APPETITE FOR RISK OF THE BANK (II)

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Rezumat

Reprezentând „cantitatea" de riscuri pe care o bancă este capabilă şi dispusă să o accepte în urmărirea obiectivelor sale astfel încât să echilibreze nevoile tuturor părţilor interesate, apetitul (înclinaţia) pentru risc este exprimat atât în termeni cantitativi, cât şi calitativi, şi acoperă toate riscurile, nu numai pe cele privind aspectele financiare, aşa cum s-a înţeles în ultimii ani.

Problematica apetitului pentru risc cuprinde aspecte, precum: contextul manifestării apetitului şi relaţia sa cu aversiunea faţă de risc; declararea şi comunicarea de către bancă, în mod corect şi transparent, a apetitului său pentru risc; aplicarea apetitului pentru risc; determinarea, evaluarea şi măsurarea apetitului pentru risc al băncii.

Înţelegerea apetitului pentru risc va fi posibilă numai atunci când riscul la nivelul băncii va fi văzut în contextul profitului potenţial şi al cerinţelor de capital, iar perspectivele afacerii băncii vor fi agregate într-o imagine (portofoliu) a strategiei băncii, o abordare consistentă a apetitului pentru risc echivalând cu o abordare a strategiei băncii, fiind necesar ca întreaga conducere de vârf a băncii să se implice.

Apetitul pentru risc este un concept în evoluţie, care necesită un efort continuu de cercetare şi, deşi acesta este încă neclar, el este un instrument util pentru gestionarea riscurilor în cadrul băncii, ca întreg.

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Abstract

Representing the "amount" of risk that a bank is able and willing to accept in pursuit of its objectives, so as to balance the needs of all interested parties the risk appetite (propensity) is expressed in terms of both quantitative and qualitative, and covers all risks and not just financial risk, as understood in recent years.

Risk appetite problems include issues such as the context and relationship of the risk appetite to the appetite risk aversion, fair and transparent declaration and communication of its risk appetite of the bank, applying risk appetite, determining, assessing and measuring risk appetite bank.

Understanding the risk appetite will be possible only when the risk to the bank will be seen in the context of potential profit and capital requirements and business prospects of the bank will be aggregated into a picture (portfolio) of the bank's strategy, a consistent approach to appetite risk equivalent to a bank's approach to strategy, requiring that the entire top leadership of the bank to get involved

Appetite for risk is an evolving concept that requires a continuous effort of research and although the concept is still unclear, the appetite for risk is a useful tool for risk management within the bank as a whole.

Keywords: appetite for risk, capacity for risk, bank risk management, risk profile, measuring appetite, economic capital, guiding value, discount factor.

JEL classification: E10, G11, G32

The risk appetite within the context of the strategic risk management

While risk appetite evaluation leads to the core of risk strategy formulation, it can become dangerous in terms of the strategic risk management if the evaluation is incorrect, which can push the bank towards bankruptcy.

In order to determinate properly the risk appetite, one should run through three stages: evaluation of the risk capacity, alignment to the strategic objectives, implementation of the framework for measurement and monitoring.

➢ The **evaluation of the risk capacity** must take into account the fact that the strategic objectives of the bank are expanding, and we mean the market share, the profitability, the increase of share price, reputation, observance of regulations, structure of the capital, etc. In order to reach these objectives, two aspects must be balanced – the trend to assume risks and the disposition to control the risks.

Within the context of determining the risk appetite, as basis of the value which the bank has for the shareholders, relying on the hypothesis that the value for the shareholders is calculated as cash flow, updated with the weighted average cost of the capital, less the value of debts, we may have the following approaches:

- adopt the decisions regarding the strategic objectives and risk analysis, increasing or decreasing, and the qualitative and quantitative impact of these decisions;
- evaluate the interdependence between the different factors which influence the risk appetite;
- develop a matrix design for the risk level and for the impact, which allows the bank management to be flexible in evaluating the individual risks, according to each objective and of the cumulated risk for the bank, as entity.

