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# INVESTMENTS IN COMMERCIAL BANKING

– core concepts and risk management strategies



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## INVESTMENTS IN COMMERCIAL BANKING: CORE CONCEPTS AND RISK MANAGEMENT STRATEGIES

What factors promote investment activities in the banking sector? Which hedging instruments could be used in order to limit corresponding risk exposure and, thus, safeguard investment operations of large financial intermediaries? How is it possible to explain the foundations behind recent European crisis? These and many other questions serve as dynamic forces behind current Thesis paper.

While initial research objective was to conduct a profound study of the role that commercial banking investments maintain in contemporary financial markets, the scope of the investigation has been substantially expanded in order to focus on major concepts of investment risks and, therefore, explore potential negative aftermath for institutional investors.

Gradually, the concepts of liquidity (solvency) and profitability have been introduced as the cornerstones of investment banking: depending on the size of financial institution, the focus of investment activities could be shifted in favour of either liquid assets or profitability margins and, thus, greater financial hazards.

Further analysis of risk management strategies has been supplemented with empirical examination of five major financial institutions in Finland. Even though initial research methods centred on the interview questionnaire, subsequent

parts of the research are wholly based on the observations derived from annual financial and risk management reports.

Empirical investigation has not just revealed implementation techniques that could be successfully utilized in investment risk management strategies of professional banking, rather uncovered interesting details about the state of financial affairs of commercial banks involved in the study and the way they comply their operational activities with the upcoming changes in financial regulations.

While the final summarizing chapters of the Thesis project tend to arrive at objective conclusions, commonly they serve as a mere indication of how commercial banks handle their investment operations in response to general volatility of financial markets in the course of a certain time frame. In other words, taking into consideration new observational data might alter or revise the conclusions completely.

**KEYWORDS:**

Financial Markets Commercial Banking Investment Banking Liquidity Risk Management Investment Portfolio Diversification Derivatives Financial Instruments Capital Central Bank

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## LIST OF ABBREVIATIONS

B-	An example of credit rating category standing for “Good” score definition
C	An example of credit rating category standing for “Average” score definition
CD	Stands for Certificate of Deposit, a conformational paper issued by a bank
CDO	Collateralized Debt Obligation, asset backed financial Instrument
CDS	Credit Default SWAP, a type of credit derivative instruments targeted at limiting exposure to counter-party credit risks
CET	Common Equity Tier I, first pillar of bank’s capital reserves
CRD	Capital Requirements Directive, a part of upcoming financial regulations that accompanies Basel Accords
CRM	Comprehensive Risk Measure, one of the ways to estimate credit risk exposure of an investment portfolio
ECB	European Central Bank, a major financial institution that oversees implementation of monetary policies in the Euro area
ESCB	European System of Central Banks represents the organizational structure of EU banking sector as cooperation of ECB and National Central Banks
GLS	Global Liquidity Standards, a major innovation of Basel III Accords and CRD IV that introduces new liquidity and capital buffer requirements for banks
IMF	International Monetary Fund constructed by some of the world’s countries to ensure financial stability on an international level
IPO	Initial Price Offering for newly issued equity securities that are traded at the primary market
IRM	Incremental Risk Measure for counter-party risk exposure of corporate securities and CDS issuers



IRS	Interest rate SWAPS, a derivative instrument to hedge against market risks
LCR	Liquidity Coverage Ratio, one of the new ratio calculations introduced by Basel Accords and CRD to establish a new procedure of liquidity buffer estimations
MPT	Modern Portfolio Theory, a portfolio organization framework that focuses on the benefits of diversification
NsFR	Net Stable Funding Ratio, was first introduced together with LCR as a part of upcoming regulation to ensure long-term stability of investment funding sources
OTC	Over-the-Counter market for direct trade operations among institutional investors in bypass of the stock exchange
PFE	Potential Future Exposure, a method to measure future exposure to counter-party risk
RWA	Risk-Weighted Assets, financial and real assets whose value was calculated on the basis of potential risk exposure in order to cover potential losses
VaR	Value-at-Risk economic model used primarily for probability estimations of market risk exposure

# 1 INTRODUCTION

## 1.1 Theoretical and practical value of current research

While many of us understand the importance of banking and acknowledge its crucial impact on the development of financial markets, recent financial failures of many European countries have proven that required levels of attention to this matter have most likely been understated.

In order to raise the overall awareness about the problems and instabilities that accompany financial markets of various economic regions, I am planning to take a deeper insight into the way commercial banks diversify their activities among investment and lending practices.

In addition to exploring above mentioned ideas, I try to identify the ways with which financial intermediaries could safeguard their business operations and, thus, limit corresponding levels of exposure to investment and liquidity risks.

Consequently, while briefly outlining major researchers in this field and their most encompassing and related works, I aim to:

- ✚ provide a detailed summary of risk management strategies that would allow commercial banks to ensure stability of their everyday operations;
- ✚ identify major investment opportunities for participants of contemporary banking industry;
- ✚ create an excessive summary of valuable investment techniques that could be used as an introduction to the operations of financial markets;
- ✚ supplement them with the information from direct representatives of major financial institutions in Finland and their unbiased annual reports.

## 1.2 Research purposes of the thesis work

While taking into consideration everything mentioned above, it is safe for us to conclude that one of major primary research purposes of current Thesis project is to focus on possibilities for commercial banks to hedge the reliability of their business operations in times of ever-changing and increasingly volatile social, economic and political environments.

Therefore, it becomes evident that the described objective could be successfully accomplished by consecutive introduction and implementation of the following steps:

- ✚ To conduct a profound study of the general structure of financial markets;
- ✚ To explore banking industry in terms of existing types of financial intermediaries;
- ✚ To fully describe the role of commercial banks in the economy;
- ✚ To excessively outline the functions and structural activities of commercial banks;
- ✚ To consider and characterize basic daily operations of commercial banks and services rendered by them;
- ✚ To explain why it is imperative for commercial banks to engage in investment activities;
- ✚ To identify financial instruments that in terms of commercial banking could be considered as primary investment strategies;
- ✚ To explore the field of investment risks and, thus, to mention major factors that increase potential future exposure to these risks in commercial banking;
- ✚ To outline a set of activities that would allow participants of the banking industry to implement better risk management strategies.

### 1.3 Structure of the thesis work

Before I proceed with a more thorough exploration of some of the concepts described above, please note that the core part of the project is constituted by nine definitive chapters.

Therefore, it is important to mention that each chapter could be seen as a summary of several research purposes and, consequently, provides insights to the questions postulated by the key research objectives:

- ✚ Why should commercial banks be seen as crucial participants of financial markets?
- ✚ Why is it so important for commercial banks to invest money?
- ✚ What are the risks that commercial banks face in the course of their investment activities?
- ✚ How can commercial banks manage these risks and maintain the fragile balance between interrelated concepts of liquidity (solvency) and profitability?
- ✚ How do explored theoretical frameworks correlate with contemporary commercial banking?

While the first chapter is intended to serve primarily as an introduction, the “Methodology” deals with the foundations of several research processes and data collection techniques that were utilized in the course of the project.

Comparing research methods enables us to visualize the investigative process behind the Thesis paper, which leads to a better understanding of the ideas described in the following chapters. Same could be mentioned about the third instalment that expands upon theoretical concepts elaborately reviewed in Chapters 4-8.

The fourth part of the Thesis revolves around the topic of financial markets in general. Questions concerning the definitions of key concepts related to financial markets are answered; and, while the functioning structure of financial

world is explained, I aim to identify main participants of financial markets and, thus, to establish their corresponding roles in various economic processes.

Starting with a brief, but comprehensive overview of the general concept of finance, I proceed to trace recent development trends in the history of contemporary financial markets and, therefore, try to present an unbiased overview of their crucial role in the well-being of contemporary economies.

Finally, the reader is faced with one of the definitive research questions of the chapter: how do rapid changes in financial markets affect banking industry in general and complicated operations of commercial banks in particular?

Chapter 5 is dedicated to banking industry as a whole and allows differentiating commercial banks from other players of the banking sector, as well as explaining the nature of all Central Bank's operations.

At last, the reader is getting acquainted with the structure and primary functions of commercial banks, as well as the roles that commercial banks carry out in implementation of macro-economic policies. In order to make a logical conclusion, major factors that are connected with core investment activities of commercial banks are presented.

Chapter 6 is meant to present a sufficient overview of the following questions: why do commercial banks invest money and what are the major possibilities and investment techniques available to them?

While the seventh chapter of the Thesis work expands upon ideas explored in previous parts, it does so by introducing the concepts of investment risks and, therefore, tries to describe most common investment hazards that commercial banks might face in the course of their business activities. As a logical follow up, I identify the key investment instruments that could be used as safeguard protection measures.

As the subsequent part is dedicated to empirical foundations behind the Thesis, it additionally serves as a possibility to explore the concepts presented in previous chapters. In particular, the readers are introduced to the project

questionnaire that has partly served as a source for the evaluation and measurement of various concepts described in the course of the research.

Moreover, it might as well be beneficial to touch upon the fact that, due to certain reasons that are later presented in Chapter 8, not all of the official bank's representatives have been able to successfully complete the research survey.

In order to consolidate the content of the Thesis work with additional research data, annual reports of some financial intermediaries have been analysed and enclosed as a further supplement to the ideas mentioned.

In conclusion, the Chapter 9 acts as a finalizing summary of the findings that are meant to provide answers to key research questions stated in the introductory part of the project. The level of accomplishment of various study goals is also being analysed in order to measure the degree to which the described objectives have been achieved.

## **2 METHODOLOGY**

In order to support the findings of current research, it might be imperative first to:

- ✚ underline the prevailing study techniques that comprise the foundation of the whole work;
- ✚ point out additional differences between corresponding research methods that were used;
- ✚ describe comparative data analysis tools;
- ✚ define review techniques that served as the basis for the Thesis questionnaire and also helped to implement the interpretation of annual investment reports and statistics published by major financial institutions.

### **2.1 Review of the research process**

As is usually the case with every major research process, certain data had to be collected and carefully analysed in order to present a sufficient supplement to some of the ideas mentioned in this paper.

However, before proceeding with the overview of research methods, it might be wise to try to visualize the research process, since it will present readers with the opportunity to understand the stages at which the data was collected and, therefore, how it had been obtained.

For the above mentioned purposes, please refer to [Appendix 2](#) loosely based on the work of Rajendar Kumar (Kumar, 2008, p. 11).

As you can probably conclude from the chart, initial research process has been specifically divided into seven definitive steps. While it is possible to go into particular details concerning each of them, I will just briefly touch upon most essential ones.

In principle, steps 1-3 are primarily concerned with the basic theoretical outline of the project. Serving as a core of the scientific foundation of the research, they provide prediction (feed forward) possibilities that in many ways allow defining the later stages of the research.

During these steps information necessary for the representation of the theoretical part has been acquired and following research questions were answered:

- ✚ What sources of information would be most appropriate to serve as a foundation for the Thesis (based on criteria of relevance, date of publication, trustworthiness of the author, etc.)?
- ✚ How would it be possible to acquire access to these sources?
- ✚ What would be the criteria on the basis of which theoretical hypotheses could be created?

While mostly dedicated to empirical component of the research, stages 4-7 have also been useful not just in terms of feedback provided for the previous steps, rather presenting additional possibilities to evaluate the level of progress.

Starting with the planning of research methods for empirical assignments, necessary data has been collected and analysed in respect to hypotheses presented in previous sections.

Finally, interpretation of collected information has been used to present the concluding judgements. The following research questions were seen as a motivation behind these steps:

- ✚ Which data should be collected in order to supplement the outlined hypotheses?
- ✚ What are the most efficient research methods that could be used in order to achieve this?
- ✚ How could these research methods be carried out on practice?
- ✚ What would serve as criteria for evaluation and consequent interpretation of the collected data?

## 2.2 Research methods applied in the course of the Thesis work

According to the works of Rajendar Kumar, Jill Collis and Roger Hussey, various types of research could be singled out in order to diversify among research purposes, structure of the work and required research methods (Kumar, 2008, p. 11; Collis and Hussey, 2003, p. 10).

In order to see the significance of this fact for my research, let us first try to identify differentiation principles that serve as a basis for this classification.

On the surface, while the purpose of research merely revolves around basic motivational factors, research methods (processes of research) deal with the ways that might be useful to achieve stated objectives (Collis and Hussey, 2003, p. 10).

Additionally, it is possible to talk about the logic behind the research process, which is more dedicated to structural organization of presented information: whether the train of thought is inductive or deductive and so on.

In order to summarize the ideas of the above paragraphs, let us refer to the classification table presented by Jill Collins and Roger Hussey (Collis and Hussey, 2003, p. 10):



Type of research	Basis of classification
Exploratory, descriptive, analytical and predictive research	Purpose of the research (objectives)
Quantitative or qualitative research	Process of the research (research methods)
Deductive or inductive research	Logic of the research (structural organization)
Applied or basic research	Outcome of the research

Table 1 Numerous classifications of research types (Collis and Hussey, 2003, p. 10)

Even though in the subsequent parts of the book they proceed to present more detailed explanations of every research type, it is not necessary to review all of them.

Instead, by combining above classification with the works of Rajendar Kumar and Paurav Shukla, it is possible to create an encompassing reference table that would allow us to differentiate among the types of research and corresponding research methods that were used throughout various stages of the research process (Collis and Hussey, 2003, p. 10-15; Kumar, 2008, p. 2-5; Shukla, 2008, p. 36-39).

<i>Type of research used in the course of the Thesis work</i>	
<b>Exploratory Research</b>	Revolves around the process of problem identification and generally leads to a better understanding of the problem. Serves as a primary method for collecting research materials that will be later used at analytical stage. Applied at the 1 <sup>st</sup> stage of research.
<b>Analytical Research</b>	Aimed at focusing on the research of readily available

	materials, such as previous publications on the topic. Primarily applied at stages 2-3 as a way to evaluate discovered materials and corresponding hypotheses.
<i>Research Methods (approaches) used in the course of the research process</i>	
<b>Qualitative research approach</b>	Allows for more subjective results, such as the evaluation of trading experience of an investment manager of a certain bank. Applied in order to create the interview questionnaire and conduct the interview itself (stages 5-6).
<b>Deductive research approach</b>	Initial plan was to start from the macro level and then to narrow down the focus of the research: starting from the industry level and then proceeding to examine participants of the industry and relations to macro-economic variables. Deductive approach serves as the foundation of the whole work, therefore, could serve as the explanation for the organizational structure of stages 1-7.
<b>Applied research approach</b>	One of the main objectives of the research was to apply the findings to concrete situations, especially to the way commercial

banks in Finland handle their investment activities. Encountered in parts 6-7.
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Table 2 Research methods applied in the course of the Thesis (Collis and Hussey, 2003, p. 10-15; Kumar, 2008, p. 2-5; Shukla, 2008, p. 36-39)

### 2.3 Reliability, Validity and Generalizability

According to the work of Mark Saunders, Philip Lewis and Adrian Thornhill, “reducing the possibility of getting the research answer wrong means that attention has to be paid to two particular emphases on research design: reliability and validity” (Saunders, Lewis and Thornhill, 2009, p. 149).

Therefore, in principle it is possible to point out that, while research methods used in the course of current project greatly influence the outcomes of the research process itself, it is always important to introduce an independent objective measurement system that would allow for a more precise evaluation of the research progress.

In particular, Saunders, Lewis and Thornhill proceed to define reliability as a way to understand whether research findings are logically tied with initially introduced goals, as well as whether they could in general be considered relevant to the matter in question (Saunders, Lewis and Thornhill, 2009, p. 149).

For a more concrete reference, it might be useful to take a look at the foundations behind reliability classification proposed by Mark Easterby-Smith, Richard Thorpe and Andy Lowe (Easterby-Smith, Thorpe and Lowe, 2002, p. 53):

- ✚ Are the acquired research results objective, in other words: would it be possible for someone else to reach the same results using the data spectrum given in current research?
- ✚ Will the results change in accordance with the change in analysed data?
- ✚ How logical are the concluding ideas?

While the majority of these questions are going to be analysed in Chapter 8 (empirical research), it is essential to let the reader know beforehand that:

- A. The summarizing ideas of the Thesis research are totally based on the financial information acquired through careful observation of annual reports. To be more precise, it means that, while the outcomes of the research are definitely subject to change in accordance with the fluctuation of the described variables, the core of the concluding ideas will remain the same if the analysed data is identical.
- B. Even though annual financial statistical publications are totally unbiased, the concluding results are still subject to the train of thought of a particular author. Thus, while the most general conclusions are most likely to remain the same in every case, certain detailed observations are matters of opinion and observation.
- C. The logical structure of the research process has enabled the author to deliver concluding ideas consistent with the key research objectives.

Validation of the findings of current research has been implemented in accordance with the classification of John Creswell (Creswell, 2007):

- A. More than one research method has been used in order to reach every conclusion, thus, ensuring the objectivity of ideas explored;
- B. Even though the initial interview plan had been disrupted, other research methods (analysis of annual financial publications) have been utilized in order to gain access to required information.
- C. Current research has been conducted under general supervision of two university Professors.

Generalizability is often understood as the level of applicability and adaptability of research findings to different external environments (Saunders, Lewis and Thornhill, 2009, p. 151).

The reader must then comprehend that the general findings of current research will remain the same in relation to other financial intermediaries if we take into

consideration identical market rules and situations, as described later in the Thesis paper.

### **3 THEORETICAL BACKGROUND**

#### **3.1 Portfolio Management Theories**

As will become evident in the subsequent chapters of current research paper, majority of investors in the course of creation of an investment portfolio not only aim to achieve higher profitability margins, but are also determined to reduce the general level of exposure to investment risks.

In principle, various financial instruments “pooled” together in a portfolio provide investors with possibilities to solve this complex problem (Casu, Girardone and Molyneux, 2006, p. 462). Hence, the creation of an appropriate investment portfolio has always been considered to be one of the most crucial aspects of any investment related activity.

##### **3.1.1 Markowitz Portfolio Theory**

Some of most common portfolio management theories revolve around traditional approach of diversifying your investments among several sources of income ([investopedia.com](http://investopedia.com)).

Created in 1950-s, portfolio theory of Harry Markowitz has in many ways shaped modern portfolio theory (MPT) as we currently know it (Casu, Girardone and Molyneux, 2006, p.462).

The core foundation of Markowitz’s theory is constituted by the idea that every investor seeks to find the right balance between the concepts of profit maximization and corresponding potential exposure to investment risks (Hiriyappa, 2008, p.194).

Reducing the level of risk at a certain level of income – this seemingly simple idea has led Markowitz to create “a concept of efficient portfolios”, that could

provide the investor with the highest rates of return at a given level of risk (Hiriyappa, 2008, p.194).

Essentially, Markowitz's portfolio theory could be summarized as a brief collection of facts, significance of which is going to be reviewed in Chapter 7. According to the expertise of Dr. B. Hiriyappa, these facts are represented in the following manner (Hiriyappa, 2008, p.195):

- ✚ It is safe to assume that every investor is willing to maximize the yield of his investment;
- ✚ In a society based on information exchange it is possible for every investor to gain access to crucial information regarding development of financial markets;
- ✚ Therefore, it is safe to conclude that the goal of every investor is to maximize the rate of return at a minimum level of risk.

What follows is the assumption that a certain set of funding sources diversified among several assets or financial instruments could provide investors with a possibility to significantly reduce risk exposure at the maximum rate of return.

For instance, allocating an equal amount of funds into different financial instruments is an operation that in itself already aims to reduce the risk of investment (Casu, Girardone and Molyneux, 2011, p.289).

It is also important to remember that, according to Dr. B. Hiriyappa, "the portfolio management primarily involves reducing risk rather than increasing return" (Hiriyappa, 2008, p.191).

As has been proved by common international banking practice, the benefits of diversification could also be achieved by careful structuring of bank's investment portfolio in order to "purchase securities with return patterns that are not perfectly positively correlated with the return patterns of other bank assets" (Machiraju, 2008, p. 242).

### 3.1.2 Modern Portfolio Theory (MPT)

Modern Portfolio Theory is widely acclaimed as a follow up to the ideas of Harry Markowitz (Hiriyappa, 2008, p.191). Essentially, the key concept of MPT is to create a combined portfolio of investments that will have less exposure to financial hazards, than the sum of risks of individual securities considered independently (Casu, Girardone and Molyneux, 2006, p.462).

How is it possible to achieve such a stage of portfolio organization? One mandatory rule should be kept in mind: the returns of acquired securities that constitute an investment portfolio should not be correlated.

In other words, returns on different securities should be independent from one another and, therefore, protected from being affected by the same negative factor (Casu, Girardone and Molyneux, 2006, p.462).



Figure 1 Interdependence between correlation, diversification and risk (Casu, Girardone and Molyneux, 2006, p. 464)

According to MPT, in order to construct a diversified investment portfolio, acquired financial instruments (more than 20) should originate from different industries, thus, reducing the correlation factor, and geographic regions, therefore, limiting the market risk exposure (Casu, Girardone and Molyneux, 2011, p.463).

### 3.2 Credit Ratings

One of the core foundations of the Thesis reveals itself in the concepts of financial hazards that surround investment markets of contemporary economies. As a result of global international forces, increasing vagueness of financial market operations has significantly increased potential exposures to counter-party credit risks.

In order to introduce an objective measurement system that would allow to estimate the trustworthiness of any participant of financial markets, special credit ratings have been established and accepted on the basis of disinterested party issuance. In other words, a credit rating is an objective measurement system that indicates the trustworthiness of the issuer for any given type of security (Casu, Girardone and Molyneux, 2006, p 12).

Awarded by such international credit agencies, like Moody's and S&P, credit ratings are often expressed as a combination of letters (AAA, BBB, ... , Aaa, Bbb, C-, etc.). Depending on the classification, such combinations indicate the safety rating of a certain security, with letter A being the highest one (Casu, Girardone and Molyneux, 2006, p 12).

Credit rating classifications involved in current research are based on the following system (Casu, Girardone and Molyneux, 2006, p. 93):

<i>Moody's</i>	<i>S&amp;P</i>	<i>Quality of issue</i>
Aaa	AAA	Highest quality. Very small risk of default.
Aa	AA	High quality. Small risk of default.
A	A	High-medium quality. Strong attributes, but potentially vulnerable.
Baa	BBB	Medium quality. Currently adequate, but potentially unreliable.
Ba	BB	Some speculative element. Long-run prospects questionable.
B	B	Able to pay currently, but at risk of default in the future.
Caa	CCC	Poor quality. Clear danger of default.
Ca	CC	High speculative quality. May be in default.
C	C	Lowest rated. Poor prospects of repayment.
D	–	In default.

Table 3 Credit rating classifications involved in current research (Casu, Girardone and Molyneux, 2006, p. 93)

### 3.3 Value at Risk (VaR)

In the course of current Thesis, readers will discover that one of the most commonly used method in evaluation of market and any interest-rate fluctuation related risks often revolves around the VaR and stressed VaR economic models.



Whereas the empirical value of the VaR model as such is going to be identified further in the research, it might be substantially more convenient to describe some theoretical details in this section.

When reviewing the practical application of the VaR model, Casu, Girardone and Molyneux typically agree on its definition as being “a technique that uses statistical analysis of historical market trends and volatilities to estimate the likely or expected maximum loss on a bank’s portfolio or line of business over a set time period, with a given probability. The aim is to get one figure that summarises the maximum loss faced by the bank within a statistical confidence interval” (Casu, Girardone and Molyneux, 2006, p. 497).

In order to clarify this sophisticated disposition, let us try to break the definition into several parts and, thus, explore each of them individually.

After analysing the first part of the definition it is possible to assume that, while being an effective way of hedging against the market risk, VaR model allows predicting the level of exposure to certain changes in the market variables.

The subsequent part tells us that the key objective of the model is to summarize the value of risk as a simple figure that would be easily interpretable as a quantitative indication of the level of risk.

Being a logical follow-up to MPT in the respect that it deals with a compound investment portfolio and, therefore, analyses risk exposure of certain financial assets, VaR model could be expressed as certain formula, the exact mathematical representation of which is not that important for us.

However, it could still be essential to mention that in its core the formula is targeted at examining the relations between market value of investment portfolio, its susceptibility to changes in price fluctuations (per certain amount) over a specified period of time (Casu, Girardone and Molyneux, 2011, p. 299).

In other words, the final VaR figure serves as the indication of the utmost or largest sum of money that could be lost as a follow up to fluctuations in various

market variables at a stated time period with an indicated percent of probability (also known as confidence level).

Using the concept of time and the confidence variable, investors could potentially try to resolve the question: “What amount of money am I likely to lose during a certain time period and corresponding level of probability?” (Casu, Girardone and Molyneux, 2011, p. 300).

As a further reference, it is important to examine the following problem: counted on a weekly basis VaR model that is equal to € 100 000 and has a confidence level of 95% means that there is only a 5% probability chance that a sum of € 100 000 would be lost in the course of 7 days of financial operations (taking into consideration only the market risk).

