Abstract. The currency risk management is a very important aspect, especially in the case of companies that also carry out import-export activities. The currency risk is the one that can bring a series of elements that can be positive in terms of the results of the trading company or negative. Thus, for example, we can discuss the exchange rate on imports, which as it increases determines a price instability on the importer's market or on export, which as it decreases is favorable for the exporter. In the management of currency risk, volatility, exchange ratio, optimization of the ratio and the specific risks of the commercial bank must be taken into account. The risk management is an issue of utmost importance and it is carried out in several stages, pursuing precise objectives of control and adequacy of currency problems, so as to minimize and eliminate currency risks. This is a problem that is still stressful for Romania, in the context where it is a country that is not part of the Euro-monetary Union and then all intra and extra-EU transactions are made on the basis of the exchange ratio. And the calculation of the macroeconomic indicators of results being performed according to Eurostat requirements and in foreign currency, determines a certain evolution of the most representative indicator of results, namely the gross domestic product. The quantification of currency risk is another matter, which has been emphasized and established which are the issues that commercial banks, economic agents must comply with the regulations and norms of the national bank, the regulator on the banking market.

Keywords: currency risk, management, financial market, exchange ratio, commercial bank.

JEL Classification: E44, G32.
I. Introduction

The financial market is extremely volatile due to the influence of a large number of objective and subjective factors. For this reason, in their struggle for profit, credit institutions are constantly facing a large number of risks. The innovations appeared on the financial market, the internationalization of the specific operations, the increase of the pressure of the competition are just a few arguments that require the permanent supervision of the risks to which the bank is exposed, followed as a whole, but also individually.

The objectives of banking management in terms of risk and financial profit aim to maximize profits and, at the same time, minimize risks. For this reason, it can be stated that the actual source of the increase in bank profit is constituted by optimizing the ratio between revenues and expenses. The level of profitability of a bank is closely related to the type of strategy adopted in its management, in the sense in which some risks in the unfolded activity are accepted or not. Under these conditions, the objective of a bank becomes inevitable to maximize its profit, while maintaining the risk at an acceptable level.

Defining the notion of risk in banking is difficult, given the subjectivism of accurate assessment and quantification of risks in banking. The simplest definition of risk is the one according to which all risks are considered losses associated with true evolution of the results.

II. Literature review

III. Research methodology, data, results and discussions

The risks in the banking activity consist in the manifestation of instabilities that result from choosing a wrong objective and appear in dependence with it and with the concrete causes of the wrong objective chosen.

The risks specific to the banking activity can also be considered in terms of losses arising from the wrong decisions. The most common ones are the ones approached, starting from the classic functions of the banks in which the risks are treated as unforeseen losses registered in the banking activity as a result of adverse developments of the results compared to the anticipated ones.

Some authors consider that the risks in banking are random and uncontrollable, all of which can be attributed to potential and actual losses. It can be said that banking risks are phenomena that appear during the course of the banking operations and that cause negative effects on the respective activity by deteriorating the quality of the business, diminishing the profit or even the recording of losses, affecting the functionality of the bank.

Due to the multiple definitions of risk, we can highlight three main features of it: the causes of bank risk instability; the critical point of manifestation of the banking risks determined by the bank's objectives; the possibility of stable goals not being achieved.

<table>
<thead>
<tr>
<th>Table 1. The classification of banking risks by cause and form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banking feature</td>
</tr>
<tr>
<td>Balance sheet operations</td>
</tr>
<tr>
<td>Banking services</td>
</tr>
<tr>
<td>Activity framework</td>
</tr>
</tbody>
</table>

Bank risk management model

In the field of banking risks, there are no significant differences and clear notional boundaries between management, administration and management, the terms designating related aspects of the management function of the banking companies. Thus, we can attribute to them the significance of managerial and operational banking steps, oriented towards the protection against the risks to which the banking company is or may be exposed.

The purpose of managing the banking risks is that each banking risk can be monitored and controlled at all levels of the bank and in all the activities carried out, starting from the moment of creating or promoting a banking product/service. The deployment of forces that banks direct toward risk management is impressive and covers the entire sphere of human and material resources.