For instance, the objective of a bank might be to increase the credits 100%, the strategy being to penetrate the emergent markets. The alleviation of risks might be determined by the preferences of the clients, by cheaper banking products, by reducing the operational costs, while the increase of risks might be determined by the high-level corruption, by the geographical distance which decreases the managerial control, by the allowed license, etc. In this case, the risks are enumerated, classified and quantified, so as to valorise the opportunities and alleviate the threats; the figures might be changed in order to evaluate the variation of the different risks, which can change significantly or may remain unchanged, evaluating at the same time the impact of the risks on the value of shares. Then, by a conservative approach, one may take into consideration the value of the threats without deducing the possibilities of evaluating the risk appetite, considering the threatening level with the variation of credit increase, in order to identify the figure for which the management is willing to take risks and their impact on the value of shares; ideally, this figure may correspond to the risk appetite of the bank.

- The **alignment of the risk appetite** starts from the possibility that all the operational risks eventually impact on the strategic risks and that the strategic risks influence the operational risks, while it is not an easy matter to align all the risks at the same level. A strategic risk may appear while the tactical and operational risks are attenuated. For instance, the political risk is an external strategic risk which may impact strongly on the bank, while the tactical and operational risks (of liquidity, solvability, etc.) are approached adequately.

We must take into consideration that the risk appetite of the bank changes continuously, function of different events which occur inside and outside the bank, the big problem being the way in which the risk appetite aligns to the strategic objectives, after which other risks are also envisaged.

The conception according to which the risk appetite is fixed for a bank, is a wrong conception. Even more, a bank may have several risk appetites for different strategic objectives, while for the same bank product it may have very different risk appetites depending, for instance, on the geographical location. Therefore, one may say that the risk appetite is a cumulated total of the strategic, tactical and operational risks; the total risk must be assigned to different strategic objectives and plans. From the strategic objectives, the risk appetite divides downwards, by tactical and operational objectives, following this method in order to align the risk appetite from the top to the bottom of bank organisation. To this purpose, measuring criteria are necessary in order to monitor the changes required for each level.

- The **implementation of the measuring and monitoring framework** requires an adequate framework for the measurement of the risk appetite, but also of the deviations and exceptions from them. Ignoring this aspect may sometimes lead to losses of million euro, the enforcement of the best criteria for risk appetite measurement being crucial for any bank.

As first step towards accomplishing this objective, one needs to develop a set of key-indicators for risk and control for the strategic objectives of the bank. These indicators will measure the tendency to assume risks and control them, being within the parameters specified in the bank’s statement on the risk appetite. After the alignment of the tactical and operational risks to the strategic ones, any deviation will reflect within the entire chain, the effects on the interconnected risks being obvious; their continuous monitoring allows the bank to update the risks within the risk appetite of the bank and to reveal the errors.

The strategic approach of the risk appetite*,* otherwise said, the correlation of the risk appetite with bank's strategy, reveals four essential aspects, obvious in the practice of risk management in banking.

1. The ambiguity of the bank council role, meaning that it swings between the direct management and control of the risks, on the one hand, and their delegation to independent department, on the other hand, while the council ensures only the monitoring. In this respect, the relation between the good governance and the proper judgement of the management is important.
2. The practical definition of the "risk appetite" is difficult to determine but the need to link the risk appetite to the strategy is acknowledged unanimously within the bank. It is necessary to characterise each component of banking business and of the defining products in terms of risk and profitability, of requirements regarding the capital, liquidity and cash flow, and the aggregation of these parameters at the portfolio level. This approach generates an "image of the bank" within this approach, the risk appetite being the cornerstone of bank's strategy.
3. Risk governance is a challenge for the bank, knowing the benefits of the recent investments in the detailed risk management techniques; it is often said that a correct judgement provides better elements for risk management than the science. The stress tests and scenario planning surely are useful instruments for a dialogue about the key-hypotheses of the future performance management.
4. The regulative environment, in continuous evolution, shows both opportunities, and challenges, being a mixture of overlapping and contradictory plans. The rate of change, determined partly by the political forces, exceeds the capacity to measure the aggregate impact of the new risks and costs. The aggregate impact of a possible reform of the bank governance, of risk governance, particularly, taking into consideration the risk appetite, might be a too heavy burden for bank performance.

In conclusion, the risk appetite is an essential concept, but without a common definition among the bans or of the regulation authorities, which would claim technical competency, wisdom and judgement.