## **4 FINANCIAL MARKETS**

### **4.1 Preface**

Financial market represents a complex mechanism of monetary circulation that is not just important for individual investors, rather plays a crucial role in helping national governments implement successful economic policies and ensure the overall international financial stability.

In brief, financial markets facilitate the allocation of wealth in the global economy, as well circulation of funds between industries and countries (Dubil, 2004, p. 1.).

In accordance with this point of view, I could conclude that financial market often proves to be a reliable source of economic indicators that allow further evaluation and assessment of the state of country’s economy (Bena and Jurajda, 2006, p. 4).

Therefore, the functioning mechanism of financial markets is usually considered to represent a much more effective investment instrument, than a direct investment, as it allows for careful planning of investment activities, achieving

higher profitability margins and sufficient risk minimization, as well as consequent portfolio diversification (Dubil, 2004).

We are all familiar with the simple idea that a market is a resulting process of interaction between sellers and buyers (Ball, 2011, p. 2). In principle, each of them is independent in their activities.

In this case, the role of a market in an economy is defined by the following functions (Ball, 2011, p. 2):

- ✚ revitalizing the economy by distributing unallocated financial resources to those who need them;
- ✚ forcing consumers to choose a rational structure of consumption;
- ✚ market prices acting as important carriers of information that could be later used by economists, financial managers and, finally, investors.

The aim of current chapter is to focus attention of the reader on the fact that crucial functions of a financial market are close to that of a general market. Understanding the functioning mechanics of financial markets can help every business field, especially when it comes to banking industry and potential investment opportunities.

Not only can resources of financial markets be seen as possibilities for expansion of business operations – it is with their help that commercial banks can achieve the crucial balance between necessary level of liquidity (therefore, solvency) and desired profitability results.

## 4.2 The concept of finance

Perhaps the most simplistic explanation of finance revolves around the idea that all financial relations emerge on a basis of a certain cash flow or operation with any kind of capital.

Consequently, it is possible to say that monetary nature of financial relations and the way capital funds are distributed within our society could be seen as primary characteristics of finance (Booth and Cleary, 2010).

However, the term should never be defined according to these basic characteristics alone, since the concept of finance also encompasses careful analysis of capital distribution among various participants of financial markets and the foundations for their regulation (Booth and Cleary, 2010).

Taking into consideration everything mentioned above, it is possible to outline the circulation cycle of financial resources: often generated by operating profits of business ventures, funds are later redistributed by various participants of financial markets, in particular – through commercial banks and their general loan and credit operations (Dubil, 2004).

#### 4.3 Financial markets: founding concepts and primary functions

According to American economist, Frederic Mishkin, a financial market is a complex mechanism for the redistribution of capital, based on supply and demand for particular type of funding, among lenders and borrowers through services of financial intermediaries (Frederic S. Mishkin, 2010, p. 25).

In general, it could be seen as a set of financial institutions that overview and direct the cash flows between lenders and borrowers. Therefore, one of the main functions of financial markets focuses on the transformation of unallocated capital resources into credit funds (Frederic S. Mishkin, 2010, p. 25).

Moreover, we could assume that financial markets represent special areas of cash flow that are targeted at satisfying economy's needs in particular financial resources. The following figure serves as a graphical representation of this fact.

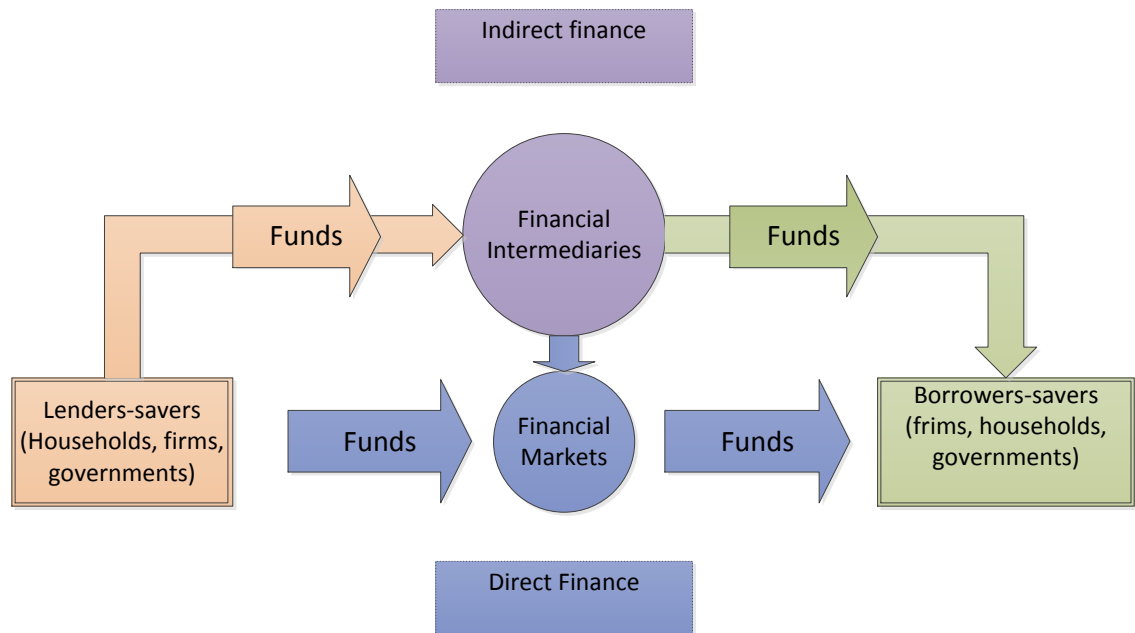


Figure 2 Flow of funds through the financial system (Frederic S. Mishkin, 2010, p. 26)

Why is it important to review the main features of modern financial markets when analysing investment activities of a particular commercial bank? On a general level, it is through intermediary services of financial markets that commercial banks invest their funds.

Thus, understanding the functioning mechanisms of financial markets will be beneficial for the thorough investigation of investment operations of commercial banks later on.

Besides that, any representation of financial markets could not be considered complete without a broad overview of their functions and macroeconomic objectives (Frederic Mishkin, 2010, p. 27):

- ✚ Ensuring rapid redistribution of financial resources to supplement further development of economic stability and efficiency;
- ✚ Mobilization of financial resources and their subsequent allocation among the participants of financial markets in order to support their investment decisions, expansion opportunities, etc.

- ✚ Strengthening the integration processes between individual industries and business fields and, therefore, promoting positive economic cooperation.

Financial markets are usually represented by credit (also known as money), equity (stock exchange) and insurance markets, as well as primary and secondary markets (Davidson 2009; Mishkin 2010).

For the sake of this work, I am going to leave insurance market behind and take a deeper insight into the way loan and equity markets operate, as all of investment operations of commercial banks are usually found within their fields.

While ideas mentioned in the above paragraphs indicate that investment operations of commercial banks are commonly regulated by financial markets, they simultaneously lead us to the realization that it is not just the operations of commercial banks that could affect financial markets. By-turn, rapid and volatile economic trends of financial markets could also negatively affect commercial banks.

#### 4.4 The structure of the money market

One of most common definitions of the money market deals with it being defined as a set of specialized financial institutions and corresponding regulative mechanisms of credit relations that facilitate the movement of loan capital within the society (Casu, Girardone and Molyneux 2006).

The basic principle behind loan capital is rather transparent and usually easy to comprehend: credit funds are distributed for temporary use over a certain period of time, at the end of which banks can re-lend the funds or use them for acquiring financial instruments, investing in liquidity or capital buffers<sup>1</sup> etc.

According to the terminology of Frederic Mishkin, the general structure of the money market could be represented as a combination of the following elements (Mishkin 2010, p. 29):

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<sup>1</sup> A capital buffer consists of liquid funds that exceed the point of minimum required capital in order to cover possible financial losses and risks (Casu, Girardone and Molyneux, 2006, p. 228).

- ✚ Money market that facilitates sale of short-term financial obligations and instruments;
- ✚ Capital market that involves financial distribution of long-term securities.

Interestingly enough, sales of short-term securities are generally considered to be a more wide-spread phenomenon, since, due to shorter maturity periods, they are much less liable to fluctuations of prices, thus, making them safer and more liquid opportunities for investment (Mishkin 2010, p. 29).

#### 4.5 The structure of the capital market

Investopedia indicates that an equity market is defined as specific sphere of financial relations that arise in the course commercial transactions with various types of securities ([investopedia.com](https://www.investopedia.com)).

On national and international levels, a financial market could be seen as a set of primary and secondary markets. Trading activities on the primary market revolve around IPO operations.

Unlike the primary market, the secondary deals exclusively with subsequent redistribution of financial resources that have been allocated through a primary market.

While trading in the primary market is often organized through brokers and dealers, several other ways of secondary market operations exist (Mishkin 2010, p. 29):

- ✚ Trading through a specialized financial intermediary – a stock exchange, where brokers act on behalf of buyers and sellers;
- ✚ The OTC (over-the-counter) market is dedicated to direct commercial activities with securities between buyers and sellers. Main participants in the OTC market operations are commercial banks, insurance and investment companies, other institutional investors.

#### 4.6 Guiding roles of financial markets in an economy

Having briefly touched upon the broad topic of primary functions of financial markets, let us now proceed with a more complete summary of the roles that financial markets fulfil in order to facilitate economic growth and development (Ball, 2011, p. 4-16):

- ✚ Transforming capital resources of natural persons, business entities, government agencies and foreign investors into potential investment and credit funds;
- ✚ Proposing consulting, risk management and asset allocation services for investors;
- ✚ Engaging in further insurance activities in order to create new financial instruments that could be later held for trading or hedging operations against financial hazards;
- ✚ Providing credit to the central and local government by distributing government securities;
- ✚ Allocating public credit to those participants of the economy who are in dire need of it.

Still, how are financial assets and instruments distributed within economies? This is where a wide network of financial institutions comes into play, as sale of financial assets usually goes through banks, stock exchanges, brokerage firms, mutual funds, insurance companies, and so on.

Unlike a government mechanism of price regulation, financial market pricing policies make it possible to take full account of current supply and demand for financial assets: thus, it is easier to meet economic interests of buyers and sellers of various financial instruments (Madura, 2009).



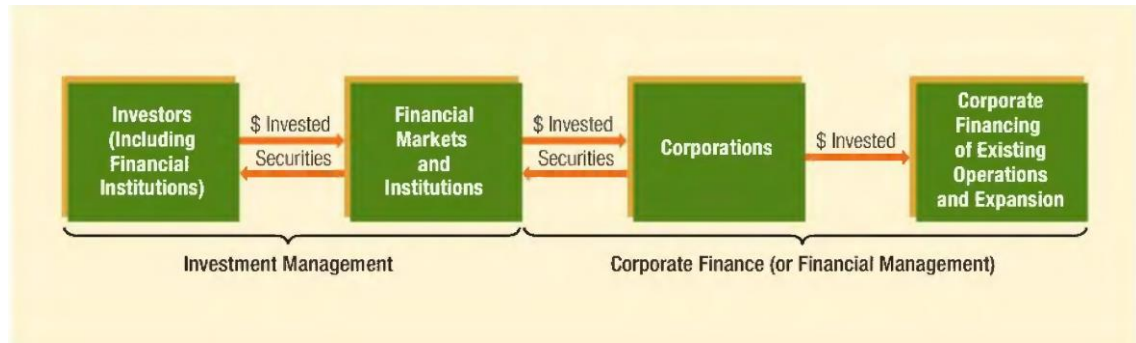


Figure 3 How financial Markets facilitate investment management (Ball, 2011)

It is also essential to say a few words about the ability of financial markets to influence monetary circulation and, therefore, create better market conditions for sustainment of required monetary circulation.

For instance, it is through financial markets that Central Banks control the money supply – corresponding inflations levels – and further implementation of monetary policies.

While ensuring the accurate distribution and general efficiency of available capital, financial markets satisfy short-and long-term financial needs of individual business entities, as well as accelerate the turnover of operating capital, which by-turn facilitates higher profitability and faster growth of national income (Laurence M. Ball, 2011, p. 13).

#### 4.7 Recent and future development trends of financial markets

It is a generally accepted point of view that, in the course of the last decades, international financial markets have gone through rapid development phases of modernization that have not only drastically altered their functioning mechanisms on domestic and international levels, but also introduced additional development trends that could potentially affect the economy.

However, before taking a closer look at how rapid economic changes of financial markets affect commercial banking sector, let us undertake a brief observation of factors and tendencies that have contributed to its development.

According to a research published in “International Research Journal of Finance and Economics”, it is possible to identify the following aspects among some of the key trends in recent development of global financial markets (Kahveci and Sayilgan, 2006, p. 86-89):

- ✚ Globalization of financial markets is expressed in the increasing rate of international investment, credit and other financial operations between different countries;
- ✚ Integration of financial markets is rightfully considered to be one of the most evident tendencies of recent economic and social development, as it has been greatly facilitated by contemporary technological progress. In many ways, integration processes between financial markets promoted increasing mobility of investment capital across national regions.
- ✚ Quantitative growth of institutional investors became known as one of the most important trends in the development of financial markets. The institutionalization process is expressed in strengthening of investment and security roles of such institutional investors, like insurance companies, pension and mutual funds.
- ✚ Another noticeable tendency that postulates a substantial role not only in the development of financial markets in general, but in the integration processes in banking industry as well, is disintermediation. Simply put, disintermediation deals with exclusion of financial intermediaries (brokers, banks) from transactions between borrowers and creditors or buyers and sellers, allowing both parties to reduce their expenses by evading commission payments. *It is due to the influence of disintermediation that banks became more embedded in investment activities, trying to use new financial instruments and technologies for management of investment portfolios and securities and in such way compensate their losses from traditional banking operations* (Buch and Golder, 1999, p. 12).
- ✚ A lot has been said about the strengthening of international competition in financial markets. While, on the one hand, growing competition between international companies and financial institutions led to an

increase in financial market efficiency, it stimulated a lack of transparency connected with international investment activities on the other.

- ✚ Undoubtedly, the most transparent and obvious tendencies in recent developments of financial markets are represented by rapid technological progress and consequent informatisation (becoming more and more information dependent) that have literally revolutionized the way financial markets operate nowadays.

Now it is appropriate to proceed with a deeper analytical approach to corresponding challenges that have occupied the field of commercial banking and, as a result, facilitated their investment activities putting additional pressures and constraints on simple everyday operations.

#### 4.8 Volatilities in financial markets that affect commercial and Central Banks

The above quoted study of Kahveci and Sayilgan has identified the core challenges resulting from globalization and consequent rapid development of financial markets that central banks and commercial banks have to experience nowadays (Kahveci and Sayilgan, 2006, p. 88). For additional reference, please refer to [Appendix 2](#).

Essentially, these challenges serve as a summary of occasionally encountered investment hazards that dominate the field of commercial banking.

In principle, the growing globalization, technological innovations, as well as disintermediation and informatisation trends have decreased the role of traditional banking credit operations in certain countries (Edwards and Mishkin, 1995, p.30) and strengthened the overall volatility and unpredictability of financial markets (Kahveci and Sayilgan, 2006):

- ✚ While recent economic developments of financial markets have increased the amount of risks that investors (in our case – commercial banks) have to face internationally, it has forced a larger amount of

investment profits to be distributed among potential risk management strategies, thus decreasing the net profitability of investment activities.

- ✚ Increased volatility of financial markets has also been often characterized by a noticeable instability of global interest rates and correlating prices of various financial instruments, making it more risky for banks to invest money, since they are becoming more and more liable to negative influences of market risks (Kahveci and Sayilgan, 2006, p. 88).
- ✚ Further necessity to seek additional sources of funding and identify potential safeguard strategies has led commercial banks to new risks connected with unpredicted speculations: “Volatility enhances the opportunities for profitable but risky international investments on securities. The hedging instruments enable speculators to leverage<sup>2</sup> their investments by decreasing their risks, the speculative flows, therefore, increase volatility” (Kahveci and Sayilgan, 2006, p. 90).
- ✚ Some of the discussed processes (e.g. globalization and technological innovations) have rendered banking services much more complex, making it generally harder for central banks to monitor the implementation of financial policies and regulations.
- ✚ One of the key objectives of current Thesis paper is to introduce such methods of financial innovation, like derivative instruments that have not only allowed for greater leverage possibilities, but also imposed potential investors to higher levels of risks and uncertainty (Casu, Girardone and Molyneux, 2006, p. 435). While commonly seen as a logical development stage of modern financial markets (derivative instruments have first been introduced to the world in early 70s) in the direction of more efficient distribution of funding, these investment operations have since turned out to be highly affected by the instabilities of several markets relating to the underlying securities and corresponding derivative trading transactions (Gunther Capelle-Blancard, 2011). Even Warren Buffet has once declared: “I view derivatives as time bombs, both for the parties that deal in them and the economic system” (Buffet, 2003).

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<sup>2</sup> Leverage allows increasing the profit margin of an investment by resorting to such financial instruments, as derivatives ([investopedia.com](http://investopedia.com)).

## 5 COMMERCIAL BANKS AND THEIR OPERATIONS

### 5.1 Preface

Taking into consideration at least some of the ideas mentioned above, scarcely anyone would argue that banking system is one of the most important and integral structures of every financial market and solid economy.

As seen in previous chapters, acting as crucial participants of financial market operations, commercial banks carry out functions of financial intermediaries in redistribution of capital and subsequent financing of business activities (Casu, Girardone and Molyneux, 2006).

Commercial banks constitute an integral part of modern monetary economy, as their activities are at the centre of economic life itself. All over the world banks have considerable power and influence, as they are in charge of monetary supply that could effect business entities, state authorities, legal and natural persons.

Essentially, banking system is the heart of every economy. However, banks should not just be seen as individual subjects of certain economic region or country; as a result of latest trends in the development of financial markets, the sphere of banking activities has gradually increased and consequently surpassed all geographical restrictions.

Therefore, the state of banking industry could not justy effect ordinary people, rather, as recent European crisis has shown us, whole governments and nations as well.

The core of every banking system is usually constituted by a Central Bank (or, as in the case of Eurozone, a European Central Bank and national Central Banks) that creates a regulatory foundation for activities of commercial banks. Accounting for rapidly changing nature of all financial markets, the structure of banking industry becomes considerably more complex.

European banking system is represented by a so-called ESCB conglomerate (European System of Central Banks that includes European Central Bank and National Central Banks) on one level, and a division of commercial banks and other financial institutions on another (Casu, Girardone, Molyneux, 2006, p. 140).

This particular organization of the banking system plays a crucial role in the functionality of national economies and allows regulating such complicated economic processes as inflation and employment (Casu, Girardone, Molyneux, 2006, p. 140).

Contemporary activities of commercial banks are so diverse that sometimes their true function might appear uncertain. Commercial banks provide clients with a broad spectrum of services: cash-settlement, trading operations with securities, financial intermediary activities, asset management activities and so on.

Carrying out a number of nonconventional bank operations such, as leasing, factoring, operations with precious metals, trust operations, financial guarantees and other types of service, commercial banks often act as advisers, participate in discussion of economic programs, conduct research observations, etc. (Casu, Girardone, Molyneux, 2006, p. 7).

In many ways, Central Banks, operating according to monetary and credit policies, regulate the flow of monetary circulation by influencing the quantity of cash that is currently available on the market.

Why is it so important to stabilize the amount of cash in circulation? While on the basic level it could lead to a potential decrease in inflation rates, it could also help to maintain prices at a certain level, which would greatly benefit the market relations and positively influence national economy as a whole.

## 5.2 ESCB in a nutshell

“A Central Bank can generally be defined as a financial institution responsible for overseeing the monetary system for a nation, or a group of nations, with the goal of fostering economic growth without inflation” (Casu, Girardone, Molyneux, 2006, p. 110).

Central bank is the only financial intermediary that is legally introduced to a monopoly on all of the money issuance operations. Besides that, Central Bank is also responsible for storing official currency reserves, improving implementation of political regulations, reviewing operations of credit industry and banking sector (Casu, Girardone, Molyneux, 2006).

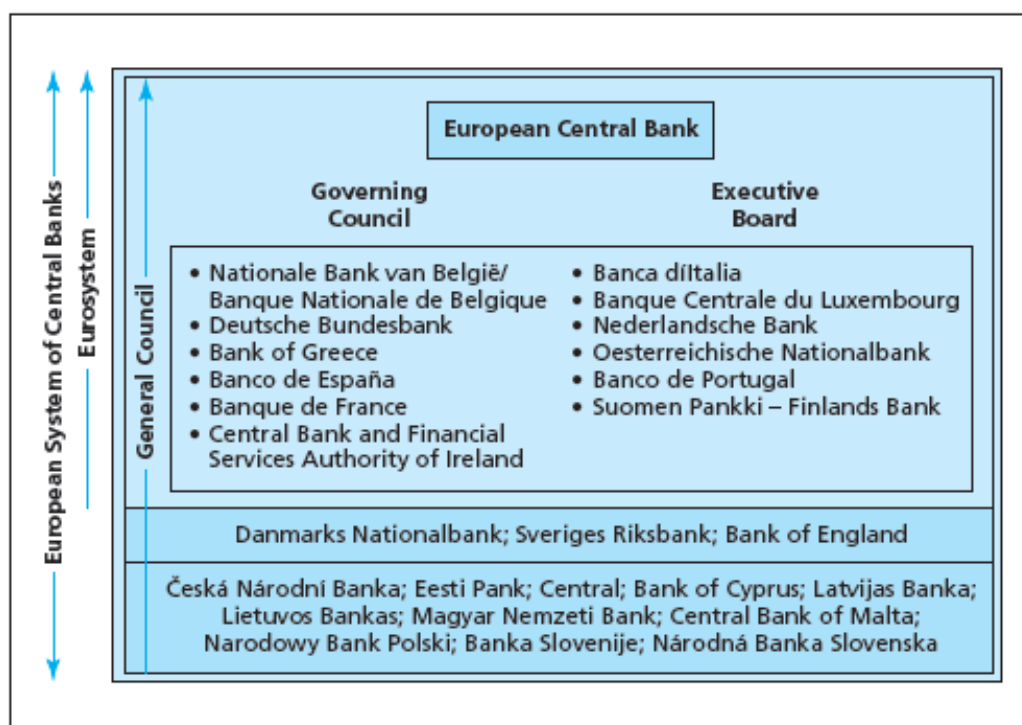


Table 4 ECB, ESCB and the Eurosystem according to the classification of Casu, Girardone and Molyneux (2006)

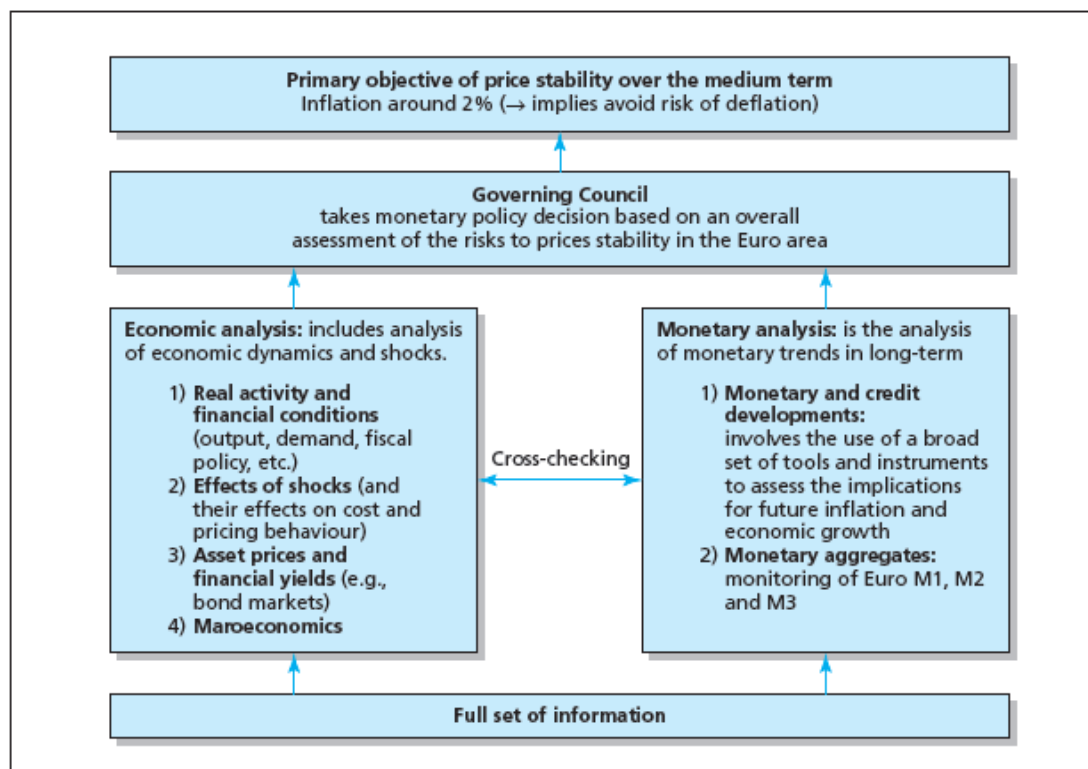
In order to define the concept of the ECB and identify its core functions, let us take a look at the 1992 Treaty on the European Union that was the first to ground the this concept in the first place: “The primary objective of the ESCB shall be to maintain price stability. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the

Community with a view to contributing to the achievement of the objectives of the Community as laid down in Article 2. The ESCB shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources, and in compliance with the principles set out in Article 4” (Treaty on the European Union, Article 105.1).