The concept of "Risk management was introduced, for the first time, in the strategy of a company by Henry Fayol, in 1916, but it became a concept formalized with the appearance of the work" Risk Management: A New Phase of Cost Control, of Russel Gallagher, in 1956, in the Harvard Business Review.

The 1950s are considered the beginning and awareness years of the importance of risk management, characterized by disparate measures to minimize losses and damages due to risk events.
In the modern period, there is no banking activity that is not closely linked to the risks and the probability of their occurrence, which demands the institutionalization and regulation of the risk management processes, manifested mainly through risk management responsibilities, at the level of all organizational structures of the bank, regardless of the hierarchical level.

Risk management can be defined as an active, strategic and integrated process that combines both quantification and risk mitigation, aiming at maximizing the bank's value and at the same time minimizing the risk of bankruptcy.

Thus, we can say that risk management is represented by all the organizational tools, techniques and devices necessary for the bank to achieve this objective. These are not stable, fixed, but in a continuous evolution: they are diversified, new dimensions become more precise.

Risk management and asset and liability management first address quantifiable risks. These are mainly the financial risks (the risks related to the interest rate, the risks related to the liquidity and financing of operations, the market risks) that are born on the financial markets and result in unfavorable evolutions of the bank's situation as a result of the changes registered in those indicators.

The contemporary banking companies have the possibility to collaborate with entities specialized in the management of the banking risk, which have developed on the financial-banking market in the context of the increasing needs of the banks to manage the banking risks.

Depending on the tools used to manage the risks specific to the banking activity, several "guidelines" have appeared, both in the specialized literature and in practice.

A first orientation refers exclusively to the basic tools and concepts, which, although imperative, are sometimes difficult in the risk management process.

A second orientation is more scientific, because through rigorous modeling and analysis, relevant conclusions can be drawn. However, this orientation also has deficiencies that are materialized by sometimes significant errors.

The third guideline focuses on the use of banking instruments that manage risks, such as term contracts, swap contracts, options and other methods used in practice.

The stages and objectives of risk management

Whether organizing its risk management activity, or benefiting from the benefit of collaborating with specialized institutions, the general model of risk management in banking companies comprises the stages:

- The identification of potential risks aims to identify and locate the potential risks on specific products and/or banking activities, in order to estimate the potential impact that a risk event would have on the product itself.
- Evaluation/measurement is considered to be particularly important in risk management, centered on the principle "one cannot control what cannot be measured. It implies the expression in value equivalent of the potential losses generated by the bank risk events.
The risk monitoring and control aims to follow the correctness of the banking activities in accordance with the regulations in force specific to each banking product and the related processes, as well as the permanent updating of the risk profile for each product, according to the risks that may affect the product and in depending on the existing control measures established to mitigate the risks.

Risk mitigation is the totality of the measures taken to reduce the risk to an accepted level and consists in implementing the action plan decided following the risk assessment sessions.

Documenting and reporting the risks represents the totality of the activities of recording and keeping in documents the information about the risks to which the banks can be or are exposed, of the risks already produced and their effects on the banking company.

Also, this step involves risk reporting, which involves transmitting them to the bank's structures whose responsibilities are to monitor and control the risks and/or to the national supervisory authority of the bank - the National Bank of Romania (its specialized departments or databases), or other institutions that manage banking risk information.

A successful banking strategy should include both programs and procedures for managing bank risks, which aim, in fact, to minimize the likelihood of these risks occurring and the potential exposure of the bank. The main objectives pursued in the banking management are: maximizing the profitability, minimizing the risk exposure and respecting the regulations in force.

The main objective of risk management is to optimize risks and performance, as well as planning for development and financing. The four main goals are:

- Ensuring the perenniaity of the institution, by assessing the risks, which translates sooner or later into future costs.
- Extend the internal control of the performance monitoring by monitoring the associated risks and the possibility of comparing the performances between the responsibility centers, customers, products.
- Facilitate the decision price for new operations by knowing the risks, and allowing their invoicing to customers.
- Rebalancing activity portfolios, or operating portfolios, based on the results and effects of portfolio diversification.

However, when there are more risks, more goals and not an optimal goal, more measurements for each risk, more risk management tools, there is no universal way of managing risk. This plurality generates a certain complexity, which explains why risk management remains specific to each bank.
Currency risk

The exchange rate risk analysis, as a component of market risk, is a classic field of international finance, for both non-financial companies and financial institutions, and involves methods that are not limited to simple financial and balance analysis.