The understanding of this concept will be possible only when the risk at bank level will be seen within the context of the potential profit and of the capital requirements, and the prospects of bank's strategy will be aggregated in an image (portfolio) of the bank's strategy, a consistent approach of the risk appetite, equivalent to the approach of the bank's strategy, and the entire top management of the bank must get involved in it.

Elaboration and formalization of the risk appetite statement

Any bank has an appetite for risk, which it understands or not explicitly. When they define the risk appetite, the banks must start by understanding the characteristics of assuming the risks in time, then they must align the risk appetite within the context of their strategy and business pattern. For instance, what risks are inacceptable for the bank management? What limits are there for some financial investments? In what fields there are restrictions for bank's policy? Such elements form the basis of approaching the risk appetite. In this respect, the statement of risk appetite should take into consideration the following aspects:

- Assuming the acceptable risks or the risks min agreement with the strategy, because this acceptation is rewarded enough, being achieved in order to stimulate the growth of the bank. The risk tolerance is often set for these risks (limits of expenditure, time horizon etc.);
- Avoiding the undesirable risks outside the strategy, for which the tolerances are zero or minimal. The prohibitive policies are developed for these risks. For instance, restrictions for the use of financial derivatives with the purpose to make profit, the types of instruments that are used and the minimal criteria for the counterparts;
- The parameters within which the management is available to assume the risks of banking, impact on the decisions taken during the cycle of planning and on the strategic priorities, supplying a framework in which the risks may be accepted. There are strategic, financial and operational parameters.

The risk appetite statement unleashes the whole potential of a bank, setting officially the risk value which the bank is willing to accept in pursuit of its strategies and objectives. They give a clear understanding of the major risks and mobilises the executive management to pursuit even more aggressively the opportunities with the purpose to maximize the performance and ensure the development of the banking risks. In order to simplify the elaboration of the risk appetite statement, it should focus on the trust of the key-stakeholders, on the corporative objectives and strategies of the bank, as well on the major associated risks.

In this respect, the following requirements must be observed when developing the statements:

- Setting a dialogue about risk management between the bank management, the executive managers and the decision-makers regarding the major risks confronting the bank;
- Concerted actions of the bank management, the executive managers and the decision-makers regarding the major risks confronting the bank in order to identify and set the priorities for the expectations of the key-stakeholders, the objectives and strategies and for the relation with the major risks;
- Define the limits of the risk appetite, the measurements, reports and control panel;
- Articulate the risk appetite statement on the top-down structure of the bank;
- Setting a dialogue on risk management between the managers of the executive units, of the centres with critical assignments, of the major business units, of the top positions of the bank;
- Setting the responsibilities regarding the major risks;
- Develop the risk statements and the statement on the aggregate risks of the executive units;
- Setting the bases for the bottom-up implementation in the bank, of the function for business risk control and performance management control;
- Articulate the statement of risk appetite of the executive units by critical business centres, major executive units and top positions within the bank;
- Start programs to transform the culture of risk management, to improve the awareness of employees, the education, professional training and abilities;

On the basis of the risks inherent to the bank, the bank management may consider defining the risk appetite in terms of quantity and quality, and to change the risk appetite when the conditions change significantly, or when unpredictable opportunities appear.

Within the framework of the periodical dialogue between the bank management and the managers on topics of the acceptable risks, they report the strategy and objectives of the bank, trying to circumscribe the risk appetite to this strategy, considering the following aspects.

1. The **strategic organisational objectives of the bank** may include: the market share; reputation; profit increase; shareholders revenue; observation of the regulations; adequacy of the capitals etc. It is important to understand the direction which these objectives confer. The objectives are determined by a combination of short-term stakeholders' expectations such as the profitability and by the long-term corporative objectives, such as the debt rating and company growth. As bank strategy that may change, the risk appetite must be reviewed continuously, confirming by this that it may contribute to the accomplishment of bank's goals. An expansion, detailing of the strategic objectives of the bank, can be found in its **business plan**, which highlights the way in which the bank intends to meet its objectives and meet stakeholders' expectations. Many banks must draw **management plans regarding capital objectives** required in order to accomplish the strategic objectives; both documents must reflect the risk appetite statement communicated to the stakeholders.