In addition to everything mentioned above, it is imperative to mention that the same treaty has also given a comprehensive overview of the functions that ESCB should be willing to perform in order to achieve the desired level of general economic stability and efficient growth. Article 105.2 lists the described functions in the following order (Treaty on the European Union, Article 105.2):

- ✚ “To define and implement the monetary policy of the Community”;
- ✚ “To conduct foreign-exchange operations consistent with the provisions of Article 111”;
- ✚ “To hold and manage the official foreign reserves of the Member States”;
- ✚ “To promote the smooth operation of payment systems”.





Source: Adapted from <http://www.ecb.int>.

Table 5 Stability-oriented monetary policy of the ECB according to Casu, Girardone and Molyneux (2006)

### 5.3 Overview of commercial banks and their functions

I have already mentioned that nowadays commercial banks – the banks that directly service the needs of various business entities and population – act as key intermediary elements within the banking system.

Being considered independent subjects of the economy, their relations with clients have mostly commercial character. Therefore, one of the main objectives of commercial banking is to achieve higher profitability margins in order to satisfy the needs of bank's shareholders (Howells and Bain, 2007, p. 67).

According to Biageo Bossone, a former policy consultant of the World Bank, a commercial bank could also be defined as a credit organization which has the right to accept capital funds from legal and natural persons and use the acquired finance on its own behalf and at own expense on several important

conditions: to return the funds to the initial owner at his request and to carry out settlement operations on the instructions of clients (Bossone, 2000).

Furthermore, commercial banks act as specific credit institutes which, on the one hand, attract unallocated financial assets, and, on the other, satisfy financial needs of business entities, government authorities and natural persons at the expense of the above mentioned monetary resources (Howells and Bain, 2007, p. 32).

Thus, basic functions of commercial banks could easily be summarized as combination of the following business activities (Casu, Girardone and Molyneux, 2006, p. 24-25):

- ✚ Accumulation and subsequent redistribution of monetary capital;
- ✚ Financial intermediation in credit operations and other commercial activities;
- ✚ Investing accumulated capital in order achieve additional profitability and, therefore, find the right balance between liquidity, solvency and profitability;
- ✚ Providing consulting services in different business fields: from investment consulting, to pension planning and asset management activities.

As specifically identified in the course of current research, redistribution of unallocated financial resources and their subsequent transformation into potential working capital is often seen as one of the oldest functions of banks.

While deposited capital funds increase the income of their owners in the form of percentage payments, they also serve as a solid foundation for successful performance of credit operations. Accumulated savings could be utilized in order to satisfy any economic or social need (Casu, Girardone and Molyneux, 2006).

An integral economic role of commercial banking reveals itself in intermediary activities in credit operations. Interestingly enough, direct communication between lenders and borrowers is often strained or interfered by the discrepancy of the amount of capital offered by one individual or general complications that accompany credit arrangements (Howells and Bain, 2005).

Moreover, it could be incredibly hard to identify whether it would be financially possible for a borrower to reimburse the lender. Commercial banks eliminate these and many other difficulties (Howells and Bain, 2005).

This is not forget that sufficient awareness in questions relating to finance and economics, as well as power to influence certain economic situations allows banks to successfully carry out consulting services.

#### 5.4 Commercial banks and their roles in implementation of economic policies

On a general level, it is practically impossible to overestimate the roles of commercial banks in contemporary economies: with the power to allocate capital among industries that really need it, commercial banking has a positive effect on every business field.

Wide diversification of operational activities not only allows banks to keep clients and remain profitable even at adverse economic conditions, but also provides them with the possibility to act as an operational link within every financial market.

Speaking about modern commercial banks, it is necessary to underline that, as other financial institutions, their business activities and investment operations also constantly evolve (Casu, Girardone and Molyneux, 2006).

It is through the ESCB relations with commercial banks and other participants of financial markets that credit policies and regulations are usually implemented. Operating in various sectors of the loan market, commercial banks serve multiple purposes: in principle, they accumulate monetary resources that will be later available to customers in a wide range of financial services.

Having recently faced increasing competition from numerous specialized credit institutions and large industrial corporations that have created their own financial companies, banks are obliged to explore new business fields and improve the quality of their financial operations in order to maintain existing market shares.

### 5.5 Capital reserves of commercial banks

Typically, all business activities of commercial banks could be differentiated on a scale of passive and active operations: while passive business activities are centred around commercial and emission services to clients in order to construct the necessary reserve capital buffer of the commercial bank, active operations target credit funding as their main objective ([Appendix 4](#)).

Such classification, while being an abstract and mostly subjective view of the way commercial banks handle their business and capital formation activities, loosely tries to justify the idea of every bank having a certain reserve capital that could be utilized in order to mitigate potential negative effects of unsuccessful investments or other economic losses (Lavrushina, 2007, p. 436).

Please note that when we describe the overall importance of passive operations of commercial banks, it is appropriate to speak about the rational allocation of acquired financial assets within the bank's organizational structure in order to ensure the quality management standards that form the resource potential of commercial banks (Lavrushina, 2007, p. 437).

It becomes evident that the core passive resource foundation allows performing successful loan operations and investment activities. Therefore, one of the primary management functions of every commercial bank is to increase the amount of its "passive" resources.

Since resources allocated through passive operations commonly comprise reserve capital funds, their key objective is to ensure the quality of liquidity buffers. Such protective nature means that there is always the possibility of

indemnification payments to customers over a certain period of time (Casu, Girardone and Molyneux, 2006).

In other words, reserve funds are a constant subject of state regulation and are intended to mitigate the damages in cases of:

- ✚ Losses arising from investment activities;
- ✚ Repayment of outstanding loans and other bank expenses;
- ✚ Unsuccessful expansion of bank's operations.

In general, capital reserves of commercial banks are diversified among three distinctive Tiers: I, II and III (Raghavan, 2004, p. 1110). While sources of funding that correlate to each of the Tiers are strictly defined by financial regulation, banks have to adhere to general capital management directives in order to comply with solvency and stability requirements.

Tier I capital, also known as CET (common equity tier I), commonly represents the equity (in other words – own) capital of commercial banks. It is through the equity capital and funds acquired through passive operations that the Tier I reserve is constructed (Raghavan, 2004, p. 1110).

Following the same logic, Tier II capital further describes financial reserves available to the bank by comparing assets whose value has been adjusted in accordance with the fluctuations of corresponding market variables, assets exempted from liabilities, certain combined financial instruments and so on (Raghavan, 2004, p. 1110).

Furthermore, funds allocated to Tier III are mostly dedicated to risk management procedures in order to hedge against potential market risks. At any given time, it is important to understand the guiding principles behind bank's capital formation procedures, as they are the founding forces behind every investment and liquidity management related activity, as stated in Basel Accords and CRD regulation described in Chapter 7.

As you might have already guessed, types of financial assets that comprise different Tiers vary greatly, depending on a number of factors: regulation in force, financial instruments acquired, attracted capital, etc.

## **6 INVESTMENTS IN COMMERCIAL BANKING**

### 6.1 Why do commercial banks invest money?

In accordance with the previous chapters, credit activities comprise main functions of commercial banks: consumer credit, venture capital financing, business loans – all of these operations redistribute financial resources between industries and help to achieve additional profitability for business operations.

However, the bank cannot just remit all of its capital resources into credit funds. The main problem with loan operations centres around the fact a loan is not a liquid asset<sup>3</sup>, since lend ed funds cannot be quickly transformed into one of the bank's capital Tiers in order to fulfil necessary liquidity requirements.

Other problems that banks have to deal with do not only revolve around risks of outstanding loans that could damage bank's liquidity, but, as the situation in the European Union has shown, also take into consideration low interest rates on credit operations, since corresponding profitability margins are decreasing.

For the above mentioned reasons banks have gradually started to assign a bigger part of their asset portfolio to investments in various financial instruments.

These new components of asset portfolios perform a number of such major functions, like: increasing profitability, providing better liquidity management options (as some financial instruments are more liquid than others), as well as ensuring the principle of investment portfolio diversification that limits exposure to market and counter-party credit risks.

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<sup>3</sup> “An asset that can easily be turned into cash at short notice” (Casu, Girardone and Molyneux, 2006, p. 486).

Not only do such investments stabilize bank's cash flow and income balances, rather they create additional sources of income when there is no other possibility to increase the amount of capital through passive operations.

## 6.2 Financial instruments: maturity periods and corresponding risk values

A wide-spread definition of the concept of security deals with a monetary document certifying certain property rights (for instance, an ownership right for a loan or interest repayment) of an investor and providing obligational payments according to the contractual agreement (Ball, 2011, p. 2).

On a basic level, securities could be differentiated into stocks<sup>4</sup> and bonds<sup>5</sup> issued by government authorities and corporate entities. Government securities are issued in order to cover the budget gap between excess level of expenses and incomes.

As a matter of fact, government securities could qualify as a certain type of loan transaction that takes place between the government and society. As other types of majority of financial instruments, such government issued securities, like bonds, provide the right to its owner to be reimbursed with a principle payment on top of timely interest incomes (Ball, 2011, p. 2-5).

It is essential to mention that government legislation can often put some restrictions on the investment operations of commercial banks. For instance, many commercial banks were considered to be initiators of the US financial crisis also known as the Great Depression, since their investment practices often involved operations with volatile financial instruments (Ball, 2011, p. 227-228).

The regulatory act that followed is known today as the "Glass-Steagall Act" that seriously limited the investment possibilities of commercial banks. However, in the course of the last decades, regulations imposed over commercial banking in

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<sup>4</sup> Stocks are securities legally certifying a partial ownership of a company endowing the holders with corresponding management rights (Howells and Bain, 2005, p. 345).

<sup>5</sup> "A bond, also called a fixed-income security, is a security issued by a corporation or government that promises to pay the buyer predetermined amounts of money at certain times in the future" (Ball, 2011, p. 2).

the US have gradually declined, therefore leaving the borders between commercial and investment banks more and more indistinguishable (Ball, 2011, p. 227-228).

One of major factors that define the purpose of investment activities of commercial banks is the necessity to receive additional income on the one hand and liquidity maintenance – on the other. Current chapter is intended to analyse the dynamic relationships between the concepts of liquidity, solvency and profitability, as well as identify their potential impact on investment operations of commercial banking.

Profitability and liquidity – are the two interdependent and inverse factors connected with investment activities of commercial banks through various financial instruments, including: liquid short-term money market instruments, long-term oriented fixed-interest payment securities, etc.

For instance, while investments either into short-term government or money market securities usually achieve smaller incomes, they at the same time possess significantly higher liquidity values, fewer possibilities of risk exposure and are not subject to volatile fluctuations of prices and interest rates (Mishkin 2010, p. 29).

Long-term financial instruments, on the other hand, possess greater profitability potential, but are much more vulnerable to financial hazards.

The explanation to such a phenomenon could be traced to the reverse relation between categories of time, risk and profitability of invested capital: on average, the longer the maturity period of a certain financial instrument, the higher the risk and vice versa.

To summarize everything mentioned above, I would like to once again outline that from the point of view of profitability, commercial banking investments are often second or first greatest sources of profits along with the interest payments provided by loan and credit operations.



Being closely related to liquidity management, commercial banking investments have to be studied carefully in order to help banks achieve better balance between profitability and liquidity in their investment portfolios.

### 6.3 Investment portfolio: definition and functions

Nowadays the term of “portfolio” encompasses the whole set of bank assets and liabilities. The primary goal of portfolio management is to satisfy all of the requirements imposed by banking operations.

I have already mentioned that modern commercial banks often have to face increasing competition: not only do banks compete among themselves, but also with other participants of financial markets, including foreign players as well.

In the course of competition constraints, one of the major activities of commercial banking is concerned with potential investment opportunities and the study of corresponding levels of risk.

Even more, investments of commercial banks differ from credit loan operations on a number of positions:

- ✚ unlike credit operations, investment activities are often targeted at long-term capital allocation. As a result, maturity periods of investment and credit operations of a particular bank have to be organized in reverse direction (profits from one source cover losses from another);
- ✚ current research is only concerned with investment activities on behalf of the bank itself, in other words – in every investment operation the commercial bank acts as initiator and not consultant;
- ✚ Loan operations are directly connected with personal relations between commercial banks and the borrower. Investment activities do not bear any relationship focus or orientation.

It should have become obvious by now that one of the guiding objectives of a portfolio management in commercial banking is the increase of profitability: it is natural that eventually bank profits increase shareholder's equity.

However, banks should also find the right balance between profitability and liquidity (solvency) aspects. A bank that is engaged in a large amount of long-term investment activities will not be able to construct a necessary liquid buffer in order to cover short-term losses, which might consequently lead the bank to insolvency (Casu, Girardone and Molyneux, 2006, p. 264-265, 296-297).

In respect to the above stated ideas, basic functions of an investment portfolio could carefully be summarized by the following features (Hiriyappa, 2008, p. 194-197):

- ✚ Irrespective of business cycle, investment portfolios are aimed at cash flow stabilization and capital appreciation: while incomes from loan operations might decrease, profits from operations with securities can go up. Correspondingly, the value of existing investment portfolio can increase as a whole.
- ✚ Maintenance of a necessary liquidity level, as securities can be sold or used as collateral for loan operations.
- ✚ Another interesting function focuses on portfolio flexibility: financial instruments can often be quickly sold for restructuring of bank assets in accordance to the current market conditions or regulation in question.
- ✚ Overall improvement of bank's financial position and, most importantly, counter-party and market risk diversification.

#### 6.4 Diversification of investment portfolio

Concepts described in the Theoretical Background part have already showed us that some of the most effective methods of limiting risk exposure revolve around investment portfolio diversification.

As the common sense phrase “Do not hold all of your eggs in one basket” suggests, acquiring different financial instruments is more beneficial, as it may allow banks to evade certain risks connected with money losses from changes in economic variables and trends (e.g. prices, unemployment) of a particular region, etc. (Casu, Girardone and Molyneux, 2006, p.289).

While aiming at achieving diversification in investment activities of commercial banks, it is, first of all, necessary to consider some of the following terms and conditions: maturity dates, geographical distribution and repayment agreements of financial instruments.

In general, credit rating and repayment procedures prove to be most important for commercial banking, as they are targeted at better liquidity management strategies (Casu, Girardone and Molyneux, 2006, p.289). Let us examine both of these positions.

As will be further shown in the research paper, the purpose of portfolio diversification in terms of credit rating of financial instruments involved is mainly focused on the strategy of counter-party risk mitigation procedures that emerge as a result of outstanding debt.

Thereupon, corresponding diversification strategies concerning the safety levels of acquired financial assets demand preliminary observation of the issuer’s credit situation.

As justified by the correlation theory (see Theoretical Background), for the purposes of diversification financial instruments with lower credit rating could be distributed across several geographic regions, thus, limiting exposure to counter-party default possibilities.

For commercial banks, it is most important to receive information on the following topics (Lavrushina, 2007, p. 460):

- ✚ What is the business field of the company?
- ✚ What is the current price of company’s securities?
- ✚ What reserve funds does the company have?

- ✚ Who operates the company? How trustworthy is the management?
- ✚ What are the economic conditions that effect the counter-party's operations?

Further discussed observations of empirical research presented in Chapter 8 will show us that the structure of investment portfolios of large and small financial institutions differs in many respects.

While large financial intermediaries are more encouraged to invest in the share capital of foreign companies and less into the government securities (as they are less risky, but less profitable as well), investment activities of smaller banks revolve around domestic government and corporate issued financial instruments.

## 6.5 Investment strategies in commercial banking

A universal rule of investment theory has been formulated in the course of investment activities of various participants of the financial markets: the rate of return (profit) from an investment in securities is always directly proportional to the amount of risk that a certain investor is prepared to face in order to achieve greater profitability (Mishkin, 2009, p. 29; Casu, Girardone and Molyneux, 2006, p. 259).

Thus, it might be possible to mention that any commercial bank carries out investment policies usually aimed at finding the right balance between profitability, liquidity and risk.

Therefore, major factors defining investment strategies of a commercial bank are not just concerned with achieving better profits and maintaining liquidity at the same time, rather with the possibility to shift the boundaries of liquidity for the sake of profits or, on the contrary, invest in liquid assets in the short-term in order to increase the levels of liquidity Casu, Girardone and Molyneux, 2006, p. 228).

There is always a question of how to distribute selected securities over a certain period of time, in other words: how should maturity dates of to-be-acquired financial assets correlate with investment portfolio in general and other financial assets in particular?

As has been accurately outlined by Fredric Mishkin, professor of Banking and Financial Institutions at Columbia University, the striking difference between the features of short-and long-term investments reveals itself in the following trend: while not being as liable to the fluctuations of prices as a result of changes in interest-rates, short-term securities are considered to be a better source of liquidity (and not profitability), since it is generally easier to trade them at a given point in time (Mishkin, 2009, p.29).

It is common to diversify among two alternative strategies that concern this problem: both of them possess an exclusive set of positive and negative features. Guiding investment decisions of commercial banks are often distinguished as a combination of passive and active strategies (Lavrushina, 2007).

#### 6.5.1 Passive Strategy

In order to create a scenario of rational investment behaviour and minimize negative influences of market risks, commercial banks can adopt certain strategies when it comes to investing in bonds. Most of these strategies have one thing in common – they usually focus on the time factor of the investment, in other words, deal with a combined investment portfolio that includes financial instruments with specifically chosen maturity terms.

*“Ladder” investment strategy* is usually considered to be one of the most popular approaches to banking investment. The core of this strategy is formulated by the principle of adopting a special time frame and then investing equal amounts of money in certain financial assets over a defined time period (Piper Jaffray, 2005).

Even though this strategy does not focus on profit maximization, it compensates the lack of this feature by greatly reducing the deviations of income levels during a specific time frame and, therefore, combining the benefits of liquid and high-yield securities (Piper Jaffray, 2005). Moreover, ordinarily, this approach provides flexibility to investment portfolios of commercial banks.

While pursuing for this strategy, commercial banks distribute their capital between various securities in such a manner that within the next several years a part of the investment portfolio would face the end of its maturity period on an annual basis.

While the described approach ensures better risk management opportunities for a particular financial instrument, it additionally guarantees stability of incoming cash flows and maintenance of overall liquidity level. Main idea behind current method is to allow achieving average levels of income without sacrificing the fragile balance of liquidity at the same time.

In order to have a deeper insight into the nature of the "ladder" investment strategy, let us try to describe it in a graphical way.

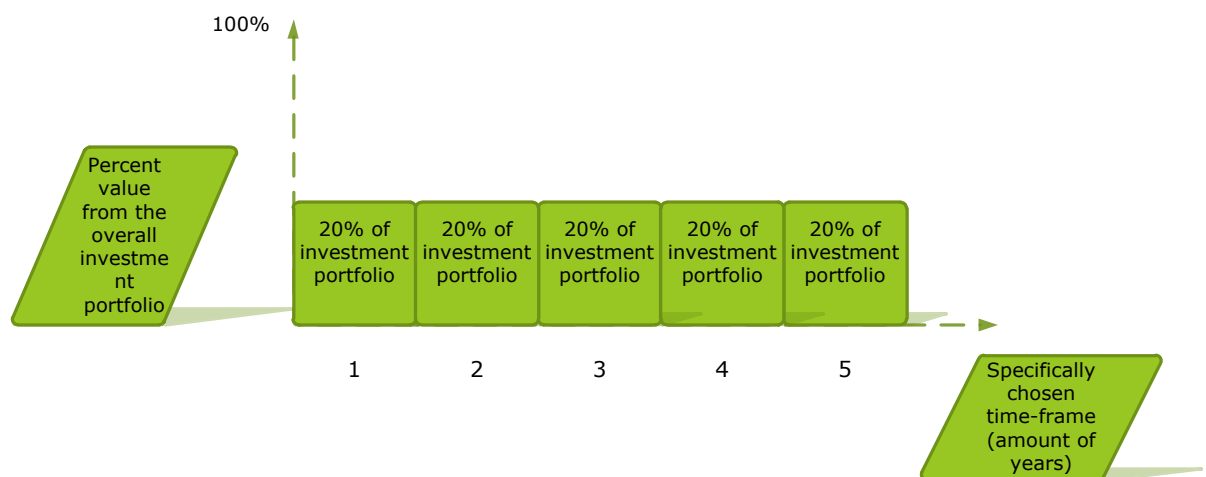


Figure 4 Graphical representation of "ladder" investment strategy

*Short-term oriented investment planning* is a fine example of another popular method of portfolio organization. While the core of the concept is centred on acquiring mostly short-term securities and, therefore, investment operations with shorter maturity periods, this strategy is especially useful for liquidity maintenance, as it regards the investment portfolio as a primary source of liquidity and not profits (University of Kentucky research, p. 2).

Short-term oriented investment policy could be graphically summarized in the following simple way:

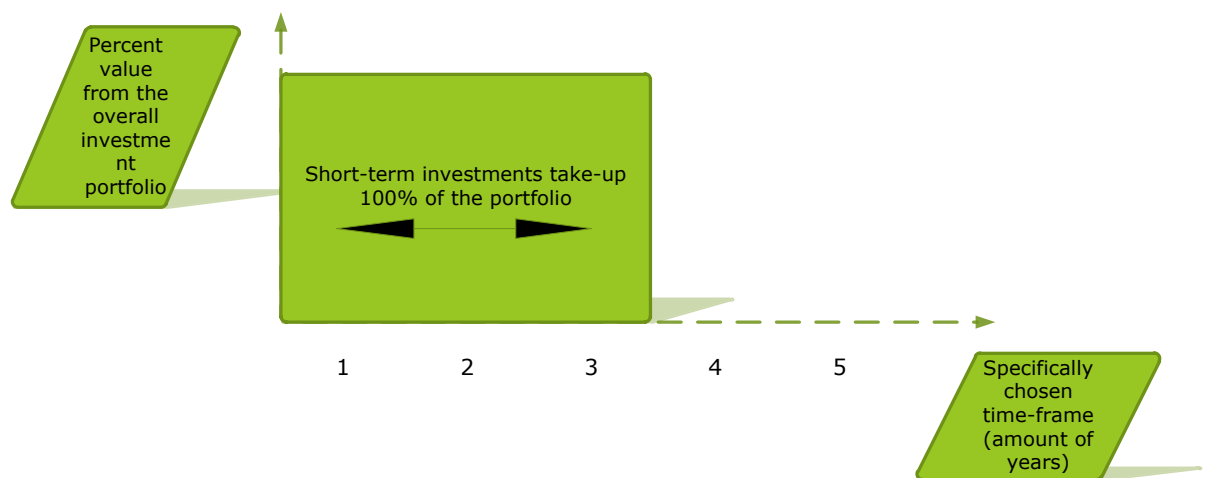


Figure 5 Graphical representation of short-term oriented investment strategy

Banks that would like to view their investment portfolios as a primary source of income usually adhere to *the policy of long-term investments*. Such banks often base their investment operations on the decision to acquire financial instruments with an average maturity range of several years (Lavrushina 2007, p. 363).

With this strategy, it is crucial to pay attention to the fact that these banks are considerably more exposed to the liquidity risk and have to rely more on credit capital of other financial intermediaries in order to manage short-term expenses. Once again, let us use the graphical way of representation in order to introduce these ideas.

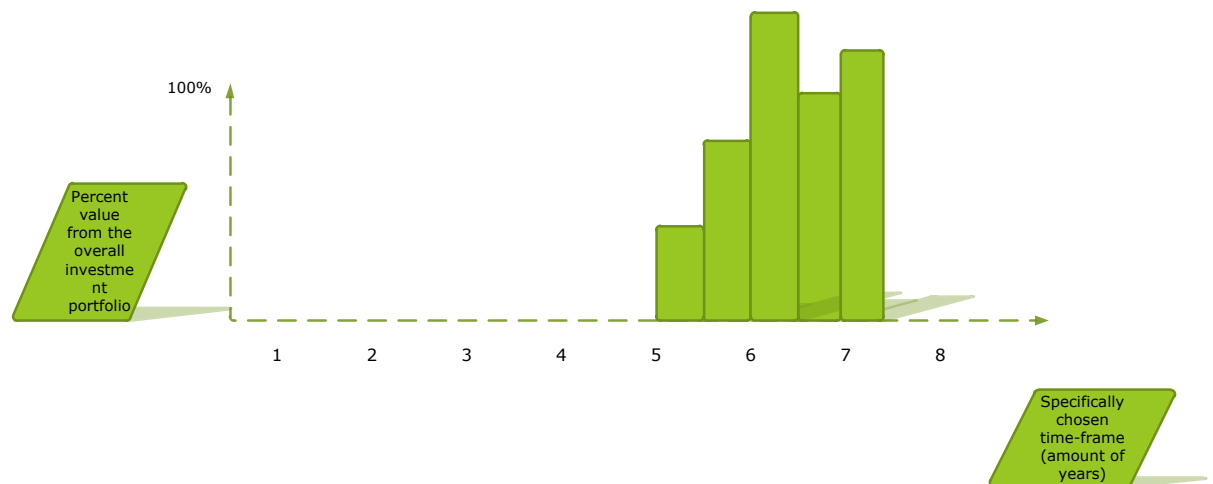


Figure 6 Graphical representation of long-term oriented investment strategy

A thoughtful combination of short-and long-term approaches to the structure of investment portfolio introduces us to *the "Barbell" investment strategy*.