These methods aim to reduce the expenses or losses due to exchange rate changes, especially since, in the last period, there have often been cases in which the exchange rate of the major international currencies has varied with amplitudes of over 1% during the same day. For this reason, hedging currency risk becomes a necessity for any bank.

Taking into account the significant weight of bank assets denominated in foreign currency as well as the fact that foreign currency exposure to the private sector at the end of June 2018 represented 62.8% of the total credit granted to this sector (private sector lending implicitly implies an increase in weighted assets at risk), in the event of a depreciation of the national currency, the change in the capital requirement as a result of the risk-weighted assets in foreign currency could have a significant direct effect on the solvency indicator of credit institutions.
The euro exposure of banks to the real sector is predominant, the assets denominated in other currencies with high exchange rate volatility playing a marginal role, the impact of the exchange rate variation being partially mitigated by subordinated loans, denominated mostly in euros.

Currency risk appears in the form of the possibility of recording losses arising from the evolution of the exchange rate. It can be defined synthetically as the probability of diminishing the net banking profit to an adverse change in the exchange rate on the market.

This risk is significant for banks involved in foreign currency transactions on their own account or on behalf of clients, and at its origin are foreign currency banking operations: external liabilities and assets, elements integrated in the balance sheet of the banking institution by conversion into the national currency at the time of day. In Romania, currency risk is quite important because most banks are licensed for such operations that they offer to customers and that they use and as a way of protecting capital and assets under high inflation conditions.

The factors that influence the bank's exposure to currency risk are:

- Structural factors regarding the nature and extent of the bank's currency operations.
- Strategic factors targeting the efficiency of hedging activities, volume and term matching between currencies and national currency, vulnerability to the real economic value of hedging instruments.
- External factors including economic, market conditions, competition, technological and legislative changes.

The basic factors that determine the currency risk are:

- At the microeconomic level: interest rate fluctuations; the economic situation of the trading partner; the level of development of the foreign exchange market in sight and in time; the level of the modernization of the external settlements; the level of operational information on the evolution of the exchange rate; subjective factors.
- At the macroeconomic level: the pace of economic growth; inflation level; the state of public finances; the balance of payments and trade situation; capital migration.

The exchange rate risk includes other risks that may arise from: the specific volatility of the respective currencies, the correlations between the currencies held in the portfolio or the devaluation of the currencies and may occur in the following environments:

- In a pure floating-rate environment, the value of the currency is free to be appreciated or impaired, depending on market movements. Such an example Euro/American Dollar.
- In a fixed-rate environment, the value of the currency is anchored or linked to another currency, such as the Hong Kong Dollar against the US dollar. This leads to the elimination of risk, which may occur as a result of changes in the parity value of the currency, by devaluation or valuation.
- In case of a change in the currency regime, a fixed rate becomes floating or vice versa.

The currency risk presents a rather complex problem for the efficient management of a banking institution, for this reason it is necessary to analyze it on all its components.

The most important components of this risk are presented below.
The risk of translation, also known as currency exchange risk and refers to the risk of profit or loss when the assets, liabilities and results of a subsidiary are translated from the currency in which the records of the subsidiary are kept, in the national currency of the power station. Appears in the case of banks with international activity: the affiliated companies must report data and consolidate their financial results in the currency of the reference country, the parent company. The conversion can be done during the day or at the average rate for the reporting period. It is a risk that can be hedged.

The transaction risk appears whenever a bank engages in foreign exchange transactions, when there is a risk of profit or loss, if the value of the respective currencies changes compared to the local currency of the bank. The greater the transaction risk, the greater the monetary instability in a country. However, always due to the transaction risk, one partner wins and one loses.

The economic risk is more complex and refers to the impact of the exchange rate change on the long-term profitability of the bank and not on the short-term effect of an operation. This risk reflects the influence of currency fluctuations on the value of the bank. It is relevant if expressed in the currency of the reference country. The market value of the bank is as in the case of financial assets, calculated as the present value of all the incomes obtained in all the operating currencies. The discount is made using the weighted average cost of capital.