2. **Align the risk profile to the business plans and to the capital management plans**, which implies the determination of the maximal risk level which the bank can take within the context of its capacity to assume risks (for instance, the current and planned capital and the business position expressed in those plans). In order to align the risk profile to the business plans and to the capital management plans, a bank must take the following steps: identify the potential risks confronting the ban; measure the aggregate risk profile and the level of the unexpected losses; understand the capacity to assume current risks; consider the volume of capital that is available (buffer) between the capacity to assume risks and the aggregate risk profile, including the forecast of the unexpected losses; identify the exposures to zero risk tolerance (for instance breaches of conformity or safety) in order to defend bank's reputation.

3. **Determine the risk thresholds**. After the available capital necessary to cover the risks was determined, as well as the current

level of risk exposure, the next step is to identify the intervals of tolerance for the specific risks (to make sure that the appetite remains within the limits of the capital management plans and of the business management plans). The risk thresholds or the risk tolerances are typical measures of risk used to monitor the exposure in relation with the stated risk appetite. In practice, they allow laying out the high level risk appetite, communicate it and materialise it in measures to be applied in the organisational units of the bank.

4. **Formalization and approval of the risk appetite statement**. Finally, the bank must formalise the results of the risk appetite process in an official statement to the stakeholders regarding the risk appetite, statement which must be approved beforehand by the board.

The key-components of a definition for the risk appetite are: quantitative components; essential dimensions of the risk; qualitative components – acknowledging the fact that not all risks are measurable, but that they can affect the banking performance; zero risk tolerance – identification of the risk categories that must be avoided (for instance, the appetite for breaching the regulations).

Classifying the relations of the risk appetite with monitoring and reporting the performance goes as follows: the strategic objectives of the bank; risk appetite statement approved by the bank management; bank performance management; management of the individual performance.

Just like the strategy of the bank is linked to performance management, risk monitoring and reporting should be linked to the risk appetite, because both contribute to the quality of banking performance.

An effective risk appetite must be integrated within the decision-making system at all levels of the bank. The decision-making process at all levels, the integration within the stout governing and reporting process should also include the development of the policies and procedures, the expansion and delegation of the matrix of authority and of the adequate tempering strategies, if the tolerance limits are exceeded. An important role of the risk appetite is the attitude towards the risk inside the bank, the risk culture that develops; the importance of the risk culture must not be underscored, since most major examples of fraud and financial failures of the recent decades are linked to situations of deficient or ambiguous risk cultures.

A risk philosophy and statement, clearly articulated, unblock the value and provides significant advantages for the inclusion of a risk appetite statement, properly defined, in the formal governance documentation. The risk appetite must be the basis for an efficient system of risk management. Such system can generate the following advantages to the bank:

- Linking bank's decisions to its strategy;
- Promote the coherent behaviour, the efficient communication of the risk appetite;
- Increase the capacity to assume risks;
- Draw clearer and more intelligible reports on the risks, which to allow a more adequate utilisation of the early warning indicators and of the risk limits;
- Ensure the actual value that must be accomplished, formalization and writing the risk appetite statement, which will be immediately beneficial for the bank.

Briefly, the risk appetite interacts with the following aspects of bank management: the **financial management** – induces optimism in value creation; **business management** – orients the behaviours; **prudential conformation** – observes the prudential requirements; **adopting bank's decisions** – selects the products and transactions; **risk management** – conceives the risk profile.

Risk appetite evaluation is correlated with the banking capital management, the distinction between the economic capital and the regulated capital being particularly important.

One may define the economic capital as representing the volume of capital which the bank management considers necessary in order to cover and protect the shareholders from the potential economic loss (unexpected, negative changes in the economic value), for a given level of trust, in a given time horizon, in agreement with a specific objective or standard (such as a debt rating or solvency standard).

The economic capital of the bank claims the management with a standardized monetary unit, an euro of economic capital, it focuses directly on the risk, it relies on the possession of enough own capital, it serves to cover all the real risks born by the bank, it must be considered as a requirement for "true" capital necessary for the banking business.