As the name suggests, this method consists in combination of securities with various maturity dates. Basically, it means that the bank invests the majority of the capital in short-and long-term financial instruments and only a small part of investment portfolio is devoted to medium-term securities (Cohen, 2005).

Thus, investments concentrate on the two ends of a time spectrum that helps to effectively manage the balance between higher risk, profitability and liquidity: while long-term securities provide higher income, short-term investments address the liquidity concerns of the bank (Cohen, 2005).



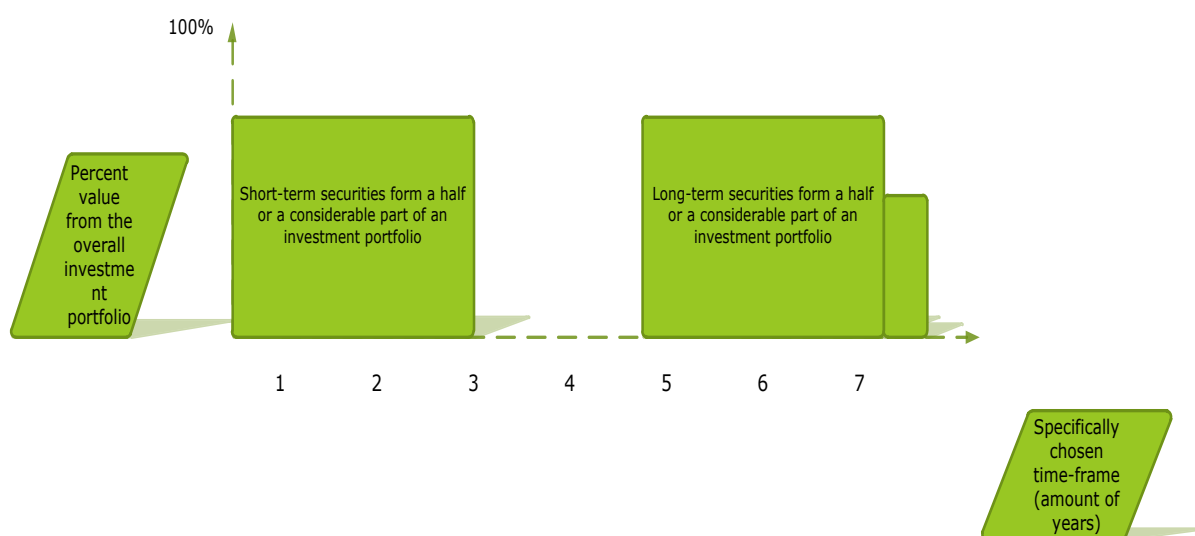


Figure 7 Graphical representation of the "Barbell" investment strategy

### 6.5.2 Active strategies

Active strategies are more common for large financial intermediaries that pay significantly more attention to their investment portfolios and aim to get highest amounts of profit from their investments.

In addition to this, current method requires larger initial capital investments, as its successful implementation often relies on expert estimations and professional forecasts of the stability of various financial market variables on the one hand, and potential trends in economic development on the other.

Approach of percentage expectations or, as it is commonly known, *the expectation theory* is considered to be an aggressive investment strategy according to which the overall maturity spectre of acquired securities is constantly updated as a result of professional forecasts of interest rates and various economic factors (Casu, Girardone and Molyneux, 2006, p. 458).

Even though, in theory, this approach can potentially increase the profitability of certain leverage instruments, it also has a chance of significant losses, as sometimes, despite of profound knowledge of financial markets, it is impossible

to make a clear prediction of the changes in interest rates and price fluctuations (Casu, Girardone and Molyneux, 2006, p. 458).

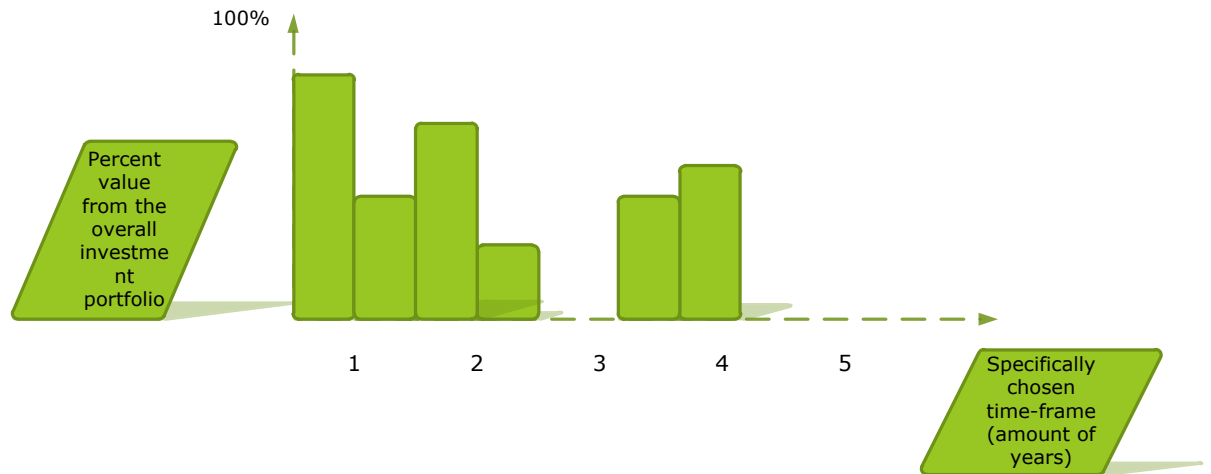


Figure 8 Graphical representation of the active approach to investment operations

## 6.6 The Yield Curve

The percentage expectations approach is directly connected with the concept of the yield curve. The yield curve is usually represented as a profit diagram of various financial instruments (particularly, bonds) from the moment of issuance till the end of maturity period. In other words, the curve serves as a graphic representation of the way interest rate payments vary in accordance with the maturity period left.

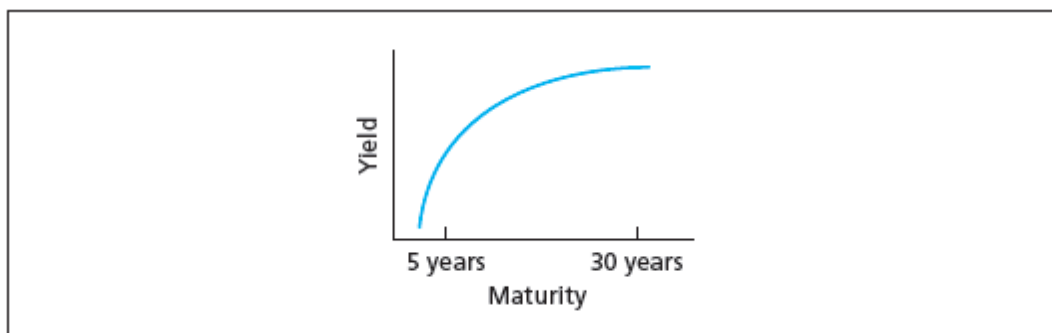


Figure 9 Normal Yield Curve according to Casu, Girardone and Molyneux (2006)

Manipulations with the yield curve are, first of all, directed on trying to predict future potential fluctuations in interest rates of certain financial instruments (in particular – bonds) and use them in order to achieve better profitability results (Machiraju, 2008, p. 242-243).

If the yield curve has a positive rising tendency, it could in general be attributed to the ECB aiming to encourage financial markets by lowering interest rates, which is always beneficial for investors (Machiraju, 2008, p. 242-243).

Why do we suppose that positive rising tendencies of the yield curve are a direct result of lowering interest rates? Consider the following bond pricing mechanism that centres around an inverse relation between bond prices and interest rates: when interest rates decrease, bond prices of traded securities go up, as newly issued bonds will be priced at a lower principle (due to lower interest payments). Same would be true in a reverse situation (Machiraju, 2008, p. 242-243; [investopedia.com](http://investopedia.com)).

In this case, commercial banks will try to invest more in the short-term securities that can be sold fast in order to strengthen the liquidity position: lower interest rates encourage people to take loans, therefore, liquidity is more important than profitability. Also, lowering interest rates single out a good time to trade bonds, while their prices increase (Machiraju, 2008, p. 242-243).

On the contrary, a gradual decrease in the yield curve of financial assets indicates that ECB tries to manage (slow) the development of financial market by raising interest rates and, thus, prices of held bonds decrease. As a result, banks will be more willing to invest in long-term instruments that provide higher incomes. Why would banks concentrate on additional profitability and not liquidity values?

It is almost certain that as the ECB increases interest rates, economy enters a downturn phase that is usually accompanied by lowering demands for loans, and, therefore, banks may not be so concerned with the general level of liquidity (Machiraju, 2008, p. 242-243).

In the course of the period that is characterized by decreasing ECB interest rates, banks will receive additional profits due to price increases of certain securities. As a result, when the interest rates reach their lowest point, banks will sell long-term securities and reinvest accumulated profits in short-term obligations. However, it is crucial to remember that all interest rate dynamics are often far from the expected result and banks can experience significant losses if they are not careful or (just unlucky) with their forecasts (Machiraju, 2008, p. 242-243).

## 6.7 SWAP operations

Another method of active investment operations, known as a SWAP, often indicates an exchange transaction of either a certain security, currency, interest rate or even underlying principle payment in order to get instant access to necessary capital.

It is generally considered to be a widely acknowledged phenomenon that, while being guided by the profit or risk minimization motivations, banks adhere to SWAP operations.

They are especially eager to engage in such trading activities when incomes from the loan operations are particularly low and the sale of securities with increased market price can guarantee instant capital for shareholders (Machiraju, p. 273-275). In general, banks are more inclined to use the SWAP method, if:

- ✚ Such operations promote general quality improvement of security assets and, therefore, will allow the bank to endure the period of economic recession;
- ✚ Current investment portfolio could be updated in favour of higher quality securities without notable losses of the expected income;
- ✚ Trading certain securities can gain significant profits from the operation, especially if the interest rate is expected to decrease;

- ✚ The effects of such operations can contribute to a better risk management strategy;
- ✚ As described in the Theoretical Background part, while credit default SWAPS might serve as a solid risk management strategy to mitigate the negative effects of counter-party risk exposure, interest rate and currency SWAPS might help to avoid market or foreign exchange risks correspondingly.

In order to develop and carry out a consistent investment policy, large commercial banks create special investment departments that focus on managing investment decisions. Still, inside the management structure of commercial bank operations, investment department always bears a subordinated role, since the priority function belongs to the crediting and reserve departments.

## **7 MANAGING INVESTMENT RISKS IN COMMERCIAL BANKING**

### 7.1 Preface

The concept of “risk” is often understood as a dangerous possibility of losses resulting from certain outward or inward factors, in particular – social and political phenomena or various human activities (Hiriyappa, 2008, p. 17).

As an economic category, risk represents an event with a certain probability of occurrence. Therefore, risk management processes focus not only on possible forecasting strategies, but also on the most efficient methods of avoiding or undertaking certain risks in order to minimize their subsequent negative effects.

Due to the nature of the industry and the fragile stability of its dependence from all of the economic participants of financial markets, risks are not only considered to be the basis of any investment operation, but are often seen as the foundation of the banking system itself, as “with increased pressure on

private banks to increase shareholder's returns, banks have had to assume higher risks" (Casu, Girardone and Molyneux, 2006, p. 259).

As has already been outlined in previous chapters, banks are most successful when they take reasonable risks that could be controlled within their financial capacity and competence, as riskier investments that promise greater rewards impose banks to higher possibilities of failure.

It is also wise to understand that, while banks more than often invest in order to achieve better profitability results, they are constantly in danger of breaking the fragile balance of their liquidity operations. Thus, investment risks in commercial banking are not only concerned with the possible tendencies of incurring losses, but also with the concept of bank's solvency as a whole.

Apart from financial operations, banks should try to increase their liquidity values in order to cover any unpredicted expenses and losses while providing a reasonable amount of profit for shareholders (Casu, Girardone and Molyneux, 2006, p. 259). The aim of achieving these seemingly contradictory goals lies at the basis of bank's investment policies and risk management strategies.

As the main purpose of current chapter is to consider the theory of investment risks in commercial banking and determine various risk management techniques, I will analyse most effective methods of risk management and describe the implementation of these methods in contemporary commercial banking. In addition to the above mentioned objectives, this chapter intends to identify risk management issues related to commercial banking and single out the ways to improve banking investment practices.

## 7.2 The role of risk management activities in commercial banking

It should have already become obvious that one of the major characteristic of investment operations in commercial banking is connected to the idea of estimating every investment decision from the point of view of several key for commercial banking concepts: profitability – liquidity – and the corresponding level of risk.

Having identified a risk as a probability of failure, it is now possible to conclude that separate investment projects are subject to different risk values, depending on the category of profitability, time-period involved and business field in question.

In general, it is safe to say that an investment risk expresses the possibility of unforeseen financial losses in the course of investment activities of commercial banks. The process of probability estimations of investment risk involved allows banks to identify the key factors and consequences behind every investment risk and, therefore, figure out a way of dealing with each potential threat (Mertens, 2005, p. 374).

It is a well-known fact that successful implementation of majority of investment projects in any financial market is coupled with a risk of losing a part of invested capital or even the whole value of the initial investment. Moreover, there is a straight correlation between the levels of income and the risks that the investor is willing to undertake: the higher the level of return – the higher the risk.

This thought leads us to a crucial assumption that it is extremely important to have an accurate idea concerning the whole system of investment risks. Profitability of various investment activities of commercial banks depends on a number of business factors and organizational conditions among which the leading role belongs to such crucial tendencies, like: the general level of economic stability in the region; other important participants of equity markets (investment companies, funds, etc.); financial instruments involved; regulation and directive approaches that are in force.

So what is the main function that risk management has to perform in order to increase the effectiveness of banking investment strategies? One of the most crucial objectives deals with the following dilemma: how to increase the maximum level of income at a given risk level or how to minimize investment risks at a certain level of income (Hiriyappa, 2008).

### 7.3 Investment risks in commercial banking

In order to get a wider perspective on different types of investment risks in commercial banking, let us briefly refer to the following figure.

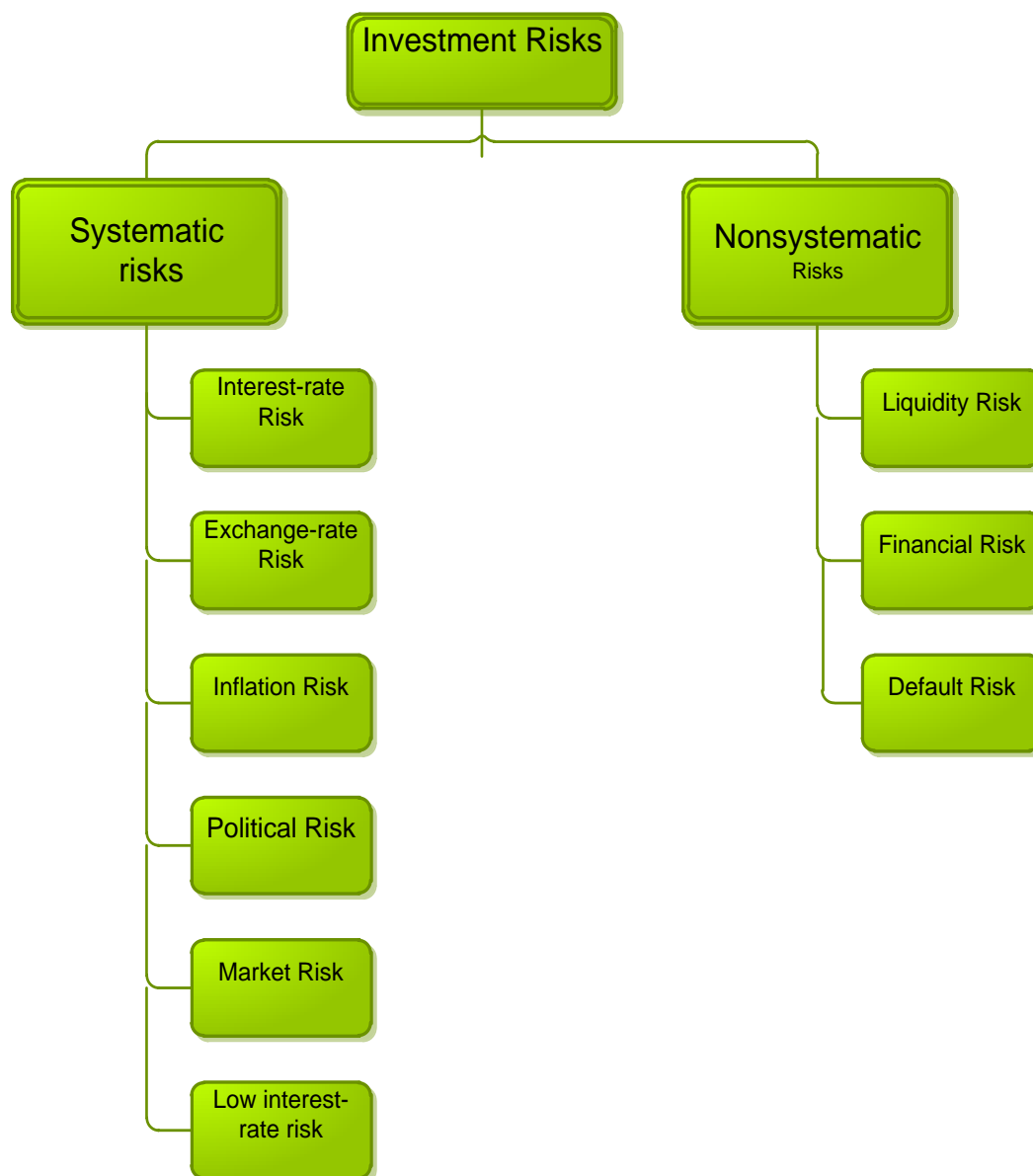


Figure 10 Systematic and nonsystematic risk approaches to investment risk management in commercial banking (Casu, Girardone and Molyneux, 2006)

As you can see from the chart, on the first and most general level, all investment risks could be separated into systematic and non-systematic, depending on their operating areas and subjects of influence (Cooray, 2003; Casu, Girardone and Molyneux, 2006, p. 269).



Non-systematic investment risks represent all possibilities of losses that can affect only separate securities or small groups of financial assets. In principle, such risks are also known as risks attributed to certain types of financial instruments. It is interesting to note that above mentioned diversification method of investment portfolio organization is often seen as a good response to minimize the effects of non-systematic risks (Cooray, 2003).

Systematic risks are often seen as risks that are inherent to a particular financial market, as well as a set of financial assets or instruments: whole market or its considerable part is exposed to their influence. Due to this prominent feature, systematic risks are sometimes viewed as risks directed at entire investment portfolio (Cooray, 2003).

While being caused by potential economic uncertainties that dominate the financial market and general development tendencies that are typical for it, systematic risks influence securities of almost all issuers that operate in the given market. Due to the nature of risks themselves, in case of systematic risks the diversification method cannot provide required level of safety and it is significantly more difficult to avoid losses from investments that are more liable to this particular group (Cooray, 2003).

In order to identify effective ways of managing investment risks, it is necessary to take a closer look at the way some of them can influence the operations of commercial banking and try to examine the causes of such impact.

### 7.3.1 Counter-party credit (default) risk

One of most common investment risks, the counter-party risk, deals with the possibility of outstanding payments on certain financial obligations (principle and interest payments).

In other words, it revolves around the payments that will not be carried out in case of counter-party's (issuer's) default. Even though, due to the general level of economic stability, government securities have often been considered to be less subject to counterparty risk (it is easier for the government authorities to

repay their debts and obligations to creditors), recent economic crisis of several European economies has proved otherwise (Casu, Girardone and Molyneux, 2006, p. 283).

State's ability not only to obtain loans, but also to repay its financial obligations is considered to be an essential factor in the evaluation of the government credit reputation and stability of its financial markets.

As has already been pointed out, due to a higher possibility of counterparty risks, in certain countries (for instance, USA) commercial banking investments into securities are carefully regulated, especially when it comes to securities issued by private corporations and local authorities.

An increasing possibility of the fact that the issuer of a certain security will not be able to fulfil necessary obligations of repayment requirements of the basic amounts of debt has led to formation of special regulation forbidding acquisition of speculative securities. In particular, in the USA the minimum required rating of securities allowed for purchase by commercial banks is legislatively established (Ball, 2011, 227-228).

As a general rule, commercial banks are often limited to purchase of securities of certain types, like government securities or securities issued by other banks and financial organizations.

### 7.3.2 Interest rate risk (market risk group)

In order to fully understand the risks connected with the fluctuations of interest rates and their effects on equity market, let us first take a closer look at the general concept of an interest rate and the consequences that it has on the financial system.

The role of Central Banks in financial markets has already been discussed. While carrying out the functions of a currency issuing authority, Central Banks also act as financial intermediaries between commercial banks and the government. In other words, they stimulate various financial strategies,

regulations and policies, as well as provide loans to commercial banks when they are in need of additional financing.

By charging a higher interest rate on their loans to commercial banks, Central Banks can, therefore, influence the amount of currency in circulation in the financial market (Casu, Girardone and Molyneux, 2006).

While smaller amounts of currency mean lower inflation rates, increase in interest rates discourages commercial banks from taking additional loans. On practice it means that, consequently, commercial banks also charge higher interests on their loans. The immediate effect of such credit policies reveals itself in situations when it is much harder to obtain additional financial resources not only for individuals, but for many companies as well (Casu, Girardone and Molyneux, 2006).

Now you can see how the fluctuations of interest rates can affect equity market, since there is an inverse relationship between the interest rate and the price of securities: when interest rates increase the price of certain types of securities decreases and vice versa ([investopedia.com](http://investopedia.com)).

Why does it happen like that? Since it is now generally harder for business entities to obtain additional credit, in most cases their overall income levels are decreasing accordingly, resulting in smaller production output, fewer possibilities for expansion, etc. Therefore the prices for securities of these business entities are also decreasing, as the demand for them starts to drop. People shift their preferences to lower risk financial instruments, like government bonds (Casu, Girardone and Molyneux, 2006, p. 262; [investopedia.com](http://investopedia.com)).

Such situations generate big problems for commercial banking investment as banks sometimes need to quickly sell certain financial instruments (and in this case – at a loss) in order to increase the level of liquidity and, therefore, solvency. As has been already discussed, an increase in interest rates reduces the market prices of issued securities on the basis of following conditions:

- ✚ Stock prices decrease as a result of diminishing demand and corresponding stock price calculation methods (future cash flows/amount of shares) [investopedia.com](http://investopedia.com).
- ✚ Prices of held bond decrease, since new bonds are issued with higher interest rate payments (Casu, Girardone and Molyneux, 2006, p. 262; [investopedia.com](http://investopedia.com)).

As a result, if during this period banks experience a growing demand for credit, many financial instruments should be sold in order to obtain additional funding to cover loan operations. Facing losses from securities acquired at a higher price and sold at a lower one, banks are compelled to increase interest rates on their credit operations in order to minimize those losses ([investopedia.com](http://investopedia.com)).

Judging by the fact that maturity period plays an important role in price establishment of various securities when interest rates fluctuate – the longer the maturity period, the lower the price – it is actually more preferable for commercial banks to focus their investments on short-term obligations.

What banks have to consider in this case is whether the interest rates are more likely to change. For instance, banks can acquire cheaper long-term securities when interest rates are high and sell them for a bigger price if the interest rates drop down.

Commercial Banks adhere to special strategies to neutralize adverse consequences of rapid interest rate changes. For this purpose, commercial banks can utilize the hedging potential of interest rate derivatives (interest rate forwards, futures or SWAPS).

### 7.3.3 Liquidity risk

In principle, the concept of liquidity concerns the general possibility of an asset to be sold at a market price over a certain period of time. A company with more liquid assets will be able to get more funds at the times of crisis or any negative business period.

Liquidity risk is connected with the general inability to get immediate access to the necessary amount of cash. Commercial banks have two main strategies to maintain a desired level of liquidity – internal and external. Internal liquidity sources are represented by certain highly convertible financial instruments (like government bonds) for which there is a steady market and that can be quickly exchanged for monetary capital.