As not all assets or liabilities are exposed to the same extent at risk, the question arises of establishing the exchange position for each individual case: one is the situation of short-term debts and liabilities and otherwise the problem of long-term debt is raised. The exchange position will be established on each currency separately, taking into account the distribution over time, respectively the maturity of the receivables and debts.

Management in the field of exchange rate risk should include the following:

- Defining an indicator to measure the decrease of the incomes caused by the adverse change of the exchange rate: Level of Potential Losses.
- Setting trading limits through the Bank's Risk Profile, respectively: intraday; Overnight (Y/N); Stop-loss daily and monthly.
- Monitoring the limits thus established, by the Treasury Department - Back-Office and the Risk Management Department.
- Creating scenarios under abnormal market conditions (stress test scenarios) to calculate the impact of the abrupt change in the exchange rate on the bank's revenues.
- Regularly informing the executive management about compliance or breach of the limits, as well as of the way in which the risk profile is approved.
- Developing an action plan for crisis situations.
- In the event of such a crisis situation, the Treasury Department - is the one that has the obligation to adopt a series of measures, which can be enumerated the following: bringing all trading positions as close to level 0; estimating (and if possible calculating) the impact on the profitability of the Bank; estimating the impact on other activities of the Bank.
Indicators used in currency risk

In the following we will analyze the main indicators used to assess the exposure to currency risk, which can be calculated both at the level of territorial units and at the bank's central level. This includes:

- the individual currency position, calculated for each currency to be managed as the difference between the total assets (receivables) and the total liabilities (liabilities) in a given currency:

\[ PV_x = A_x - P_x \]

where:
- \( A_x \) – total assets expressed in currency \( x \);
- \( P_x \) – total liabilities expressed in currency \( x \).

For each currency, assets are compared with liabilities, resulting in two distinct positions: Short currency position, when the total of liabilities exceeds the total of the receivables; long currency position (Long), when the total of the debts exceeds the total of the commitments.

A certain currency position may become favorable or unfavorable for the banking company, depending on the evolution of the exchange rate of the national currency against the respective currency.

Table 2. The influence of the exchange rate variation on the bank's results

<table>
<thead>
<tr>
<th>Currency position</th>
<th>Depreciation of the national currency</th>
<th>Appreciation of the national currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short currency position</td>
<td>unfavorable</td>
<td>favorable</td>
</tr>
<tr>
<td>Long currency position</td>
<td>favorable</td>
<td>unfavorable</td>
</tr>
</tbody>
</table>

- The global currency position is defined as the net balance of foreign currency receivables against foreign currency liabilities, converted into national currency for comparability.

\[ PV_g = PV_l - PV_s \]

where:
- \( PV_l \) – long currency position, equivalent in national currency;
- \( PV_s \) – short currency position, equivalent in national currency.

This indicator offers the advantage of a global picture on the bank's currency exposure and the disadvantage of canceling the precise currency situation that has to be managed in fact. It is calculated mainly for the purpose of reporting, the management of internal use being focused on tracking the individual currency positions.

The exposure of the banking institution to the currency risk is determined using the individual currency positions managed separately for each currency. At the end of each day, risk exposure is calculated as a potential loss in the event of an adverse exchange rate change for each currency. In Romania, the global currency position at the end of the day cannot exceed 10% of the bank's own funds.

Quantification of currency risk

The banking companies are required to calculate the requirement of own funds to cover the currency risk they are exposed to, by multiplying the sum between its net position on
currency and its net position on gold by 8%, if the value of the total net position on foreign currency and gold exceeds 2% of total own funds.

In order to determine the capital requirements for currency risk, banking companies perform a two-step calculation:

- The net open position of the institution is calculated on each currency (including the reporting currency) and on gold. This net open position consists of the sum of the following items:
  a) The net spot position represents the totality of the assets, less the elements representing the debt, including the calculated interest and not yet due.
  b) The net forward position represents all amounts receivable, less the amounts payable in forward transactions in currency and gold, including currency and gold futures and the principal related to currency swaps, which is not reflected in the spot position.
  c) Irrevocable guarantees. They will definitely be executed and will probably not be recovered.
  d) Net future income/expenses. They are not yet registered, but they are already fully covered. In this category, credit institutions may include, with the consent of the National Bank of Romania, future net income/expenses that have not yet been recorded in accounting, but are already fully covered by forward transactions in foreign currency.
  e) The net delta equivalent. It is calculated for the portfolio of options on currency and gold.
  f) The market value of other options (other than those on currency and gold).