Compared to the regulated capital, a process of the economic capital provides the following openings:

- It creates a standard measure applicable to the whole bank (it can be used to compare different types of risk);
- It reflects the economic realities of the bank (measures the real risks);
- It focuses on changes in the true, correct market economic value (not gains or any size fundamented in account ting manner;
- It covers all the forms of risk (credit, market, operational etc.);
- It refers strictly to a purpose or standard of the bank (such as the level of the debts);
- It targets the future, with standard time horizon and level of trust;
- It has a high level of accuracy (adapted to the risk profile of the bank and to its purposes).

Measuring the risk appetite from the investment perspective of the bank

The bank is often in the position of investor; in a way, most of its assets are financial investments, more or less risky, and this calls for a method to measure the risk appetite by the bank in its perspective of investor.

One method to measure the risk appetite of the investor is the variation of level of neutral risk related to the subjective possibilities, used by the investors to evaluate the possible future returns of an asset. This measure of market perception sensitiveness differentiated the risk appetite from the risk aversion, being related to levels rather than to changes.

The neutral risk is the situation when an investor actually ignores the risk when it adopts investment decisions, taking into consideration only the return from each investment.

The subjective probability derives from the judgement of the investor regarding the possibility to accomplish an event, not using formal calculations; it only reflect the subjective options and the previous experience. In practice, it was shown that market perception is a key-factor which determined the general trends of the assets price.

The level to which the investors dislike incertitude reflects the preferences underlying their choices, decisions, the risk aversion being part of the intrinsic "makeup" of the investors; this is a parameter which the theoretical suggestions are very unlikely to change significantly over time.

The risk appetite terms, the risk aversion and the risk premium are frequently used alternatively in reference to the sensitiveness of the financial assets market.

The risk appetite can change periodically, as the investors respond to episodes characterised by financial difficulties and macroeconomic incertitude. Under unfavourable circumstances, the investors will claim expected returns in excess for each unit of risk and the risk appetite will be reduced, being the reverse of the risk price. When the price of risk is taken together with the amount if inherent risk of an asset, the necessary return expected to compensate the investors for the asset they hold represents the **risk premium**.

The discussion below will make formal distinction between the risk appetite on the one hand, and the risk premium and risk aversion, on the other hand.

According to the standard approach of the asset price theory, in an efficient market, with rational and informed investors, the actual price of an asset, p_t, must be equal to the updated expected value of the possible future revenue from the owned asset, l_{t+1}.

Formal, we can write:

$$p_t = F_t(a_{t+1} \times l_{t+1}), \tag{1}$$

where: a_{t+1} is the updating factor, discount, meaning the rate at which the investor is willing to substitute the consumption at moment t + 1 for the consumption at moment t.

Supposing that the asset market is complete, a_{t+1} is a factor of stochastic discount, unique for the price of all assets.

The basic equation of the asset price also can be expressed in terms of the gross income V_{t+1}, by dividing equation (1), to the current prices, as follows:

$$1 = F_t(a_{t+1} \times V_{t+1}) \tag{2}$$

Because both the gross income, and the stochastic factor of updating are random variables, equation (2) can be written as follows:

$$1 = F_t(a_{t+1}) \times F_t(V_{t+1}) + \operatorname{cov}_t(a_{t+1}, V_{t+1}), \tag{3}$$

where the right part of the identity comprises the neutral risk component (indifference to risk of the investors) and, by covariance, risk adjustment due to the risk aversion.

Knowing that the gross rate without risk is given by $V^f{}_{t+1} = 1/F_t(a_{t+1})$, we can rearrange equation (3) to obtain the following expression:

$$F_t(V_{t+1}) - V^f{}_{t+1} = -V^f{}_{t+1} \times \operatorname{cov}_t(a_{t+1}, V_{t+1}), \tag{4}$$

Interpreting the equation we may say that, in order to encourage the investors to own an asset, the expected return must exceed the rate without risk, which means that the asset must offer a risk premium. The risk premium, in turn, decomposes in the amount of risk, k_i, inherent to any asset, and the unit price of the risk, which is the same for all assets, u_t.

In particular,

$$F_t(V_{t+1}) - V^f{}_{t+1} = \underbrace{\frac{-\operatorname{cov}_t(a_{t+1}, V_{t+1})}{\operatorname{var} a_{t+1}}}_{(k_i)} \times \underbrace{\operatorname{var}(a_{t+1}) \times V^f{}_{t+1}}_{(u_t)}, \tag{5}$$

The risk appetite – the willingness of the investors to bear a risk – can therefore be defined as the reverse of the price of risk. Thus, when the risk appetite decreases, the investors expect higher returns in order to accept owning risky assets.