In the industry of commercial banking, liquidity is more than often considered to be connected with the question of solvency. Therefore, one of the major functions of investment management is defined by bank's ability to find the right balance between invested funds and capital required to close all outstanding obligations (Casu, Girardone and Molyneux, 2006, p. 264-265)..

Consequently, the goal of investment strategies and commercial banking investment portfolio, apart from achieving better profitability results and maintaining the reserve funds, is to provide banks with a possibility to transform securities into financial resources with the minimum delay and insignificant risk of losses (Casu, Girardone and Molyneux, 2006, p. 264-265).

While trying to guarantee a solid level of solvency, attract assets with high liquidity value and act as a stable participants of financial markets, commercial banks should solve one of the central problems of their investment activities – to somehow satisfy the seemingly incompatible interests of bank's clients (borrowers) and shareholders (Casu, Girardone and Molyneux, 2006, p. 259).

The above mentioned incompatibility of interests especially reveals itself in the inevitable contradiction between the general requirements of liquidity and a desirable level of profitability of commercial bank's operations.

On the one hand, commercial banks experience constant pressure from shareholders that are interested in higher incomes, which can be received as a result of investment into long-term financial securities. However, on the other hand, these actions could seriously worsen the liquidity level of a commercial bank that is necessary to satisfy all withdrawal requests of bank's clients.

This difficult correlation between liquidity and profitability also defines the liquidity investment risk. In order to overcome it, banks have to look for a possibility to differentiate their investment portfolio in such a way to be able to invest into the most profitable securities without damaging the liquidity (and solvency) of a bank as a whole.

Banks should also always consider the possibility of sale of acquired securities before their maturity dates. Shifting the balance between liquidity and profitability in direction of either one of them correspondingly suggests taking smaller or greater investment risks.

That is why all investment operations of commercial banks, directly connected with the risks of active investment activities with securities, demand a careful planning and development of certain tactics and strategies that affect the investment policies of commercial banking.

#### 7.3.4 Reinvestment Risk

Reinvestment risk is connected to a pre-mature recall of a security. Indeed, many corporations and some government authorities that issue investment securities, reserve their right to “recall” their obligations under certain conditions.

It is interesting to notice that pre-mature “calls” usually occur after a decrease in the market interest rate of the bond, when the borrower can issue a new security adjoined with smaller percentage repayment costs (Casu, Girardone and Molyneux, 2006, p. 263-264).

As has already been mentioned, in this case banks can face considerable losses as they have to look for a new possibility to reinvest the returned funds under lower interest rates accepted at a current moment (Casu, Girardone and Molyneux, 2006, p. 263-264).

In order to minimize this risk, banks usually try investing in bonds that cannot be pre-maturely called back within several years or simply by avoiding the purchase of securities that can be pre-maturely recalled.

However, it is worth pointing out that since banks that invest in “revocable” bonds undertake a certain element of uncertainty of their investment policies, these types of securities usually have a higher rate of return.

### 7.3.5 Business (political) risk

Every participant of a financial market sooner or later faces an increasing risk that the market economy will worsen and attract, as a result, a decrease in overall sales volumes, possible bankruptcy and unemployment growth. These adverse phenomena are usually considered to be a business risk (Casu, Girardone and Molyneux, 2006, p. 270-271).

How does it affect commercial banking? Even though most of these tendencies do not seem to be related to the banking sector, many can quickly become reflected in a credit portfolio of any commercial bank (as our empirical research is going to confirm), since increasing financial difficulties of borrowers directly influence the amount of outstanding loans.

As the probability of any business risk is quite high, in order to minimize losses, commercial banks try to compensate the influence of the risk on a credit portfolio by investing their capital in securities.

It would be quite logical to mention that issuers of various securities can also be affected by the downturns of economy. Trying to avoid this problem, commercial banks prefer investing in securities that are issued outside of their operating market. Thus, commercial banks will try to obtain a larger quantity of securities of other regions (Casu, Girardone and Molyneux, 2006, p. 270-271).

There is also a market risk that can be seen as a consequence of rapid changes in the economic situation in the region. The market risk is caused by unforeseen changes of demand for certain types of securities. As a result, the

value of corresponding investment can decrease, as it will be generally harder for banks to sell acquired securities at a desirable price.

### 7.3.6 Low interest rate risk

It is interesting to notice that nowadays commercial banks of the European Union are facing new emerging risks that pose them to new challenges and, therefore, risk management goals.

One of these risks reveals itself in particularly low interest rates established by the ECB, as well as understated interest rates that commercial banks are charging for their credit operations. “The European Central Bank has cut its main interest rate to a historic low amid signs that prospects for the eurozone economy are looking increasingly bleak” (Wilson, 2012).

Still, why are low interest rates of commercial banks considered among such widely acknowledged investment risks as liquidity or inflation risks? In order to analyse possible answers to such particularly demanding question, it might be wise to shift the reader’s attention first to the influence of low interest rates and the dominating effects of such economic phenomenon.

In principle, by lowering the interest rates ECB tries to “reduce general market interest rates and stimulate interbank lending”, and, therefore, motivate the European economy towards expansion (Wilson, 2012). However, the aftermath of such credit policy is not as positive, as it might seem to be.

Generally speaking, low interest rates encourage business entities and private people to take loans, since it is going to be considerably easier to repay a loan, when the interest rate is around 1%. In this case, commercial banks also have to engage in interbank credit activities, as they are seeing fewer profits from their loan operations.

Unfortunately, not all of the motivated credit requests can be considered justified from the position of how the loaned funds are going to be used. Often,



“companies and individuals will borrow money for activities that normally wouldn’t make economic sense” (Cavemannews, 2012).

As a result, companies and credit institutions are facing increasing counterparty risks that deal with arising possibilities of default. If these activities prove to be a failure – borrowers might not be able to return the principle (Cavemannews, 2012).

Consequently, this might not only damage the level of bank’s profitability, but also have serious negative effects on the balance of liquidity and, thus – solvency. Moreover, it is imperative to underline that the same could also be pointed out about governments as well: in the end, what happened to Greece was a result of a similar situation (Cavemannews, 2012).

Additional complications arise when taking into consideration the implementation of upcoming new regulation – Basel III and CRD IV, with increasing requirements on liquidity buffers. As the empirical research is going to prove, current situation with low interest rates is going to make it harder in general to comply with the new regulation, described in greater detail later on.

While trying to avoid low interest rate risk, commercial banks are introduced to an increasing necessity of investment activities as primary sources of additional income, as well as interbank credit operations. Facing more risks than never before, commercial banks have to be especially careful with their investment decisions and the types of derivatives used, while also measuring the solvency conditions of other banks.

### 7.3.7 Exchange rate and inflation risks

Exchange-rate risk is concerned with investments into securities that belong to foreign financial markets and directly connected with fluctuations of exchange-rates that can lead to financial losses from currency-exchange calculations (Casu, Girardone and Molyneux, 2006, p. 266-269).

Unexpected increase of inflation rates can seriously affect business activities of certain issuers. As a result of growing inflation, market prices start to increase correspondingly, “eroding the purchasing power of a bank’s earnings and returns to shareholders” (Casu, Girardone and Molyneux, 2006, p. 272).

Recent financial crisis that has simultaneously affected seemingly unconnected regions of the world has shown that risks, especially financial and, as a consequence, investment risks, exist objectively, often irrespective of the organization that is subject to a certain financial loss (Hiriyappa, 2008, p. 17).

Uncertain future financial results of various participants of the financial market can often be traced to the general uncertainty of the future of the financial market itself (Hiriyappa, 2008, p. 17).

Summarizing the points discussed in previous paragraphs, it is imperative to single out the fact that any investment activity is always connected with risks.

Consequently, successful implementation of risk management strategies in many ways depends on identifying the optimum parity between profitability, risk and required liquidity.

Some key steps comprising every investment risk management activity and, therefore, playing an important role in maintaining this balance, could be listed in the following way (Casu, Girardone and Molyneux, 2006, p. 80):

- ✚ Identification of possible risks and potential financial losses that are connected with an investment activity;
- ✚ Comparative evaluation of identified risks on the probability basis;
- ✚ Definition of analytical criteria, research methods and strategic options that could prove to be useful in the risk management process;
- ✚ Preparing to act in order avoid, minimize or undertake certain risks, as well as strategic planning of potential insurance activities;
- ✚ Risk monitoring processes aimed at sustaining the successful implementation of chosen management policies;

✚ The retrospective analysis of risk management activities.

#### 7.4 Consistent approaches to risk management strategies

The key factor behind the concept of investment risk management is postulated by the idea of their well-timed identification, as well as competent estimation, analysis and evaluation of optimal and most effective ways of strategic management of potential financial losses. Graphically such concept could be illustrated by the following outline:

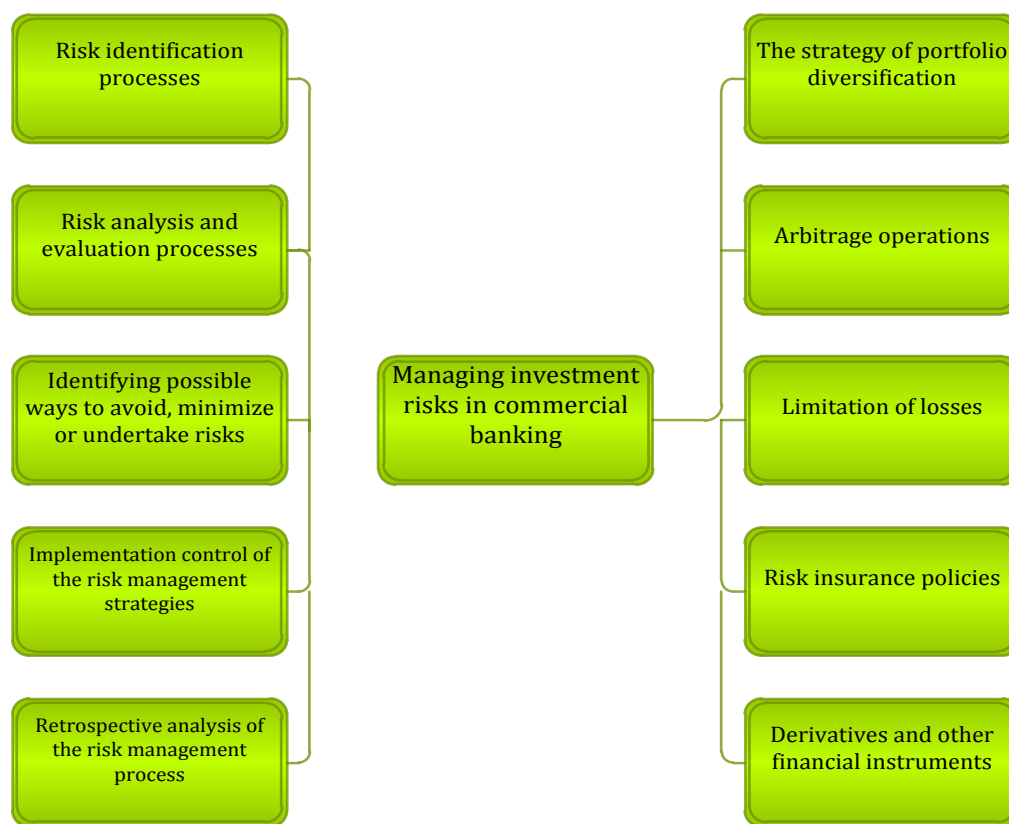


Figure 11 Consistent approaches to risk management strategies

The primary focus of current chapter is dedicated to the part of the diagram that identifies some of the most prominent risk management strategies in the field of commercial banking, including such methods, like: portfolio diversification strategies; setting risk exposure limits; loss limitation strategies; hedging operations; arbitrage operations, trading and hedging with derivatives, etc.

One of the most efficient ways of risk management revolves around the method of portfolio diversification. The reasoning behind diversification deals with an attempt to equally distribute the risk through all of the securities that comprise an investment portfolio, as each type of securities and each investment field has its own correlating risks (Hiriyappa, p. 195-196).

It is considered to be one of the main concerns of every investor to find a reasonable way of dealing with a certain risk, even when the risk probability is very high. Therefore, I could conclude that in every situation an investor would be more inclined to avoid an unjustified risk.

The method of diversification of investment portfolio reduces investment risks as financial hazards that affect investment portfolio as a whole are much less substantial than all of the risks of the underlying financial instruments combined (Hiriyappa, p. 195-196).

In an attempt to analyse the strategy of portfolio diversification, researches were faced with an interesting question that concerns every investor who is looking for a way to diversify his investment portfolio: what is the approximate quantity of securities that would be enough for a considerable reduction of individual risks?

Of course, it is natural to believe in the dominance of the principle “the more – the better” and assume that portfolio with 10 different types of securities is better diversified, than a portfolio with 5 or 7. However, what would be the logical train of thought behind this seemingly clear reasoning?

As has already been described in the part of current research that is dedicated to the explanation of theoretical concepts, at the heart of Markowitz’s diversification theory lies an idea of a specific portfolio organization in order to reduce risk without reducing the expected income. In other words, what would be the most efficient way to get the highest rate of return at a minimum risk level: “for a given risk level, investors prefer high returns to lower returns” (Hiriyappa, 2008).

Even though, in the course of development of financial markets, the diversification theory has many times proven itself to be an efficient alternative of portfolio organization, the majority of investment portfolios are usually diversified up to the level when they consist of an excess amount of securities (Hiriyappa, 2008).

While the main goal of diversification is to spread the investment capital among various sources of investment funding, allocating capital resources in a superfluous amount of securities is sometimes not as beneficial as it might seem: the necessity to keep track of updated information on every acquired security could often demand additional administrative resources that are always hard to spare.

Classification presented in the “Introduction to Banking” proposes that the necessary amount of financial instruments sufficient to achieve the benefits of diversification variates around 20 (Casu, Girardone and Molyneux, 2011, p.463).

If diversification is understood as a process directed at the allocation of capital among several investments in order to reduce risk, the process of hedging is more related to possible risk management strategies concerning a major investment: “hedging involves reducing the risk of exposure to changes in market prices or rates that may affect bank income and value, through taking an offsetting position” (Casu, Girardone and Molyneux, 2006, p. 230).

For instance, most financial arbitrage strategies could often be seen as a form of hedging: a trader usually tries to capitalize on a price difference between two two similar financial instruments in different markets (Casu, Girardone and Molyneux, 2006, p. 469).

All financial derivative instruments are commonly used in the process of hedging. Depending on the types of derivatives involved, the following hedging mechanisms could be useful in managing financial and investment risks:

✚ Hedging techniques that are implemented with the use of futures contracts. Generally, such hedging operations describe financial mechanism of operations on the stock exchange markets through opposite (offset) deals with financial instruments and securities contracts.

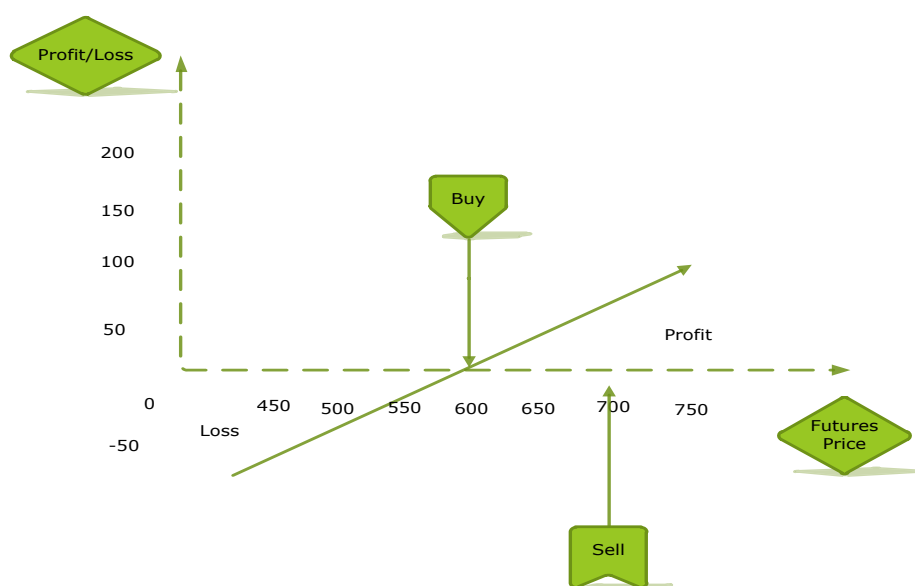
In principle, futures are better known as contracts that accompany financial transactions with certain real financial assets (for instance, agricultural products) on pre-arranged future conditions, usually date and price.

While early 1970-s introduced the concept of financial futures, nowadays, a great variety of financial instruments could be traced to futures contracts, including bonds and currencies (Ball, 2011, p. 147; Casu, Girardone and Molyneux, 2006, p. 232).

In order to gain a deeper insight into the way futures contracts operate let us examine a concrete example, involving a graphical interpretation of a bond sale involved in a financial futures contract.

Let's assume that a seller (A) and buyer (B) initially entered a futures contract with a bond as an underlying asset. While party A is scheduled to sell the bond at a certain date in the future, according to the agreement B is obliged to pay € 600 for the it.

However, when the time to conduct trade arrives, the market price of the bond is



quoted at € 700. Therefore, party B can buy the bond at the initially agreed price

and immediately resell it for a € 100 profit. In this case, A suffered a loss. As you might have already guessed, same would be true in a reverse (loss) situation.

Hedging operations with futures contracts focus on the implementation of three different types of transactions:

- ✚ purchase / sale of real assets or securities that would take actual place in the future according to the conditions of price and delivery terms, specified in the contract;
- ✚ sale / purchase of futures contracts in the secondary market (opening of a position on the stock market);
- ✚ eliminating your position in the futures contract by entering into reverse (offset) deal with it (closing your position on the market) (Ball, 2011, p. 149-150).

Here is a quick example for the offset position trading:

1. Buying 10 futures contracts (at one price)
2. Selling (offsetting the futures position) 10 futures contracts (when the market price rises)

As a result, an investor has been able to realize profits from the price differences between the initial and offset positions. Naturally, even more commercial operations are possible with futures contracts in the face of reverse positions (reverse position leaves the investor with a positive or negative result)

The principle mechanism of hedging with the use of futures contracts is based on the following assumptions: if a commercial bank, as a seller of certain securities, faces financial losses due to the price changes at the time when the payments are to be finalized, it can mitigate its losses by acting as a buyer of futures contracts on the same amount of securities and vice versa (Ball, 2011, p. 149-150).

In order to provide another fine example of this financial transaction, let us take a look at an example used by Laurence Ball: “commercial banks hold large

quantities of Treasury bonds. They stand to lose a lot if bond prices fall. A bank can reduce this risk by selling Treasury bond futures. If bond prices do fall, the bank earns profits from its sale of futures. The profits on futures cancel the losses on bonds. If prices rise, the bank loses on futures but gains from its bond holdings. Either way, the bank's total profits are insulated from bond-price movements" (Ball, 2011, p. 150).

Therefore, the mechanism of investment risk management within this hedging group could be separated into two types of transactions with the use of futures contracts – hedging the purchase and sale of these contracts.

✚ *Another type of hedging operations deals with options.* It describes the mechanism of investment risk management that is common for all financial operations with securities, currencies, real assets or other types of derivatives.

Unlike futures contracts, trading with options does not impose any kind of obligation for the buyer to actually complete a transaction, however, it does provide the buyer with a possibility to buy or sell the option at an agreed price ("strike price" – [investopedia.com](http://investopedia.com)) in the course of a certain time frame.

Often considered to be an extremely volatile financial instrument, call options (a right to buy) and put options (a right to sell) allow investors to exploit the price difference on various financial assets over a certain period of time.

The core concept of the described hedging mechanism revolves around the operations with a principle payment (a premium) that grants the right to conduct trading activities with a certain security on agreed terms: predetermined price, quantity and time periods (Casu, Girardone and Molyneux, 2006, p. 238).

As has already been identified, this type of hedging strategy is usually subdivided into "call option" contracts that provide the right to buy a security at a specified price, "put options" granting the right to sell at a certain price, as well as the ones that allow the holder to purchase or sell a financial asset at an agreed price. In other words, the price that the company pays for the purchase



option can be essentially considered to be a type of insurance payment, called a premium (Machiraju, 2008, p. 280-281).

In order to illustrate this idea, the focus of reader's attention should be shifted to the following examples: suppose that two investors have different thoughts about the way future market changes are going to effect the prices at the stock market. While investor A is assured that the market price of certain shares will indeed increase, investor B is the one who believes otherwise. What follows is a call option contract from investor A (buyer) that gives him a possibility (an option) to buy a specified number of the company's shares at an agreed price from investor B in the future.

It is imperative to mention that both investors are taking a risk here: investor A is in danger if the price of shares does indeed fall, and investor B is at risk if it rises. Note that investor A has to make a premium payment with the contract. And this is what makes call options so attractive – you can use loan (credit) funds in order to acquire the shares, as at first you only have to make the premium payment.

- ✚ Forward contracts usually deal with a trading of a certain financial asset on an agreed future date at a specified price. It is imperative to underline the crucial importance of this financial instrument for commercial banks, as well as every other participant of financial market: while currency forwards provide buyers and sellers with an additional possibility of hedging against unexpected fluctuations in currency exchange rates, they also serve the purpose of protection from changes in the interest rates (therefore, are considered as primary hedging instruments against market group risks) (Casu, Girardone and Molyneux, 2006, p. 237).

- ✚ Hedging operations using the "swap" method describe risk management strategies that deal with currency, securities and debt financial obligations of the business entity.

Having briefly described the topic of “swap” operations in previous chapters, we already know that a “swap” is an exchange operation (buying and selling) of the relevant financial asset, currency or even interest rate in order to improve the quality level of an investment portfolio, reduce potential losses or mitigate risks: in particular, the stock “swap” operations that deal with a commitment to transform one type of securities into another, for instance, traded bonds issued by companies in their shares (Casu, Girardone and Molyneux, 2006).

✚ Financial arbitrage operations are commonly defined as deals that allow investors to make profits from the difference in the prices of securities at the same time in several different markets. The term “arbitrage” is also often used to identify the sale of financial instruments: stocks, bonds, derivatives and currencies.

In order to summarize the key points of arbitrage operations, it is advisable to analyse the following transactions: in brief, a financial arbitrage aims to buy securities in one market and sell them in another one.

In theory, such a transaction could be profitable if the price difference of a certain security in separate markets exceeds the commission and other related expenses (Casu, Girardone and Molyneux, 2006, p. 79-80).

✚ Strategies of investment risk management on the secondary markets usually involve insurance activities as their primary method. The overall level of effectiveness of insurance policies depends on the development of the insurance market, as well as presence of such important financial mediators, like insurance brokers or agencies.

Depending on the results of the first stages of an investment risk evaluation procedures performed by a commercial bank (identifying possible risks, evaluating their probability basis using such economic models, like VaR or yield curve, working on possible risk management strategies), banks can develop optimal action plans for their participation in profitable investment projects. In this case, the primary choice of financing instruments is defined according to a

desired level of control over the implementation of the investment project and potential risk exposure.

While the next stage of risk management is concerned with the monitoring of risks in order to implement the necessary adjustment decisions, commercial banks should take this crucial principle into consideration: in order to be able to compare certain monitoring results, banks have to apply a unified methodology of observation techniques, since the effectiveness of monitoring processes greatly depends on the adopted systems of risk classification, evaluation and analysis (Machiraju, 2008, p. 155).

The final stage of investment risk management process is concerned with a retrospective analysis of chosen management strategies. In many different ways, it can be more than just beneficial for commercial banks to use such observation results before planning out similar strategies in the future, as they provide investors with unique opportunities to compare planned and achieved results of a risk management strategy and successfully take them into account in the future (Casu, Girardone and Molyneux, 2006, p. 80).

It is fairly obvious that managing investment risks in commercial banking requires not just a consistent analysis of the possibilities of failure; rather a solid management strategy, extensive background of theoretical and practical knowledge, as well as careful financial planning and investment forecasting.

Even though all of the above mentioned requirements constitute a rather complicated, time consuming and costly process, experience has shown that insufficient attention to the processes of risk management not only seriously damages bank's opportunity to achieve better profitability results, but also makes it impossible to reach the necessary level for financial stability of any commercial bank from the points of view of liquidity and solvency.

## 7.5 An overview of recent European financial crisis

Even though a lot of theoretical frameworks concerning liquidity and investment management in commercial banking could potentially be considered substantial

proof of the crucial impact that banking industry has on contemporary financial markets, it would be wise to make a brief overview of recent crisis that has shaken the Eurozone and, thus, explore empirical foundations behind these ideas.