- The total net foreign currency position of the institution is determined, based on the long and short net positions on each currency, other than the reporting currency, as well as the long or short net position on gold, which is converted into the reporting currency at the most common exchange rates spot (spot) of the market.

These positions are further grouped separately to form the total of the short net positions and the total of the long net positions respectively. The largest of these two totals represents the total net foreign currency position of the institution.

Under certain conditions, credit institutions may maintain capital requirements to hedge positions on closely correlated currencies, lower than those resulting from calculations.

In this respect, the central bank can only consider two currencies as being closely linked if, in the next 10 working days, the loss of 4% or less of the value of the corresponding position corresponds to the same and opposite positions on such currencies (expressed in reporting currency), has a probability: of at least 99%, when using an observation period of three years; of at least 95%, when an observation period of five years is used.

The requirement of own funds for the correspondence position, on two closely correlated currencies, is 4% multiplied by the value of the correspondence position.

The capital requirement for positions on closely linked currencies, not correspondent, as well as for all positions on other currencies, is 8% multiplied by the greater of the sum of the short net positions and the sum of the long net positions on the respective currencies (after eliminating the positions on closely correlated currencies, correspondence).
Requirements regarding the currency position

In Romania, the National Bank of Romania has defined and regulated, since 1995, the maximum level of individual currency positions and total currency positions for banks, Romanian legal entities. In order to limit the level of currency risk, both individually and at aggregate level, the central bank adopted new rules.

Based on these legal provisions, the National Bank of Romania has defined the following concepts:

- The currency position in a certain currency - the net balance of the assets in the respective currency, being the expression of the currency risk.
- The balance sheet position in a specific currency - the amount highlighted in the credit or debtor balance of the account 3721 Exchange position, opened on the currency in question.
- The off-balance sheet currency position in a given currency - the amount highlighted in the credit or debtor balance of the account 9361 Exchange position, opened on the currency in question.
- Individual currency position - the long currency position or the short currency position on each currency in lei equivalent.
- Adjusted individual currency position - the individual currency position adjusted with the updated lei equivalent of the subscribed and paid up share capital and of the issuing premiums paid in foreign currencies, calculated according to the exchange rate differences related to the availability in foreign currencies representing the contribution to the share capital and issue premiums paid in foreign currency.
- Total currency position - the highest value, in the mode, between the total of the long adjusted individual currency positions and the total of the short adjusted individual currency positions.

The currency position in a given currency is calculated as the algebraic sum of the balance sheet position and the off balance sheet position.

The total foreign exchange position will be long when the total of the long adjusted individual foreign exchange positions is greater than the total of the short adjusted individual foreign exchange positions and will be short when the total of the long adjusted individual foreign exchange positions is less than the total of the short adjusted individual foreign exchange positions.

At the end of each banking day, the currency positions of a bank are subject to the following limitations: maximum 10% of the bank's own funds for any of the adjusted individual currency positions; maximum 20% of the bank's own funds for the total currency position.

Normative approaches to currency risk according to the Basel agreements

The first normative references regarding the market risk to which the credit institutions are exposed are found in the international regulations in 1988, in the framework of the Basel I Capital Agreement, the issue subsequently resumed in 1996, as part of an Amendment to incorporate the market risk. The amendment involves determining the minimum capital required for credit institutions to cover banking risks, taking into account market risk as well.
Under the Basel I Capital Agreement, capital requirements for market risk were provided, by determining banks' exposure to the main components of market risk: interest rate risk, position risk, settlement and counterparty risk, currency risk and risk freight. In addition to these provisions, the new Basel II Capital Agreement introduces the need to determine capital requirements for market risk, by including credit derivatives and units of collective investment undertakings.

According to the Norm of the National Bank of Romania no. 17/2003, banking companies must define market risk management policies, at least regarding the risks that they intend to take, as well as how the respective risks are controlled.

Thus, with regard to positions in the portfolio for transactions, credit institutions must have procedures that involve at least the following: valuation of these positions at market value, as well as calculation of exposures at least daily; immediate identification of exceedances, as well as their reporting and evaluation at least daily; continuous monitoring of the liquidity of the portfolio for transactions; permanent evaluation and monitoring of open positions, taking into account their size, maturity and complexity.