From equation (5) one can see that the risk appetite reflects the variation of the stochastic factor of updating (discount), $\operatorname{var}(a_{t+1})$.

The risk appetite depends on the attitude of the investing bank towards incertitude, the level of incertitude corresponding to the risk aversion and, therefore, the risk aversion reflects the innate preferences regarding the uncertain perspectives of the future consumption, being little probable that they vary significantly in the future.

The analysis of assets price was formulated in terms of the subjective probabilities of the investors regarding the different situations. The risk aversion of the investors means that the forecast revenue for an asset may also be evaluated using a set of adjusted probabilities. These adjusted probabilities are the neutral risk, so that by assigning higher weights to the undesired states, they generate the same utilities for an investor irrespective of the risk, same like for an investor with risk aversion with the original probabilities. The adjusted probabilities can be inferred from the price of the options contracts for the basic assets.

If there are *b* possible future states, noted with *b = 1, 2, 3, ... B*, the updated expected revenue of an asset can be expressed either a a sum of the updated revenues of each state, weighted as the subjective probability of the investors in the case of a state which appears:

$$1 = F_t(a_{t+1} \times V_{t+1}) = \sum_{b=1}^{B} a_{t+1}(b) \times V_{t+1}(b) \times \theta_{t+1}(b), \tag{6}$$

or in terms of the neutral risk probability, $\theta^*{}_{t+1}(b)$, updated with the interest rate without risk:

$$1 = F_t(a_{t+1}) \times F^*{}_t(V_{t+1}) = \sum_{b=1}^{B} \frac{1}{V^f{}_{t+1}} \times V_{t+1}(b) \times \theta^*{}_{t+1}(b), \tag{7}$$

Taken together, equations (6) and (7) imply that the level of the neutral risk related to subjective probabilities is proportional with the stochastic factor of discount (updating), in the case in which the consistency of the proportionality is given by the gross rate of revenue without risk:

$$\frac{\theta^*{}_{t+1}(b)}{\theta_{t+1}(b)} = a_{t+1}(b) \times V^f{}_{t+1}, \tag{8}$$

The way the risk appetite is calculated as variation of the level of neutral risk related to subjective probabilities, presumes estimating two **density functions of the future revenue probability**, a distribution of the neutral risk and a subjective distribution.

The average value of the neutral risk density is given by:

$$V^f{}_{t+1} = 1/F_t(a_{t+1}), \tag{9}$$

while average value of the subjective density is given by equation (2).

The difference between the two averages is the risk premium.

The increase of the neutral risk level related to subjective probabilities may reflect either an increase of the risk aversion, or changes of other state variables, which lead to the increase of the marginal utility of consumption.

Therefore, one can infer the desire of the investors to pay in order to get insured against such states, meaning that the risk appetite depends in the variation of the stochastic factor of updating (discount) from one state to another.

From equations (5) and (8) it results that:

$$u_t = \frac{1}{V^f{}_{t+1}} \times \mathrm{var}\left(\frac{\theta^*{}_{t+1}(b)}{\theta_{t+1}(b)}\right), \tag{10}$$

is **a measure for the risk appetite,** once both densities of the probability for future revenues are derived.

There are several alternative approaches which attempted to measure market sensitiveness – the risk appetite and its reversal – risk aversion.

The first approach relies on the changes in the excess revenues, showing that the excess revenue demanded by the investors to accept holding an asset depends on the risk level inherent to that asset and on the risk appetite of the investors.

A second approach focuses on a comparison of the neutral risk densities with the subjective probabilities.

A third approach, closer to the one presented in this paragraph, compares the estimation of the standard deviations (or volatilities) of the neutral risk distribution with that of the subjective distribution, rather than of all distributions, the difference between the two deviations reflecting the risk premium volatility.

A last approach relies in the trans-boundary portfolio flows, which presumes that the investors have an absolutely constant utility function of the risk aversion, showing that the demand of each investor for a risky asset will depend on the wealth of the investor, on the variance of the excess revenue demanded for the risky asset, on