According to Carlo Cottarelli, one of the main representatives of IMF, while the cornerstones of financial instabilities in Europe could be identified in various interrelated economic trends and tendencies, it is imperative to initially consider some of the most crucial ones (Cottarelli, 2012):

- ✚ Even though most of the countries in European region have agreed to accept the Euro currency, Europe is still lacking unified rules regarding taxation procedures, socio-economic problems (e.g. retirement age, etc.) and legislative differences.
- ✚ While economic recession foundations differ from country to country, it is possible to point out the key details: overspending, property bubbles that led to increasing banking problems as a result of wrong liquidity management and volatile investment operations.

Consider the following example that illustrates how Spanish banking industry was damaged. It all started with the collapse of the property bubble that expanded to include every major financial intermediary in the country. While the economy entered a positive growth stage, demand for housing property from ordinary people and construction agencies has increased (Huffingtonpost, 2012; Cottarelli, 2012).

In order to cover the spending tendencies of population and business entities, banks issued a lot of long-term (40-50 year) loans that would later significantly damage their liquidity and capital buffers. Having entered a period of recession, large part of the mortgages defaulted, thus, leaving banks with overpriced mortgage property that could not under any circumstances be liquidized (The Economist, 2012).

As a result, even some of the largest banks in the country (e.g. Bankia) have declared financial pleas for bail-out procedures. And, as has already been

identified, instabilities of the banking sector can by-turn significantly damage financial markets (The Economist, 2012).

While the Greek crisis had mostly started as a result of continuous overspending, it nevertheless led to the same results, with most of the Greek banks requiring bail-outs (BBC, 2012). The Irish crisis that followed has experienced that “bank governance and risk management were weak – in some cases disastrously so” (Regling and Watson, 2009, p. 5).

In particular (Regling and Watson, 2009, p. 5):

- ✚ Counter-party risk management strategies have been rendered insufficient by the growing demand for credit and consequent debtor’s default, in other words – same property bubble issues that were encountered in Spain;
- ✚ Insufficient regulatory procedures to deal with such problems were accompanied by ill-timed reaction from government authorities;
- ✚ General vagueness of Ireland’s financial market that resulted from increasing competition with foreign financial intermediaries and volatile investment operations.

According to the analysts of Pohjola Group, banks in Portugal were not involved in the foundations of the initial financial crisis. On the contrary, in order to avoid potential property bubble, Portuguese banking sector has been focusing on decreasing the amount of loan operations and looking for other sources of funding ([pohjola.fi](http://pohjola.fi), 2011).

At this point, the reader might wonder, how does Finland come into all of this? The answer is rather simple: being one of the most stable growing economies in Europe nowadays, Finland is faced with important decision – is it worth to agree with Deutsche Bank’s schemes to bail-out foreign banks or would it be better to exit the Eurozone and, thus, pay more attention to the potential upcoming retirement crisis (The Economist, 2012). However, seeing that this matter is more centred around political opinions, rather than Finance, it would be considerably wiser for the reader to make the decision himself.

## 7.6 Upcoming risk management regulation: Basel Accords and Capital Requirement Directives

Having such an enormous impact on the stability of global and regional financial markets, it is no wonder that almost all of the inner and outer financial operations and organizational activities of commercial banks are not only publicly monitored on an annual basis, but are also subject to follow precise regulation and directives in relation to the crucial matters of liquidity and capital adequacy<sup>6</sup> management, as well as calculation of reserve funds and liquidity buffers.

Some of the most significant regulation frameworks are known internationally as Basel Accords and Capital Requirement Directives (CRD) in the UE. While these frameworks are constantly being reworked and updated in order to serve the changing needs of contemporary economies, our focus is only going to be concerned with Basel III and CRD IV: while Basel regulations present the general rules to which every financial intermediary must comply, CRD is more oriented towards showing a concrete way through which these requirements could be fulfilled.

Generally speaking, it might be worth mentioning that the upcoming changes could be seen as reactive measures to prevent the recurrence of recent banking crisis in the following years and, thus, introduce additional protective frameworks in regards to capital buffers that commercial banks could hold on to in order to limit risk exposure and improve liquidity management on a new strategical level.

Basel Accords are known as a set of three subsequent regulating frameworks – Basel I, Basel II and Basel III. While each of the frameworks adds an additional level of requirements to the previous one, it also introduces new rules that commercial banks have to take into consideration when planning the distribution

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<sup>6</sup> A term introduced by capital regulation requirements of commercial banks. The concept of capital adequacy focuses on relation of Tier I capital to bank's assets (Casu, Girardone and Molyneux, 2006, p.181).

of capital funds between various tiers (I, II and III), reserve funds and buffers ([investopedia.com](http://investopedia.com)).

Since banks sometimes have to make additions to their operations in order to meet the upcoming requirements, implementation of each consecutive framework is spread over a certain period of time. For instance, while adoption of Basel II regulation will be ended in 2015, Basel III is scheduled to come into force in the period of 2013-2019 (Basel III handbook, p. 9).

While the general scope of new regulation is too wide for the current work, I am going to present a brief summary of the core changes between Basel II and III, as well as describe the major aspects of Basel frameworks and CRD.

In particular, building on the foundation of Basel II, the 3<sup>rd</sup> consecutive regulation introduces the new Global Liquidity Standard (GLS) that comprises several major areas of liquidity management (Basel III handbook, p. 9)..

Firstly, liquidity coverage ratio (LCR) is targeted at determining the required amount of high liquidity assets that could be used in order to cover the losses and financial shortages of a 30-day period. In addition, the new Net Stable Funding Ratio (NsFR) is aimed at encouraging commercial banks to look for more stable sources of funding in the long run (Basel III handbook, p. 8-9).

Other important amendments include new regulations that aim to reduce exposure to counter-party credit risk, such as: new capital buffers, the concept of stressed VaR analysis, as well as additional securitization<sup>7</sup> rules (Basel III handbook, p. 8-9).

Besides that, a part of Basel III regulation stresses the new definitions of capital resource base of commercial banks, with one of the primary targets of its attention being Tier I capital that must now be mostly comprised of common equity and retained earnings. Additional rules on reporting requirements should in many ways make the banking sector more transparent (Basel III handbook, p.

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<sup>7</sup> Is a process through which investors can combine various securities and financial instruments in order to create new ones ([investopedia.com](http://investopedia.com)).

8-9). Please refer to [Appendix 5](#) for a brief Overview of BASEL III implementation and transition agreements.

In order to conclude, the key objectives behind Basel III and CRD IV regulations could be seen as:

- ✚ Postulating the importance of capital adequacy issues: in order to make it more stress-resilient and, therefore, present better opportunities for liquidity management, the emphasis is shifted towards Tier I capital;
- ✚ Introducing new capital buffers for counter-party risk management;
- ✚ Implementing the new Global Liquidity Standard;
- ✚ Presenting additional reporting requirements for commercial banks, as well as new regulation towards the organization of bank's risk management boards;

## 8 EMPIRICAL RESEARCH

### 8.1 Preface

As the heading suggests, this chapter is primarily aimed at a thorough observation of investment activities of major financial institutions whose operations happen to be located in Finland: Nordea Bank (Nordea Pankki); Liedon Säästöpankki Turku (Savings Bank); Osuuspankki (cooperative bank); Handelsbanken (a Swedish bank with 44 branches in Finland); Sampo Pankki (a representative branch of Danske Bank).

While having briefly touched upon this fact in the second Chapter of current Thesis work, it is more than just important to additionally point out that the analytical part of the research has been mostly supplemented by data and observations acquired in several ways.

To be more specific, initial research plan presumed that a simple interview questionnaire could be considered a sufficient way of obtaining required information. While on some level this assumption proved to be true, in the



majority of the cases the necessary figures could only be acquired through direct access to financial reports and other investment statistics published annually by the above mentioned participants of financial markets.

In particular, out of five representatives of major banks that had been contacted in an attempt of conducting the interview, only one person has agreed to participate in the survey – the vice managing director of Liedon Säästöpankki.

Others, while having considered the possibility, have declined to take part in the research, due to various reasons, such as: inability to find the right person who would possess sufficient knowledge concerning the bank's investment operations that would allow completing the survey; refusal to shed light on the matters that under certain circumstances could be considered business secrets.

Here it would be wise to draw your attention to the fact that, even though the primary concern of the interview centred around revealing certain details of investment operations of commercial banks, obtaining confidential information has never been regarded as a possible objective.

The nature of collected data could easily be related to general statistical information that banks, as financial institutions that are subject to public overview, are obliged to publish in their annual financial reports.

Therefore, information concerning Nordea, Osuuspankki, Handelsbanken and Sampo Pankki has been obtained through careful examination of both regional (Finland) and international annual financial publications, links to which could be found among other bibliographical sources.

## 8.2 Motivations behind the empirical observations

Still, before proceeding with the analysis of collected data, it might make considerable sense to give a brief overview of the reasoning that stipulates this particular logical structuring of the research.

In the course of the Thesis work careful observations of investment strategies that could be encountered in the field of commercial banking have been made.

Using this information as a foundation for subsequent conclusions, I outlined theoretical frameworks behind frequent investment risks that tend to be more common for some of the described financial instruments and, thus, were able to identify possible risk management strategies for various situations at question.

However, it could be deemed thoughtless to make any finalizing conclusions as to which investment instruments could be considered more favourable for commercial banks or which risk management strategies could be most effective, based only on the observation of theoretical frameworks.

For the purpose of a deeper analytical insight into the nature of investment operations of commercial banks, let us shift the focus of our attention to the data collected as a summary of experiences of some of the financial intermediaries in Finland and make all of the necessary assumptions afterwards.

*Just one important aspect has to be clarified from the beginning: the fact that certain investment methods are used by particular commercial banks must only be viewed as a mere indication that such financial instruments are more suitable for the bank's overall policies, due to such factors as specialities in internal regulation, nature of bank's operations (savings bank, credit bank, etc.), geographic region, and so on. In other words, conclusions of the research might change in accordance with the changes in these factors.*

In the light of everything mentioned above, it would be wise to try to present a brief summary of the questions that had to be answered in the course of the analytical observations:

- ✚ Which investment instruments are considered to be more reliable by commercial banks?
- ✚ Which investment methods are generally most widely used?
- ✚ Which investment risks could be seen as the most dangerous ones?
- ✚ What would be the most effective ways to manage each of them?

### 8.3 Liedon Säästöpankki

Taking a look at business operations of a local, relatively small bank, would be a good place to start then examination of financial markets of a certain region.

Therefore, starting with a preview of investment activities of Liedon Säästöpankki (Turku) might prove to be useful when comparing business operations of large international banks.

Liedon Säästöpankki is one of independent savings banks that constitute Savings Bank Group (Annual Report 2011).

As discovered further in the research, being the second largest savings bank in Finland, Liedon Säästöpankki relies heavily on its customers and regional economic situation, which automatically safeguards a part of its operations from risks connected with deviations in international financial markets.

Listed below is a quotation of the interview questionnaire that has been personally filled out by Tuukka Heinonen, vice managing director of Liedon Säästöpankki.

On the basis of the questionnaire, it is possible to provide competent solutions to at least some of the matters mentioned in the previous paragraphs from the point of view of a relatively small (comparing to other banks) financial credit institution.

1. *What are the special features that differentiate your bank from other banks in Finland? How would you describe the advantages that your bank has over your competitors?*

Savings banks are banks with no owners so they do not have to take into consideration their shareholder's demands for high dividends. They can use their whole annual profits to strengthen their solidity<sup>8</sup> and to maintain a good personal service for their customers. On the other hand, if there is

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<sup>8</sup> Solidity indicates the amount to which bank's equity capital finances its assets ([investopedia.com](http://investopedia.com)).

a lack of capital to reach a good level of solidity, they can't call the shareholders for help to strengthen the solidity level.

From the above you can see that customer service face to face is the point. You can reach your own contact person easily either by directly telephone or e-mail.

2. *The year 2011 has turned out to be quite devastating for the banking industry in general. Would you describe 2012 as being better or worse? Why?*

As a local bank the problems in other European countries do not have any big influence to our business except of the very low level of market interests which weakens our earnings from lending business. So there hasn't been a significant difference between those two years. Our problems are growing when the level of unemployment is getting up.

3. *Which customers are seen as the main focus of your bank's lending strategies: private persons, large, small or medium business entities? How justified is this approach in the context of Finnish business environment?*

In our focus there are the private persons and small business entities. We have to accept that medium and large entities are too big for us for two reasons; they are too big because of big risks and high solidity requirements. I think that the approach is very justified.

4. *Which of your products and services are currently facing most demand with customers? How do you explain this?*

We are a bank for private persons and small entities so the demand doesn't vary much from year to year. Although the general atmosphere

has weakened to some extent the demand for lending products and our customers are now looking for higher profits than they can get from their deposits. The low interest rate is the reason.

5. *During the last year, were there any investments or other projects that the bank had to abandon due to growing economic instabilities?*

A short answer is NO.

6. *Does your bank engage in investing activities? If yes, how are these activities regulated within the bank's structure?*

We are to some extent investing in bonds but the main purpose in investing is to get a moderate profit on our liquidity assets. We are not after the best profits because the risk level is then growing exponentially.

7. *In your opinion, which investment methods could be considered the most reliable at the moment?*

The most reliable are short-term papers and government bonds but the profit is under the level of our requirement. So we prefer the corporate mutual bonds with rating BBB- or higher. The profit is higher and suits our policy.

8. *Would it be possible for you to state your experience (have such investment methods ever been used) and, therefore, resulting satisfaction with some of the following investment methods?*

Investment Methods	The level of investment experience	Level of Satisfaction With the Investment
Short-term investment opportunities (cash, money markets, treasury bills, commercial papers)	High <input type="text"/>	<input type="text"/>

Govt./corp. bonds (bond investments with mutual funds)	High	High
Stock-market investments (stock mutual funds)	Medium	Low
Investments into foreign stocks/bonds or foreign mutual funds	Low	High
Investments into hedge funds	Low	Medium

**How would you rate your opinion about the following hedging instruments when speaking about commercial banking investment operations?**

Futures Operations	Low	Low
Options Operations	Medium	Medium
Arbitrage Operations	None	Very low
Currency/securities SWAPS	High	High

**The following list represents most common investment risks in commercial banking. How would you rate these risks according to your own investment experience and your banking practices?**

	The level of probability	The importance of risk for commercial bank's operations
Liquidity risk	Low	High
Financial Risk	Low	Medium
Default Risk	Low	High
Interest-rate Risk	Low	Medium
Exchange-rate Risk	None	Very low

Inflation Risk	Low	Low
Political Risk	Low	Low
Market Risk	Medium	Medium
Low-interest rate risk	High	High

9. *What would be the best ways to deal with some of the most important/most probable risks?*

We have to make in advance several schemes where we take into consideration several kinds of changes in economics; unemployment; rate of interest, inflation; deflation and all these concerning both our own country and also the whole world.

10. *It is well known that European interest rates are currently at their lowest point. Interest rates in Finland are also very low, which in many ways encourages the population to make unnecessary expenditures and forces the banks to look for additional sources of income. How would you express your opinion concerning the low interest rate problem in Finnish banking industry?*

It is a big problem because the margins are too low to meet the new regulation which is coming in force from the beginning of 2015. The margins must be higher which means higher interest for house buyers.

11. *What are the overall results of the bank's investment (or other) activities in 2012? How do they meet expectations? What does the bank expect to achieve in 2013?*

We are very satisfied with our banks results in 2012. We had a good and wealthy growth and the level of risks is in a good shape so we

expect that the annual profit 2013 will be almost at the same than in 2012. To reach that we must carefully follow the competition in lending margins and deposit margins.

One of the first crucial conclusions that immediately come to mind as an aftermath of the interview derives from specific differences in organizational structure of savings banks as opposed to larger commercial banks. Having no owners in the face of shareholders unloads savings banks from a certain amount of pressure that is produced by the never-ending opposition among the concepts of liquidity and profitability.

In this case, it is safe to assume that a savings bank has generally a bigger emphasis on liquidity requirements, as it is often more dependent on its customer's deposits and, additionally, feels no obligation to increase the profit margin of shareholders, since there are none.

However, as has been carefully observed by Mr Heinonen, another aspect has to be taken into consideration: in unexpected situations the absence of shareholder's investments might leave a savings bank more vulnerable to liquidity fluctuations and more exposed to certain investment risks.

It becomes clear that being a relatively small financial intermediary generally leaves you more dependent from the local economic tendencies, with such undesirable effects, as unemployment, having a greater influence on one's business operations. And, while providing financial services to large business entities could often be seen as a much more profitable endeavour, it simultaneously exposes the company to a greater amount of risks.

Moreover, higher levels of solidity that would be required to approach large customers of financial institutions contradict the core aspect of business operations of a savings bank, which generally pays less attention to equity capital.

Interestingly enough, the next question (4) introduces one of business risks that play a significant role in operating activities of any financial intermediary. Having



touched briefly upon this problem in Chapter 7, it is already known that low interest rates in many ways encourage banks to seek additional financing, as their profit margins tend to decrease.

Therefore, the demand for deposit services weakens correspondingly, as banks have to lower the interest rate on customer's deposits. As a result, savings banks are faced with additional pressure coming from possible loss of their primary source of income.

The latter part of the questionnaire gradually introduces reader's to the way savings banks handle their investment operations. In general, smaller financial institutions tend to shift the focus of their investment activities in order to find a necessary correlation between the amount of profits that they could get and risks that they could be exposed to in the course of this process.

Such a relatively simple idea constitutes the core of their investment policies: investment activities are oriented at smaller profits and higher guarantee standards.

These objectives could be achieved by adhering to the short-term investment policy as described in Chapter 6 of current research paper. Allocation of funds in short-term investment instruments not only allows for a more precise liquidity management (primary attention goes to liquid assets), but also accounts for higher levels of stability.

In the case of Liedon Säästöpankki, a relative compromise has to be found: realising the pressures coming from described financial instabilities, certain profit margins have to be considered under the required level. Thus, the focus has to be shifted towards a higher level of risk (from government to corporate bonds) and, as a rule, profits.

A corporate mutual bond might serve as a fine example of this: not only does the concept of a mutual bond outweigh the higher risk level of a corporate bond by protecting the invested principle; its diversification benefits in many ways promise additional protection for the investor.

As a confirmation to everything mentioned in previous paragraphs, let us take a look at the part of the questionnaire that deals with the most common investment methods and, therefore, risks.

Clearly, short-term investment opportunities are marked with higher levels of experience and satisfaction. As you might have already noticed, the level of satisfaction with bonds is generally higher, as they are considered to be safer investment methods. Besides that, the level of experience with investments into foreign instruments is low, as the focus of our attention is currently a local bank.

Hedging operations of Liedon Säästöpankki are mostly concerned with currency and securities SWAPS and options contracts, as they are much more reliable than other hedging instruments, like futures or arbitrage operations.

While investments in futures are mostly restricted due to their higher risk exposure, arbitrage operations are mostly impossible for a savings bank, as its business activities are a part of a certain economic and geographical region.

Finally, it is time to single out most probable investment risk that could significantly limit business operations of the observed bank. It is easy to see the interrelation between the liquidity and default risks, as customer's inability to repay the bank instantly damages the level of liquidity. And, while the significance of these risks is very high, the probability is relatively low. Same could be mentioned about inflation and political risks, as they tend to be related to each other, but have low probability due to the overall stability of the economy.

What interests me the most, is the relevance of the market risk, in other words, whether it will be possible for the bank to sell securities acquired for trading (in the case of current research – bonds), as well as perform SWAP operations with securities that have been listed as a useful investment instrument.

Both, the probability and importance of the market risk, tend to stick to a medium level, which means that it has to be constantly accounted for by taking

into consideration fluctuations in such economic trends and variables, as interest-rates, inflation, unemployment, etc.

The following abstract from the “Introduction to banking” could be seen as a confirmation to the ideas expressed in this paragraph: “Large banks perform VaR (Value-at-Risk) analysis to assess the risk of loss on their portfolios of trading assets while small banks measure market risk by conducting sensitivity analysis” (Casu, Girardone and Molyneux, 2011, p. 270).

As current research has revealed, the primary concern of Liedon Säästöpankki is connected with the problems of low interest-rates in the Eurozone in general and Finland in particular. At first, the problems arise when the bank is experiencing diminishing demand for what comprises its core business operations – as a result, it is forced to look for additional sources of financing, which by-turn increases exposure to certain risks.

Moreover, the upcoming regulation of Basel III and CRD IV is going to implement new standards that will require the bank to increase the amount of funds that constitute its liquidity buffer and look for investment sources with a higher credit rating.

What this actually means is that it will create two opposing forces: one aimed at acquiring more funds in order to support the new capital requirements (in this case, this means looking for new investment opportunities, since the demand for deposit services is actually falling), the other – centred on the idea of using safer investment instruments in the long run.

On a certain level, these forces might oppose each other and eliminate some investment options as a result. For instance, in some cases NsFR might increase the minimum required credit rating of investments into corporate bonds from BBB-.

In situation, when the profit margin yielded by government bonds is not acceptable, this might seriously limit the opportunities to invest into the corporate securities, therefore, putting additional pressure to the bank’s

investment activities and even increasing its possible future exposure to the liquidity risk.

#### 8.4 Nordea Group and Nordea Finland Plc

According to analysts, the end of 2012 has seen Nordea as 16<sup>th</sup> largest bank in Europe (“Banksdaily”, 2012). In terms of comparison to operations of such smaller banks as the one whose investment activities have just been reviewed, not only does this mean a greater amount of investment instruments involved, but rather the whole focus and core concept of investment strategies being shifted along the risk/profitability scale in order to reach a higher profit margin.

Simultaneously, investment risk management strategies tend to play a more important role, as the levels of risk exposure rise in direct proportion to an increase in profitability.

In order to achieve a deeper insight into the nature of investment risk management activities of one of the largest players in European and, therefore, Finnish financial markets, I am going to rely heavily on the annual publication data that could be accessed through either general financial or risk-management reports.

According to Nordea’s Capital Risk Management Report 2011<sup>9</sup>, it is possible to outline the following widely used investment methods and instruments:

- ✚ Short-term investments represented by various commercial papers (both European and US), Certificates of Deposits (CDs), collateralized debt obligations (CDOs)<sup>10</sup>, bonds with short-term maturity periods (Risk-management report 2011, p. 56);
- ✚ Long-term investments with medium-and long-term bonds and notes (Risk-management report 2011, p. 56);

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<sup>9</sup> Unfortunately, the version of the report for 2012 has not yet been published.

<sup>10</sup> Collateralized debt obligation (CDO) – is a financial instrument that comprises such assets, like corporate issued bonds, CDS and is usually considered a part of asset portfolios of commercial banks, offering various yield rates, risk exposures and maturity dates (Casu, Girardone and Molyneux, 2006, p. 474).

- ✚ Derivative contracts: operations with futures, options and SWAPS (Risk-management report 2011, p. 25);
- ✚ Investments in hedge funds, private-equity funds, credit funds and seed-money investments (Risk-management report 2011, p. 48).

As the names suggest, the charts in [Appendix 6](#) represent the proportional distribution of derivative types held by the Nordea Group in the period of 2011-2012.

While it is important to understand which types of derivatives are held for trading and, therefore, seen as a mere source of profitability, it could also prove to be helpful to take into consideration the types of derivatives encountered in hedging operations and, thus, comprising a part of risk management instrument.

In principle, one general conclusion should be evident: in all of the figures and, consequently, in both – trading and hedging activities – interest rate derivatives and foreign exchange derivatives constitute the majority of all derivative instruments. What assumptions does this fact present us with?

Probably the most obvious conclusion revolves around the fact that these types of derivative instruments are more relevant for the banking industry in general, as they promise higher profitability margins, greater possibilities for liquidity management and more efficient hedging opportunities as well.

In order to define the role of each derivative instrument in trading and hedging activities, it might be important to take a closer look at the investment risks that Nordea Group sees as the most dangerous ones. For this purpose, it is necessary to single out the following risks (Annual financial report 2012, p.48; annual risk management report 2011, p. 5):

- ✚ Counter-party credit risk;
- ✚ Market risk;
- ✚ Liquidity risk;
- ✚ Concentration risk.

According to Nordea's financial report, in terms of investment activities, exposure to counter-party credit risk due to an outstanding debt in interest rate, foreign exchange, equity or credit derivative contracts proves to be one of the most crucial aspects that has to be taken into consideration while planning a risk management strategy (Annual financial report 2012, p.48).

In certain situations, it could be connected with the concentration risk that deals with the level of diversification of securities in the investment portfolio – for instance, acquiring securities of issuers from different economic regions would enable to lower the possible negative effects of credit or counter-party risk (Risk management report 2011, p. 7).

Chapter 4.4.5 of Nordea's risk management report lists portfolio diversification and credit derivatives as two of the most efficient ways to balance exposure to counter-party risk (Risk management report 2011, p. 25). However, it is important to keep in mind that, unlike other derivative instruments, credit derivatives should only be used as a supplement to diversification of credit portfolio (Risk-management report 2011, p. 34). Perhaps that is why the amount of credit derivatives that is listed in [Appendix 6](#) is actually significantly lower than other financial instruments of this group.

Interest rate SWAPS and other hedging derivative instruments are also listed as an opportunity to minimize the possibility of counter-party risks (Risk-management report 2011, p. 25).