The central bank resumes the market risk issue in the framework of the basic banking regulation - Government Emergency Ordinance no.99/2006 on credit institutions and capital adequacy, establishing that the methods for determining the capital requirements for hedging position risks, the risk of settlement/delivery, currency risk and freight risk may be internal models or a combination thereof with the methods established by the banking supervisory authority.

In order to use the internal models of market risk management, it is necessary the prior recognition by the National Bank of Romania, the use of models for the purposes of capital adequacy supervision. The recognition is granted only if, in the opinion of the competent authority, the risk management system owned by the institution is conceptually sound and is implemented with integrity and if, in particular, the following qualitative standards are met:

- The internal risk quantification model is an integral part of the institution's daily risk management process and serves as a basis for reporting to the institution's senior management of risk exposures.
- The institution has a risk control unit which is dependent on the units that carry out trading activities and which report directly to the senior management.
- The board of the institution and the senior management are actively involved in the risk control process, and the daily reports made by the risk control unit are analyzed.
- The institution has established procedures for monitoring and ensuring compliance with the formalized set of internal control policies and procedures regarding the general functioning of the risk quantification system.
- The institution's model has a history that demonstrates its reasonable accuracy in quantifying the risk.
- The institution frequently runs a rigorous stress testing program, and the results of these crisis simulations are analyzed by senior management and reflected in the policies and limits it sets.
- The institution must carry out, as a component part of the periodic internal audit process, an independent system analysis or risk quantification.
Ways to reduce currency risk

Exposure to currency risk, which is measured by the long or short currency position, can have large variations from one bank to another, being a particularly harmful banking risk through its effects, which can even determine the bankruptcy of the banking institution.

The use of prudential regulations aims to ensure the coverage of risks through own funds, so that maximum limits of exposure to this risk are established, depending on the own funds of the banking institution.

Surveillance of currency risk is performed by both the bank and the National Bank of Romania, based on the currency position indicators reported by the banking institutions. In order to limit the currency risk, banks are obliged to: have a system of records that allows both the immediate recording of transactions in currencies and the calculation of their results, as well as the determination of the adjusted individual currency positions and the total currency position; to have a system of supervision and management of currency risk based on internal rules and procedures, approved by C.A. of the bank; have a permanent control system to verify compliance with internal procedures; to appoint a manager to ensure the permanent coordination of the foreign exchange activity.

Immunization of the banking company, which involves periodically adjusting its currency positions to suppress long or short positions. It is a relatively expensive operation, because it imposes high management costs and also presents an opportunity cost that does not allow speculation of a certain position (long or short) depending on the trend of the exchange rate.

Currency risk coverage is applied to reduce the impact of exchange rate volatility on bank assets and liabilities. Although it involves high transaction costs, hedging management involves assuming reasonable, anticipated risks. Considering this technique (hedging), the currency risk reduction is based on derivative contractual instruments. They are priced and represent agreements between the parties, each assuming certain obligations in favor of the other.

Thus, it is noted that currency risk can be managed in two diametrically opposite ways: either long or short positions of the bank are kept as close to zero as possible by closing the existing positions (currency sales are made where the positions are long and respectively purchases of currencies where the positions are short), or reasonable open positions are assumed that, on the one hand, allow the speculation of the currency position according to the trend of the exchange rate and on the other hand allow external protection. The main annexes of the paper are presented to cover the exchange rate risk, with details on how they operate and their applicability in managing this risk.

IV. Conclusion

A number of conclusions are drawn from the study regarding currency risk management. The first is that no country can, under the current conditions, carry out its activity in autarchic regime. Therefore, each country must export and import, that is, participate in the international division of labor. From this point of view, it is essential to analyze the exchange rate when importing and the exchange rate when exporting. Both have an
influence on the final result of the company concerned, of the Romanian economic entity and ultimately determine a certain position and certain results at the macroeconomic level. On the other hand, adequate management of the forecasting, monitoring and undertaking of measures must be ensured so as to minimize the currency risk. The indicators used in currency risk analysis are important and they must be viewed in their complexity and correlation as they are calculated and as they result from the data used.

References


