid long-term credit securities such as convertible bonds are recognized as elements of secondary capital.

At European level, the solvency ratio is similar to the Cooke indicator 2 and the scheme is set out in Directive 89/467 / EEC. The rate is calculated at the level of the consolidated balance sheet according to the level of total bank funds, namely: equity and additional capital, up to 100% of equity, with deduction of participations, current period losses and redeemed shares. The weights used for assets and the equivalent of off-balance sheet items are 0, 20, 50 and 100%.

The „weighting" level is determined by the level of lending and country risk of a placement. Debtors are grouped into governments, local authorities, banks (including development) and agents (economic and population). With

regard to additional country risk, a differentiation is made between OECD countries or IMF (area A), on the one hand, and other countries, on the other (zone B). The minimum solvency ratio is 8% and the reporting is twice a year.

Capitalization is determined by reporting the capital to the amount of the weighted assets. These are the main new element of Cooke rules. It is calculated by weighting the various asset items but also some off balance sheet items with coefficients between 0 and 100%, depending on the risk.

In Romania, the reference rules in this area are the NBR Norms on the Own Funds of Banking Companies and the Solvency of Banking Companies. The equity consists of the paid-up share capital, the reserve fund, the fixed assets fund, the development fund and other funds constituted from the net fund. Additional capital includes the risk fund, the reserves from the legal revaluation of tangible assets and the subordinated debt. These amounts are subject to the following discounts: unencumbered income, trade, fixed asset expense, current investment expense and material for which the development fund has not been affected, current year losses, participations in other banking companies (direct or subordinated loans). Equity value in foreign currency is determined by the exchange rate at the reporting date. Supplementary capital may not exceed equity capital, and under its subordinated debt the following conditions must be fulfilled: to be paid in full, to have a maturity of at least 5 years, its amount to be reduced periodically according to repayments, to not after honoring the other creditors, but before the shareholders, its total value does not exceed 50% of the equity. The value of the foreign currency risk fund is calculated based on the currency exchange rate.

Risk-weighted assets include both equity (balance sheet) and off-balance sheet items. Calculation value is net, (after deduction of collections on the reserve fund): The weights used are 0, 20, 50 and 100%. Off-balance sheet items are converted into credit equivalent based on the risk they represent. The credit equivalent is considered as a balance sheet item and the risk weight corresponding to the beneficiary's category of the facility is applied.

Romanian norms are very close, in spirit and content, to European ones. Banks bear the costs of the restructuring of the balance sheet imposed by the new credit portfolio classification standards and the provision of appropriate reserves.

Generally speaking, banks' participation in the capital of other enterprises is forbidden or limited, the reasons being related to the specificity of the banks of financial intermediaries and the concern that, by combining bank capital with that of other economic sectors, it could cause increased systemic risk. Currently, in the European Union, a banking directive limits holdings to non-financial companies to 15% of the capital for each holding and 60% for all.

The ability to participate in the capital of non-financial corporations is attractive in the context of the privatization process for countries where it was not allowed, but most large banks are interested in holdings to control them. Participations in the capital of financial institutions are generally free, with the exception of Greece where they must be approved by the Banking Authority in advance.

Conclusion

The Solvency Ratio has been created for banks with significant international activity and publishes quarterly data that allow a rating to be established. These have been generalized within the OECD and the European Union, with effect from 1 January 1993.

The justification for the introduction of the solvency ratio stems from the status of joint stock companies of banks that employ their commercial responsibility through their activity. The bank's survival guarantee, in the event that capital becomes null or negative, is very different: banks with state capital exclusively or majority hold a unlimited theoretical guarantee in contradiction with the status of anonymous companies or private banks that do not benefit from any kind of even if their shareholders are also public institutions. As a result, their reaction to the introduction of these rules is not uniform.

Banks have limited possibilities to raise their own funds because the capital market is narrow and subordinate securities do not exist. A great difficulty is getting these funds. It is anticipated that a large number of banking companies will not be able to achieve the required level of capitalization so that, in the absence of credible sanctions, the banking authority risks compromising its reputation. If credit institutions succeed in raising capital, the process is costly and profitability has to increase. One way is the extent of exposure to risk by increasing the share of loans in total banking assets or by increasing the share of higher remunerated loans. This path is blocked by the introduction of the rules for withdrawal from the reserve fund. Banks have to solve the dilemma, diminishing the assets, the main concern being the preservation of quality.

Under these circumstances, capitalization rules are expected to be ineffective or generating a reduction in the total volume of credits. The effect of the rules can be felt at the level of state-owned banking companies, and the State guarantee can induce aggressive behavior, additional risks, and increased risk in the system. Risk cuts are a restriction for private and state banks, coupled with an immediate tax penalty.

The imposition of reserve fund levies has been conceived as a priority, the constitution being monitored by the controlling authority, and the accompanying tax penalty must be easy to apply and may have an educational role for the management of banking companies.

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