As has already been mentioned, Basel III and CRD IV legislation presents additional regulation when dealing with counter-party risks, including such methods, as Credit Value Adjustment (CVA): the main idea behind this method is to actually take into consideration the possibility of counter-party default when allocating investment capital, in other words, the market value of a certain security could be adjusted in accordance with the expected level of counter-party default (Risk-management report 2011, p. 26).

Additionally, several calculation models are being used in order to evaluate the level of exposure to counter-party risk in the course of maturity period: fair value

adjustments (prices include the cost of hedging from credit risk), potential future exposure limit calculation models and RWA<sup>11</sup> capital allocations.

Apart from counter-party risk, it is also important to mitigate potential negative effects of the market risk. The analysts of Nordea Group specifically point out the situations when market risk, due to unexpected fluctuations in various economic variables, is most probable: while practically all interest-bearing securities could be allocated to this group, market risk also influences foreign-exchange investment operations, changes in share prices and such derivatives, like options contracts (Risk-management report 2011, p. 6).

While every year the amount of RWA is specifically adjusted for each of the most probable risks depending on the amendments of active regulation and directives of banking services, such models as VaR, IRM<sup>12</sup> and CRM<sup>13</sup> not only help to evaluate the probability of encountering a market risk in various regions, but also determine exact steps of risk management strategies for different countries: whether for measuring the risk of interest-rate fluctuations of certain bonds issued in Denmark or any other types of equity and securities operations (Risk-management report 2011, p. 45).

Interestingly enough, while risk management strategies that accompany market risk are mostly concerned with direct calculations through some of the discussed economic models, limiting the negative effects of liquidity risk is mostly concerned with diversification of investment funding sources: since alternating short-term and long-term investments is the key here, adhering to barbell strategy could be beneficial.

Apart from everything mentioned above, stress testing risk management strategies are introduced: a theoretical recreation of possible solvency

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<sup>11</sup> Necessary capital buffers are allocated to support every financial asset on the basis of its potential risk exposure ([investopedia.com](http://investopedia.com)).

<sup>12</sup> Techniques for evaluation of counter-party risks connected with default possibilities of corporate securities and credit derivative issuers (Nordea's Annual Risk Management Report, 2011, p. 44).

<sup>13</sup> Is a way to measure all possible variations of credit risk exposures that are subject to a certain investment portfolio (Nordea's Annual Risk Management Report, 2011, p. 44).

threatening situations allows the company to measure probable damages to bank's operations (Risk-management report 2011, p. 56).

Another important question is – how does the bank adjust its operations in order to comply with the upcoming regulation of BASEL III and CRD IV? As is already known, it introduces several amendments to the existing legislation that prescribe to construct a greater liquidity buffer in order to cover a 30-day period.

This is where the new methods of calculation, presented by the GLS, come into play. For instance, LCR is already used in order to estimate the necessary amount of liquidity buffer. In compliance with NsFR, the latter comprises “highly liquid central bank eligible securities with characteristics similar to Basel III/CRD IV-liquid assets” (Annual financial report 2012, p. 9).

According to the bank's analysts, “Nordea will be able to meet Basel III capital and LCR requirements in due time” (Risk management report 2011, p. 3).

## 8.5 Osuuspankki (Pohjola Group)

The Pohjola Group is a union comprising over 200 banks, financial intermediaries and business companies that not only specialise in providing credit and lending services, but non-life insurance and asset management activities as well (Annual financial report, 2011, p. 1).

While carefully observing the operational environment for the banking sector in 2011-2012, analysts of Pohjola Group mention that, even though Finnish economy continues to grow in the long run, the negative effects of European economic crisis could still pressure the banking industry in Finland (Board of directors and Financial statements report, p. 2-3).

Partly, this has to be connected with the low-interest rates proposed by the ECB in order to facilitate the economic growth and overcome the general recession. As a result, bank's profits from investments in mutual funds have somewhat declined, leaving the overall profitability margin at the end of 2011 25% lower than a year before (Board of directors and Financial statements report, p. 2-3).



Investment portfolio by asset class (%)	2011	2010
Bonds and bond funds	72	71
Alternative investments	5	7
Equities	10	12
Private equity	3	2
Real property	8	7
Money market instruments	2	1
Total	100	100

Table 6 Investment portfolio of Osuuspankki by asset class (%)

According to bank's financial analysts, a decrease in investment incomes in 2011 could be attributed to the overall uncertainty of the European financial markets, with return on investments at fair value being slightly negative (Board of directors and Financial statements report, p. 18).

As you can see, the table above represents percent distribution of investment instruments in the investment portfolio of the Pohjola Group between 2011 and 2012. Let us take a closer look at the graphical representation charts in order to get a clear overview of the situation.

Clearly, the proportion of investment instruments remains practically the same throughout the years. While the majority of the investment portfolio is comprised

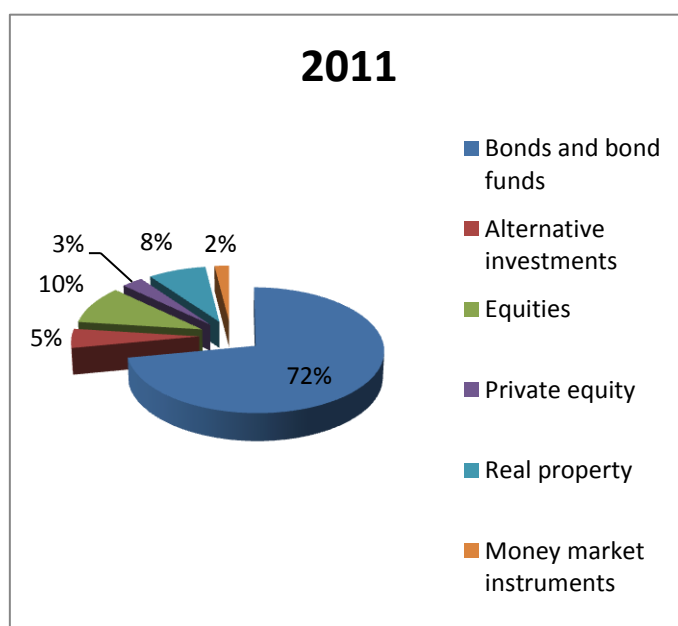


Figure 12 Asset class distribution 2011

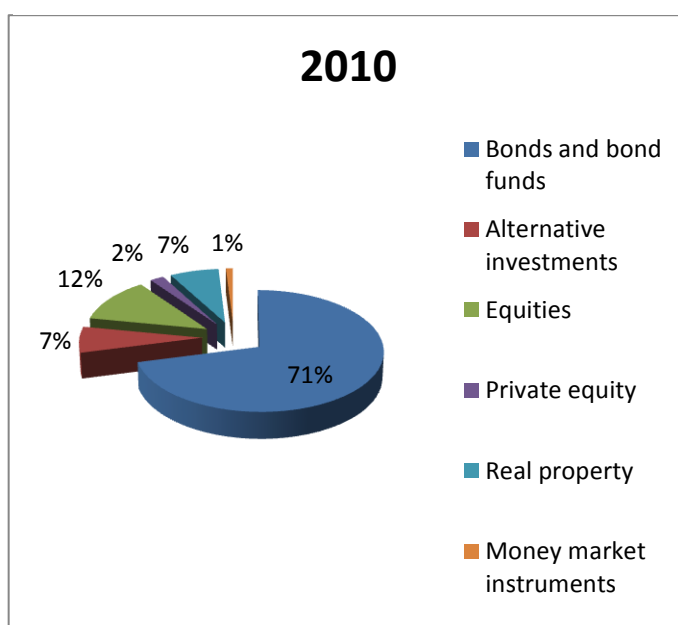


Figure 13 Asset class distribution 2010

by fixed-income securities, like bonds (as they generally offer more stability depending on the issuer), second and third places are occupied by equities (stocks) and real property investments correspondingly. Interestingly enough, money market instruments (commercial papers<sup>14</sup> and CDs) comprise just 1-2% of the portfolio.

As provided later in the board's annual financial statement, the average maturity period of fixed-income portfolio of Pohjola group could be summarized as 3.9-4.8 years, therefore representing a passive policy of long-term investment activities (Board of directors and Financial statements report, p. 18).

Realizing that majority of the portfolio is represented by fixed-income securities, it is safe to assume that the major risks are connected with market volatilities (market risk-interest rate risk), counter-party default risk and, since the maturity periods are quite high and the amount of money market instruments (short-term securities) is significantly low, liquidity risk has to be taken into consideration as well.

On the basis of the table in [Appendix 7](#), it is possible to identify the relation between an investment instrument, correlating investment risk and desired risk management or hedging strategy.

For instance, bonds and bond funds are more subject to market risk in terms of interest rate risk and, therefore, appropriate hedging strategy would include interest-rate derivatives, as is shown under the supplement 1. In the same manner: equities that fall under market risk could be protected by equity derivatives (options, futures) and measured by such economic models, as VaR; exposure to counterparty-risk could be balanced by acquiring high safety rating bonds (government bonds).

Attempts at preserving the liquidity portfolio are supplemented by additional investments in short-term maturity papers, like notes and bonds with positive

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<sup>14</sup> Short-term financial securities (for instance, bonds with a maturity period of less than one year) that oblige the issuer to repay a borrowed principle, as well as interest accumulated over the maturity period (Ball, 2011, p. 3; Casu, Girardone and Molyneux, 2006, p. 474).

credit rating and history of issuance. As a rule, managing liquidity risk in Pohjola Group is solely connected to a careful planning of the liquidity buffer in accordance with the accepted guidelines, as well as strategical management of maturity dates of short-term oriented investments (Notes to consolidated financial statements, 2011, Note 2).

## 8.6 Danske Bank Group

Possessing an overall 11% of Finnish market share, the Danske Bank Group is an important competitor in the regional financial market (Danske Bank's Equity Story, 2012). Known in Finland before November 2012 as Sampo Pankki, Danske Bank's bond portfolio comprises approximately 67 billion EUR (around 500 billion DKK) (Annual financial report 2012, p. 18). In order to get a better understanding of Danske Bank's Bond portfolio, let us take a closer look at the following graphical summary.

<b>BOND PORTFOLIO [%]</b>	<b>31 Dec. 2012</b>	<b>31 Dec. 2011</b>
Government bonds and bonds guaranteed by central or local governments	36	28
Bonds issued by quasi-government institutions	1	2
Danish mortgage bonds	42	46
Swedish covered bonds	11	14
Other covered bonds	5	5
Short-term bonds (CP etc.), primarily with banks	2	2
Corporate bonds	3	3
<b>Total holdings</b>	<b>100</b>	<b>100</b>
Available-for-sale bonds included in total holdings	13	15

Table 7 Bond portfolio by percentage (annual financial report 2012, p. 18)




While the obvious preference is given to high safety fixed-income securities, like government bonds and mortgage bonds, a total of 16% of the bond portfolio in 2012 has been allocated to covered bonds, which generally have a longer maturity date period of up to 10 years.

Additional notes to the financial statement of 2012 are devoted to operations with derivatives, as they could be seen as some of the major bank's activities in the financial markets. The key idea here is that, while some derivative instruments could be used to hedge against certain risks, most derivative contracts are traded in the financial markets, especially SWAPS, forwards, futures and options (Annual financial report 2012, p. 78).

Note	(DKK millions)	2012	2011
16	Investment securities		
	Financial assets at fair value through profit or loss		
	Listed bonds	30,309	24,686
	Unlisted bonds	45	-
	Listed shares	52	134
	Unlisted shares	3,032	2,586
	<b>Total financial assets at fair value</b>	<b>33,438</b>	<b>27,406</b>
	Available-for-sale financial assets		
	Listed bonds	65,976	70,460
	<b>Total available-for-sale financial assets</b>	<b>65,976</b>	<b>70,460</b>
	<b>Total at fair value</b>	<b>99,414</b>	<b>97,866</b>
	Held-to-maturity financial assets		
	Listed bonds	7,710	11,398
	Unlisted bonds	600	-
	<b>Total investment securities</b>	<b>107,724</b>	<b>109,264</b>

Table 8 Total amount of investment securities in Danske Bank Group between 2012 and 2011 (annual financial report 2012, p. 81)

Furthermore, Danske Bank Group lists several main objectives behind their trading operations with derivatives (annual financial report 2012, p. 78):

-  On a certain level, acquired derivative instruments could be proposed as additional investment opportunities for customers;
-  Commercialization of derivatives that comprise an investment portfolio could be seen as an effective way of increasing the profitability margins;
-  Using the described derivative contracts in order to hedge from investment risks that the Group identifies among some of the most often encountered ones: foreign-exchange, interest rate, market and credit risks.

Throughout the course of the Thesis research, numerous possibilities of hedging against various risks with derivatives have been identified. The logical question would be – how exactly is the hedging process applied in relation to various risks?

For instance, it is already known that fixed-interest assets comprise a big part of the overall investment portfolio for the whole Danske Bank Group, therefore, allowing for a greater opportunity of the interest rate risk.

The derivative hedging process on these assets usually comes into play when dealing with securities that have a maturity period greater than six months. However, what is so extraordinary about Danske Bank's investment risk-management strategies in Finland is that the majority of interest rate risks in Finland are hedged by core funds and only the remaining part by derivatives (Annual financial report 2012, p. 78).

According to the financial statement, another effective strategy to hedge against interest-rate risk would be to use SWAPS or forward contracts in order to divide the basic interest payments for a certain time period and then to trade them as separate securities. "At the end of 2012, the carrying amounts of effectively hedged fixed-rate financial assets and liabilities were DKK 87, 106 million (31 December 2011 – DKK 68, 815 million) and DKK 649,165 million (31 December 2011 – DKK 676,546 million) respectively" (Annual financial report 2012, p. 79).

Foreign-exchange rate risk that particularly concerns investments into representative participants of Danske Bank in other countries is effectively hedged by entering business arrangements handled in foreign currency (Annual financial report 2012, p. 79).

Trying to limit exposure to the counter-party risk, the Group aims at acquiring securities with a very high safety status (approximately 84% of the entire bond portfolio has an AA status) (Pillar 3 disclosures, 2012, slide 14). The market risk is usually measured with the standard procedures using VaR, stressed VaR or other economic models (annual financial report 2012, p. 149).

As a conclusion, let us briefly examine the risk management strategies behind liquidity operations of Danske Bank Group. While the guiding principle behind these operations would be mostly concerned with continuous analysis of short- and long-term risk exposure, each of these approaches is treated separately on an individual basis (annual financial report 2012, p. 152).

In particular, short-term liquidity management mostly revolves around evaluation of potential future exposure and consequent limit identification for it. Liquidity buffer is then constructed on the basis of these estimations. Long-term liquidity management is, on the other hand, oriented towards management of funding sources, as well as stress tests (annual financial report 2012, p. 152-153).

Finally, the Group has stated that “at the end of 2012, the Group’s LCR was 121%, and the Group therefore achieved compliance with the expected requirement” (annual financial report 2012, p. 152). For this purpose, the qualitative and quantitative structure of liquidity buffer has been rearranged: with covered and mortgage bonds given higher priority as they could be easily traded with Central Bank and, therefore, achieve better liquidity (annual financial report 2012, p. 153).

## 8.7 Handelsbanken

Originally a Swedish bank, Handelsbanken sees such Nordic countries, like Norway and Finland, together with UK as parts of its home market operations. Considered by Bloomberg to be 11<sup>th</sup> strongest bank in the world, Handelsbanken is involved in almost 90% of all mutual fund operations in Sweden (Bloomberg Business Insider, 2012; annual financial report 2011, p. 3).

While reviewing the situation in financial markets in 2011, the bank’s analysts have cited that Handelsbanken “has good access to liquidity” in the face of special short- and long-term investment programmes best correlating with a barbell strategy (Annual financial report 2011, p. 80).

They have also specifically mentioned that the bank's liquidity assets are mostly comprised by "government and covered bonds" that not only ensures stability of the bank's operations in the short-term, but also provides for hedging the bank from the liquidity risk for a period of 12 months (Annual financial report 2011, p. 80, p. 93).

For the sake of research, it is imperative to mention that the representatives of Handelsbanken identify the counter-party, market, interest rate, equity price and liquidity risks as the major exposures that any risk management strategies have to specifically take into account. I will proceed with a brief, but nevertheless thorough review of the investment risk management in Handelsbanken.

Having already experienced this situation with other banks represented in this research, it is possible to point out that counter-party risk is one of the major problems that large banks encounter and, thus, have to take into account when planning their investment strategies. In order to overcome the negative effects of counter-party risk or to avoid it completely, Handelsbanken applies various procedures of evaluation of potential exposure to counter-party risk, based on the type of financial instrument in question and its corresponding contract terms: maturity dates, yields, etc. (Annual financial report 2011, p. 87).

According to the bank's strategy, the next logical step would be to limit the amount of potential exposure to counter-party risk by setting a special capital buffer that would be used in order to cover it. Please note that fluctuations in prices of various financial instruments are also taken into account when setting the capital limit (Annual financial report 2011, p. 87).

A special part of the Handelsbanken risk-management note is devoted to netting agreements<sup>15</sup>, as they are seen and often used as an effective method of dealing with derivative contracts, especially when trading with other financial intermediaries, as netting agreements promise payments even in the situations when the opposing investor is bankrupt. Finally, Handelsbanken maintains a

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<sup>15</sup> A type of agreement used to consolidate payments on all derivative transactions between two parties into one ([investopedia.com](http://investopedia.com)).

certain amount of credit derivatives (mostly – CDS<sup>16</sup>) as a possible option to manage the credit risk (Annual financial report 2011, p. 87).

Naturally, when dealing with market risk, it is practically impossible to leave out such effective economic models, like VaR. In principle, same observation could in general be attributed to the way Handelsbanken views its market risk management strategies.

As has already been mentioned in the above paragraphs, the bank distinguishes its market risk exposure into several sub-categories, each constituting a separate risk on its own: interest-rate, equity price and exchange rate risk. While, on the one hand, the basic scheme of dealing with the risk exposure is similar to the counter-party risk management (setting the limit to market risk exposure, allocating the capital buffer, etc.), stress tests and VaR calculations are added into the mix with the following conditions: confidence value at 99%, measurements on a daily basis scale (Annual financial report 2011, p. 88).

By using interest-rate SWAP agreements the bank can effectively influence the negative effects of the interest rate risk. Calculation of the risk exposure is also used via VaR, yield curve and stress tests in order to measure even extreme values of interest rate fluctuations. In addition, statistical analysis and VaR model are also used when dealing with potential fluctuations in equity prices (Annual financial report 2011, p. 89).

The main principle behind liquidity management centres on stable long-term investment orientations. In order to evade breaches in the liquidity operations, both investment and credit cash flows are organized in such a way to supplement each other and, therefore, limit potential exposure to liquidity risk (Annual financial report 2011, p. 89).

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<sup>16</sup> Credit default SWAPS (CDS) – are often seen as a perfect example of credit derivative instruments held for hedging against credit risk.



However, on this stage of research, I am more concerned with the way Handelsbanken is prepared for the upcoming regulation from the points of view of liquidity buffer and additional capital requirements. In order to be able to fulfil all of the new regulations discussed in Chapter 7, the bank has ensured a number of important steps (Annual financial report 2011, p. 91):

- ✚ A structural reorganization of risk management activities on the basis of centralised approach that would potentially allow for better liquidity control;
- ✚ Shifting the emphasis from short-to long-term investment sources with careful planning in terms of diversification;
- ✚ Changing the pricing structure in order to satisfy the liquidity requirements;
- ✚ Implementing better reporting techniques that would lead to an increase in transparency of bank's operations.
- ✚ Changing the pricing structure in order to satisfy the liquidity requirements;
- ✚ Implementing better reporting techniques that would lead to an increase in transparency of bank's operations.

## 8.8 Conclusion: similarities and differences

In order to make a proper conclusion to the practical part of the Thesis work, it might be better to take a look at the differences and similarities between various investment risk management approaches used by the observed banks. Still, before proceeding with the analysis, a few things have to be cleared out.

While reading the concluding part, it might be wise to remember that analysing investment strategies of such large financial institutions as the ones mentioned above is a considerably complex undertaking in the respect that, while it could be potentially easy to analyse investment operations of a small bank, dealing with larger ones can never be so simple.

For instance, it might be practically impossible to conclude that a certain bank tries to use only one investment strategy, whether it is short-term or long-term oriented, barbell or ladder, etc. The main reason being the fact that large financial institutions often have to make complex combinations of all of these methods in the course of their operations in order to achieve significant results. And this is where the art of banking comes into play.

However, it is appropriate to point out that a reviewed bank used a certain investment or risk management strategy at a particular time period. By stating this, it is possible to open the door for further speculations on the effectiveness of the described method: this is what the concluding part of the Thesis work is going to be about. Having identified this matter, let us proceed with a comparison analysis. For this purpose, please pay attention to [Appendix 8](#).

For the sake of current research, it might actually be advisable to shift the focus of reader's attention to the 4 larger banks, as their financial operations generally include a greater variety of investment instruments involved, as well as risks that have to be taken into consideration.

However, there is still one conclusion that deserves mentioning: in the times of approaching changes in international banking regulations, in certain cases it might actually be considerably harder to fulfil these requirements as a small financial intermediary, due to outer restrictions on bank's operations.

For instance, in a sense it might be harder for such a small bank like Liedon Säästöpankki to comply with the upcoming liquidity buffer and capital reserves requirements, since the variety of available investment instruments is significantly lower, than that of such larger banks, as Nordea or Danske Bank Group.

Furthermore, it is possible that Liedon Säästöpankki will have to include more government bonds into its investment portfolio, since they present better opportunities for liquidity management. On practice, it means potential losses, as the amount of corporate bonds might decrease. In order to overcome these difficulties, the bank has to maintain the focus of its operations on customer

relationship management in order to secure the core part of its business operations.

As to the other banks, the three main risks are realized as greatest dangers for financial stability: counter-party, market and liquidity risks. Even though the crucial significance of these risks varies in relation to each presented bank, risk management strategies mostly tend to reflect similar situations, with preference given to VaR/yield calculations, derivative hedging instruments and careful planning of maturity dates distributions.

Judging by presented information, it is almost evident that Osuuspankki is facing increasing difficulties in the Finnish market, as its consecutive profit margin has decreased, as well as at the international scene, as such credit agencies, like Moody's have recently lowered its credit rating from B- to C. Partly this could be attributed to the bank's slow progress in transforming its operations to comply with the new standards, as well as weakening investment position in the financial market.

On the other hand, Nordea, Handelsbanken and Danske Group have performed relatively well internationally (even though Danske Bank's market share in Finland tends to decrease), with core of their investment activities focused on combining short-and long-term oriented investment methods.

While the combination of financial instruments applied in investment and risk management strategies is mostly similar, there are still some subtle nuances that could be singled out:

- ✚ Handelsbanken's use of netting agreements in order to hedge against counter-party credit risks in Finnish financial market correlates with Nordea's statement that credit derivatives, due to the increasing volatility of this financial instrument, should be used as a secondary instrument for hedging against credit risk: the predominant position being given to diversification methods.
- ✚ A clear trace of long-term investment strategy orientation could be identified. Being a logical reaction to the upcoming strengthening of

bank's liquidity and capital requirements, banks are trying to invest into long-term securities that could provide higher profit margins, while not bringing significant damage to liquidity positions (covered and mortgage bonds with longer maturity periods).

- ✚ Judging by profitability margins, liquidity buffer compliance and capital allocation Nordea, Handelsbanken and Danske Bank Group could generally be seen as more reliable financial intermediaries that are prepared to meet upcoming regulations.

## 9 CONCLUSION

A number of research objectives and guiding principles that have been outlined at the beginning of current work now serve as a foundation for comparison analysis of the way theoretical concepts reviewed in the course of the Thesis correlate with the data gathered as a result of the empirical part.

To be precise, the key research objectives have been stated as the combination of several questions:

- ✚ Why should commercial banks be seen as crucial participants of financial markets?
- ✚ Why is it so important for commercial banks to invest money?
- ✚ What are the risks that commercial banks face in the course of their investment activities?
- ✚ How can commercial banks manage these risks and maintain the fragile balance between the interrelated concepts of liquidity (solvency) and profitability?
- ✚ How do the above mentioned theoretical frameworks correlate with contemporary commercial banking and the way banks handle their investment operations?

Reviewing the information presented throughout Chapters 3-8 proves that all of these aspects have been successfully identified. Even though a logical and most obvious way to structure the concluding part of the analysis would be to go

through each of these questions individually and then present brief summary of research findings, it might not be so useful in terms of bringing together the theoretical and empirical parts.

On the contrary, it could be considered a much more relevant idea to present a summarizing conclusion to the last question and use it as a foundation to once again revise the findings. Moreover, taking into consideration the enormously wide scope of the research, the concluding chapter might pose as a unique opportunity to identify some of the aspects that have been left out of the research focus for the sake of maintaining the overall unity of ideas.

### 9.1 Review of research objectives

In the course of research paper the factors that allow commercial banks to be seen as some of the major participants of financial markets have been identified. While most of the reasoning deals with the overall positive effects of commercial bank's operations on the general level of stability of financial markets, some of them are also concerned with an intermediary role that banks play in an economy.

The function of capital redistribution among various economic segments, while allowing for easier access to unallocated capital reserves, stimulates the economy by providing financial support to those who are in dire need of it, be that a government authority or a natural person.

While the findings of my empirical research mostly appear to prove the above mentioned assumptions, they proceed on the whole new level to explain the complex connection between commercial banks and other participants of financial markets. For instance, readers discover that, due to their underestimated importance, investment and credit operations of commercial banks are carefully regulated and monitored by international standards and supervising organizations.

Recent developments in the financial crisis have served as a foundation of new regulation that is intended to support stability of financial intermediaries and,

thus, serve as a guarding pillar of the European and international economies. Besides that, I have uncovered the most efficient ways of financial communication among government authorities, corporate players and financial intermediaries that help to improve the circulation of cash flows within economies, such as: short-and long-term financial securities and derivative instruments.

The financial situation of Liedon Säästöpankki that has been fully described at the beginning of the empirical part proves to present a competent example that could be best used to support the research findings to the second question.

In particular, while theoretical observations have reported that commercial bank's necessity to invest money should be seen as a result of continuous struggle between the concepts of liquidity (solvency) and profitability, both of which are irreplaceable components of bank's financial operations, the case of Liedon Säästöpankki introduced us to supplementary empirical arguments on this part.

Clearly, pressures to Liedon Säästöpankki's profitability margin have been postulated by several effects: decreasing demand on the deposit services that constitute the core of bank's operations and necessity to comply with upcoming liquidity regulations. Both of these outer occurrences force the bank to look for additional sources of capital in order to increase profits and restructure the liquidity buffer. More than often the only available opportunity (except probably for interbank credit operations) centres on investment activities.

Furthermore, I could express the ratio between liquidity and profitability as shifting into the direction of profits in accordance with an increase in the size of bank's operations. Explanation to such a phenomenon could be provided by the fact that large banks, like Nordea, Handelsbanken or Danske Bank need to attract larger amounts of capital in order to support additional liquidity and investment operations. However, in comparison with smaller financial intermediaries, it might be easier for them to do it, judging by greater variety of investment opportunities.

As seen from the observations of the theoretical part, commercial banking investments into liquid securities carry out a number of crucial functions relating to the matters of the management process. While providing additional sources of income on par with loan operations, strategic investment decisions fulfil an especially significant role when profitability from certain credit policies decreases.

Moreover, commercial banking involvement with securities represents a vital source of liquidity maintenance and stability of the cash-flow at the times of economic downturns, increasing deposit withdrawals or looming financial needs.

Last but definitely not least, investments in various financial securities can help to reduce tax obligations by distributing capital among securities that are not subject to taxation, as well as acquire reliable sources of income for the indemnification of credit risks.

In addition to this, I have also clarified that banks can distribute their capital among various types of financial securities. Apart from the means of careful consideration of various investment decisions (which securities to acquire, sell and hold) and economic factors (ECB interest rates, industrial output, etc.), commercial banking investment departments should also consider a number of essential factors: expected rates of return, tax obligations, interest-rates risk, credit risk, liquidity risk and correlating solvency problems.

Such investment tools, as the yield curve, can help banks identify proper investment opportunities and, what is most important, teach them how to react to various economic tendencies and successfully promote goal achievement.

In addition to everything mentioned above, theoretical frameworks that explain the nature of investment risks in commercial banking have been presented. As it turns out, not all of these risks are really taken into account, at least on an equal level with the other risks. For instance, based on the review of operations of five big financial intermediaries, realization of such investment hazards like

political and business risks has not proved to be as crucial as management of counter-party, market or liquidity risks.

For the sake of objectivity it is important to say that a possible explanation might be traced to the operational environment of described banks, which tends to be more stable than the international one.

To supplement this idea, consider the following example: in spite of general economic recession of the latest years, financial markets in countries like Finland, Norway, Sweden and UK have managed to maintain their stability and, even more than that, improve the financial forecasts for the coming years. With markets like this, the negative effects of political and business risks tend to be more predictable and, therefore, less volatile.

Another interesting observation relates to the fact that most of the observed banks have combined the concepts of interest rate, equity price and foreign exchange risks under the market risk classification. How does such a little detail prove to be useful to us?

The answer is relatively simple – by combining these classifications (and it is surely safe to do so, since the nature of the described risks is identical) I, thus, assume that the same investment risk management strategies and models that were useful for calculation of the market risk would also be applicable here.

For example, VaR and yield curve calculations could be equally used in calculating the risk probabilities of fixed interest rate securities, like bonds, as well as equity price fluctuations.

Basically, the remaining two questions pose the major research objectives that had to be accomplished. Whether I have managed to achieve these goals or not – is totally up to the reader to decide. Instead, it might be wise to try to sum up investment strategies that have been accounted for in the course of the theoretical part and then evaluate them on the basis of relativity to the empirical experience.



As has already been carefully outlined in the previous Chapter, it would be considered immature to propose that investment activities of major financial intermediaries could be adhered or attributed to a particular strategy on its own.

From some points of view, this relatively simple idea is the guiding and founding conclusion of the whole work, as I have been able to identify the complex nature and volatility of financial markets and then conclude that a successful investment strategy would be to take into account all of the above mentioned opportunities. However, it is still possible to make a conclusion as to the frequency and variety of application possibilities of the financial instruments in question.

In order to explore ideas stated in the above paragraph, I should shift attention of the readers to Chapters 6, 7 and 8 of the current work. It becomes obvious that such investment techniques as portfolio diversification and management of short-and long-term investment methods play core roles in the way every commercial bank organizes its funding operations.

Consequently, some types of short-and long-term investment methods are used more often than others. In principle, it is important for every bank to assume a dynamic position in its investment activities, as dynamic management can help to adapt better to the ever-changing social, economic and political environments.

What exactly is called dynamic management strategies? In order to answer this question, let us remember the ladder investment policy as described at the beginning of Chapter 6. Even though the list of benefits corresponding to it is quite high, rarely if never have the readers encountered actions even remotely reminding this strategy.

Instead, what I actually have uncovered, presented a combination of barbell strategy (with shifting focus among short-and long-term investment activities), as well as continuous emphasis on active investment tactics, based on such expectation economic models, like VaR and yield curve.

Even though such methods, along with derivatives trading, could lead to a potentially higher risk exposure, they compensate and balance these aspects by allowing banks to be directly involved in their investment activities and, therefore, not only change a certain part of them when necessary, rather make small additions based on potential expectations.

As to the methods themselves, research results have empirically proven that interest-rate, foreign exchange and credit derivatives are often used as effective methods of hedging against market and counter-party risks, as it was continuously shown on examples of Nordea, Handelsbanken and Danske Bank Group.

However, these concluding thoughts and arguments would not be full without the observation of future regulations and directives that would significantly affect the field of professional banking. While Chapter 7 has only briefly touched upon the concepts of Basel Accords and CRD frameworks, Chapter 8 expanded on these ideas by showing how financial intermediaries could achieve presented requirements.

For instance, the readers have observed that new evaluation models – LCR and NsFR – have been to a great success used by Nordea, Danske Bank Group and Handelsbanken. The resulting influence could be seen in the general direction of their investment operations towards stability in the long term funding sources, as well as restructuring measures in the liquidity capital and other capital reserves, like Tier I capital, in general.

## 9.2 Suggestions for further research

Unfortunately, several obstacles have been encountered in the course of the current work. And, while it is not possible to say that some of them have significantly damaged the outcome of the research, the concluding ideas presented here could be substantially expanded by avoiding these difficulties in the first place.

Partly coming from the fact that the author of the current Thesis has had to continually educate himself in order to make progress in the research, partly due to the fact that better ideas are often encountered at the end of every process when the “bigger” picture is more evident – several parts of the research could be done in a completely different way.

Firstly, if presented with an opportunity to reorganize the structural composition of the work, the author would prefer inductive approach to deductive and, thus, shift the focus from theoretical concepts to empirical research, which proved to be much more engaging than a simple observation of existing frameworks. While it would require creating an additional research process to satisfy those needs, it would as well allow delving deeper into the way commercial banks handle their business operations.

Secondly, at the time when the work was finalized<sup>17</sup>, some of the newly published annual financial statistical data of observed commercial banks has not yet been published. Therefore, annual reports covering 2011 had to be applied and, thus, certain numbers could slightly change for Osuuspankki and Handelsbanken (reviews of Nordea’s and Danske Bank Group’s operations are actually based on the information for 2012).

Moreover, for the sake of maintaining the integrity of the research paper, while covering the upcoming regulation frameworks the focus of the research has been centred only on the two major ones – Basel III and CRD IV. However, additional directives are also coming into force and a more detailed analysis of the empirical part would definitely require reviewing them – Solvency II, new recovery and resolution procedures and, to a lesser extent, changes in accounting regulations (IFRS) (Nordea’s Risk management report 2011, p. 72).

Additionally, according to Bloomberg’s financial analysts, new taxation legislation targeted at derivative trading is scheduled (or at least planned) to come into force in the nearest future (Bloomberg on “EU transaction tax plan”, 2012).

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<sup>17</sup> 10.02.13

In principle, this information could be interpreted in several ways: such tax could potentially restrict or lower derivatives trading in certain regions serving in this case as a risk management policy from EU authorities, as derivative trading is a volatile transaction; on the other hand, if the tax rate is not high enough, it could simply decrease the amount of unnecessary and superfluous derivatives in circulation on the market.

In this case, a logical question to ask would be – why were all of these facts not included in the original research? The answer is plain and simple: most of these facts have been uncovered as a result of research itself and at the end of research, when the whole structure had been finalised and the text written.

Thus, it would take the author considerably more pages and, what is most important, – time to intersperse all of these newly discovered information into the original structure of the research paper. With that being sad, the initial research objectives have fully been reached and it is up to further works in this field to fill up the gaps.

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## **APPENDIX 1. Related concepts and terminology**

Arbitrage – is a commercial activity intended to realize a profit from advantageous exploitation of a price difference on various securities in separate markets.

Often seen as “traffic in securities”, this complex speculative transaction could be represented by trade between several domestic markets or as a commercial exchange of securities among domestic and foreign markets (Hiriyappa, 2008, p.118).

Banker's Acceptance – is one of short-term credit instruments available in financial markets. A banker's acceptance is essentially a commercial bank's guarantee to pay a specified amount of money on behalf of a client.

Basically, financial intermediary undertakes the responsibility to provide the payment to the beneficiary of the acceptance (current holder) under agreed conditions (Casu, Girardone and Molyneux, 2006, p.470).

Bond – “A bond, also called a fixed-income security, is a security issued by a corporation or government that promises to pay the buyer predetermined amounts of money at certain times in the future” (Ball, 2011, p. 2).

Capital buffer – consists of liquid funds that exceed the point of minimum required capital in order to cover possible financial losses and risks (Casu, Girardone and Molyneux, 2006, p. 228).

Capital adequacy – according to capital adequacy standard, Tier I capital of any commercial bank should be equal to or greater than at least 8% of the bank's assets. To put it in other words, this measure serves as an important indication of stability of a certain financial intermediary (Casu, Girardone and Molyneux, 2006, p.181).

Certificates of deposit (CD) – generally serve as a confirmation of deposit transaction issued by a bank. CDs allow holders to receive interest payments

throughout maturity period in accordance with agreed terms (Casu, Girardone and Molyneux, 2011, p. 473; Ball, 2011, p. 44-45).

Collateralized debt obligation (CDO) – is a financial instrument that comprises such assets, like corporate issued bonds, CDS and is usually considered a part of asset portfolios of commercial banks, offering various yield rates, risk exposures and maturity dates (Casu, Girardone and Molyneux, 2006, p. 474).

Commercial Papers – are short-term financial securities (for instance, bonds with a maturity period of less than one year) that oblige the issuer to repay a borrowed principle, as well as interest accumulated over the maturity period (Ball, 2011, p. 3; Casu, Girardone and Molyneux, 2006, p. 474).

Comprehensive risk measure (CRM) – is a way to measure all possible variations of credit risk exposures that are subject to a certain investment portfolio (Nordea's Annual Risk Management Report, 2011, p. 44).

Core fund – is a type of a mutual fund primarily focused on portfolio diversification and stability (Danske Bank's Annual Financial Report 2012, p. 78).

Correlation – introduced as an important strategical aspect of every investment portfolio, the correlation coefficient is an integral part of every risk management strategy (Casu, Girardone and Molyneux, 2006, p. 462-463).

In finance the concept of correlation explores the way various securities relate to each other in accordance to their maturity periods, geographic regions of issuance and yield terms.

Covered bond – is a type of a “compromise” financial instrument in terms of rate of returns and risk exposure. Covered bonds are usually represented by bonds that are backed by collateral, such as a loan of any kind ([investopedia.com](http://investopedia.com)).

Credit default SWAPS (CDS) – are often seen as a perfect example of credit derivative instruments held for hedging against credit risk.

In principle, CDS introduce a third party into the standard creditor-debtor relations. While the third party receives interest payments from the lender, it secures the loan payment by promising to reimburse the lender in case of debtor's default. Interestingly enough, the market for CDS is considered to be much more liquid than that of the debt itself (Casu, Girardone and Molyneux, 2006, p. 256; [investopedia.com](http://investopedia.com)).

Credit derivatives – are derivative instruments that could be traded or held in order to hedge against possible credit risks. The mechanism of a credit derivative is often concerned with a transfer of credit risk exposure to a third party (Casu, Girardone and Molyneux, 2006, p. 100).

Credit value adjustment (CVA) – is the evaluation technique commonly used for measurement of a credit risk exposure of an investment portfolio. In other words, CVA represents the market merit of a credit risk, according to which the price of a certain security could be adjusted (Basel III handbook, p.9).

Currency SWAP – an exchange agreement to trade cash flows correlating to certain financial instruments evaluated in different currencies that allows investor to get access to foreign currency under specified terms (Casu, Girardone and Molyneux, 2006, p. 67).

Default (Insolvency) – Inability of the borrower to return the acquired amount of money (Hiriyappa, 2008, p. 162).

Demand Deposit – funds contributed to a special deposit account that allows withdrawing money at any given time without prior notice (Machiraju, 2008, p. 329).

Derivatives – represent contracts and corresponding financial obligations that often revolve around commercial transactions (sales or purchases) with various financial instruments or assets (shares, precious metals, etc.).

The explanation behind the term “derivative” could be traced to the fact that acquired profit is closely related to the market prices of underlying financial assets, therefore, the profits are “derived” from other assets.

In the course of current thesis work I am going to focus on most common types of derivatives, commonly known as futures, forwards, options and swaps (Ball, 2011, p. 146-147; Casu, Girardone and Molyneux, 2006, p. 230).

Dispersion – is the concept that deals with the possible range of values expected from a certain variable. When considered in financial terms, dispersion usually serves as a “measure of the degree of uncertainty, and thus risk, associated with a particular security or investment portfolio” ([investopedia.com](http://investopedia.com)).

Equity derivatives – are financial instruments that solely focus on shares and corresponding equity operations, allowing investors to hedge against losses incurring as a result of unexpected changes in share prices.

Options contracts are typically considered to be an effective example of equity derivative instruments that could protect investor by giving him the right to buy/sell an agreed amount of shares at an agreed price ([investopedia.com](http://investopedia.com)).

Equity Shares (US - Common Stock) – are securities legally certifying a partial ownership of a company and endowing the holders with corresponding management rights.

Occasionally, such rights would include: voting rights concerning the membership in the management board of the company, a right to receive a certain amount of money as dividend payments based on the profitability figures, etc. (Howells and Bain, 2005, p. 345; Casu, Girardone and Molyneux, 2006, p. 490).

Foreign-exchange derivatives – are derivative instruments that focus on hedging against foreign-exchange risks, for instance: currency SWAPS, futures and forwards contracts.

Hedging – is the principle mechanism that could be compared to simple insurance procedures allowing investors to limit their exposure to certain risks (market risk, interest rate risk).

However, financial hedging is gradually becoming more and more complicated: in order to offset negative impacts of certain risks, investors should try to discover balancing ways to correlate their investments with each other, for instance: losing money on one investment would not be as devastating if there was additional profit from a second investment (a hedge) that could offset the financial damage (Casu, Girardone and Molyneux, 2006, p. 483; [investopedia.com](http://investopedia.com)).

Hedging instruments – As has just been mentioned, certain hedging instruments are often used in financial markets to cover potential losses or limit exposure to certain risks.

Such derivatives, like futures and options, are commonly considered as proper hedging instruments that could be successfully used to mitigate any concurring losses.

Consider an example: a bank would be using hedging instruments by offsetting the outcomes of a certain deal by adhering to an opposite strategy. That is, changing long position (buying and holding onto a financial instrument) into short (selling a financial instrument) and vice versa (Casu, Girardone and Molyneux, 2006, p.).

Incremental risk measure (IRM) – introduces techniques for evaluation of counter-party risks connected with default possibilities of corporate securities and credit derivative issuers over a one year period (Nordea's Annual Risk Management Report, 2011, p. 44).

Interest-rate derivatives – financial instruments targeted at minimizing negative effects of interest-rate risk exposure by using futures, SWAPS and bond options.

Interest-rate SWAPS (IRS) – as the name suggests, under an interest rate SWAP agreement investors decide to exchange interest payments correlating to a certain principle over a specified period of time.

Some of the benefits of IRS are constituted by the fact that it not only allows investors to significantly limit their exposure to unexpected changes in interest rates, but to get additional access to a different interest rate value, based on the investor's preference (Casu, Girardone and Molyneux, 2006, p. 67).

Leverage – allows increasing the profit margin of an investment by resorting to such financial instruments, as derivatives ([investopedia.com](http://investopedia.com)).

Liquidity – the notion of liquidity is a blend of several concepts. On a general and most basic level, liquidity is simply a measure of whether a business entity can sustain its financial obligations.

However, if I were to look deeper, liquidity would also serve as an important financial characteristic that indicates the speed with which a certain financial asset could be exchanged for cash under standard market conditions (Casu, Girardone and Molyneux, 2006, p. 486).

Liquid asset – “an asset that can easily be turned into cash at short notice” (Casu, Girardone and Molyneux, 2006, p. 486).

Liquidity coverage ratio (LCR) – a crucial part of the upcoming CRD and Basel regulations, LCR helps to identify required amount of liquid assets that could be used to overcome shortenings in liquidity position in the nearest future (Basel III handbook, p. 9).

Listed securities – securities listed (quoted) at a stock exchange.

Mutual Fund – is a financial entity that combines the funds of various investors into a money pool that could be later used in order to acquire a wide range of various securities.

Benefits of mutual funds include a limited risk exposure (since the risks are distributed among the investors) and greater possibilities for diversification of the investment portfolios (Casu, Girardone and Molyneux, 2006, p. 397).

Net Stable funding ratio (NsFR) – an integral part of upcoming Basel III regulation that is aimed at encouraging financial stability of the banking sector in

the long run by promoting bank's investments into more reliable sources of capital. Together, NsFR and LCR comprise a new Global Liquidity Standard introduced by the Basel III regulation (Basel III handbook, p. 9).

Netting agreement – is a type of agreement used to consolidate payments on all derivative transactions between two parties into one. In principle, it means that investor A that has to make 10 derivative payments to investor B, could actually summarize these payments (therefore, netting profits and losses) into just one transaction.

Netting agreements are often used as an efficient way of hedging against counter-party credit risk when dealing with derivative contracts, as both of the parties subject to the agreement have to make all the payments even in the case of bankruptcy ([investopedia.com](http://investopedia.com)).

Potential future exposure (PFE) – being one of the techniques used to evaluate exposure to counter-party or default risk, PFE is an effective way to establish the probability of encountering a credit risk in a certain investment method (Wikipedia on "PFE").

Preference Shares – also known as preferred stock (US), give their holders an advantage of fixed dividends and dividend payment priorities (Casu, Girardone and Molyneux, 2006, p. 491).

Risk-weighted assets (RWA) – the concept of RWA focuses on the idea that establishing the level of required capital reserves of a particular bank should be a dynamic process, implemented in accordance with the amount of assets in bank's portfolio that are subject to a particular risk.

In other words, necessary capital buffers are allocated to support every financial asset on the basis of its potential risk exposure ([investopedia.com](http://investopedia.com)).

Securities – are mostly known as a legal "claim on some future flow of income", for instance, shares, bills and bonds (Ball, 2011, p. 2).



Securitization – is a process through which investors can combine various securities and financial instruments in order to create new ones. Basically, it allows combining securities in an investment pool, parts of which could later serve and be traded as separate financial instruments.

The bonuses of securitization result from its ability to minimize exposure to certain risks (e.g. market risk) and the high liquidity value that newly created financial instruments bring to the market ([investopedia.com](http://investopedia.com)).

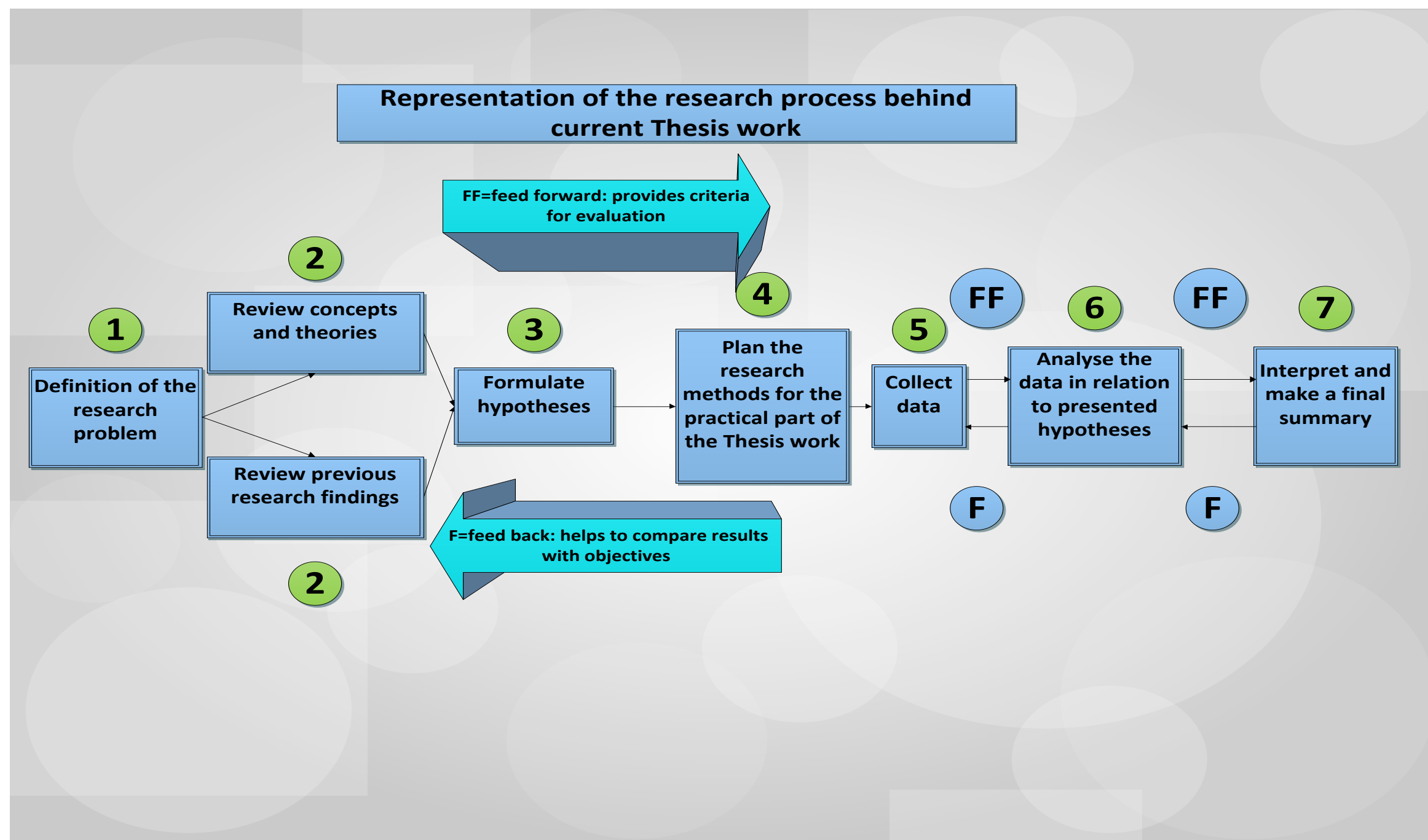
Solidity – is in a way a synonym to the concept of capital adequacy, as it accounts to the amount of equity funds in relation to bank's assets. The main difference being the fact that solidity indicates the amount to which bank's equity capital finances its assets ([investopedia.com](http://investopedia.com)).

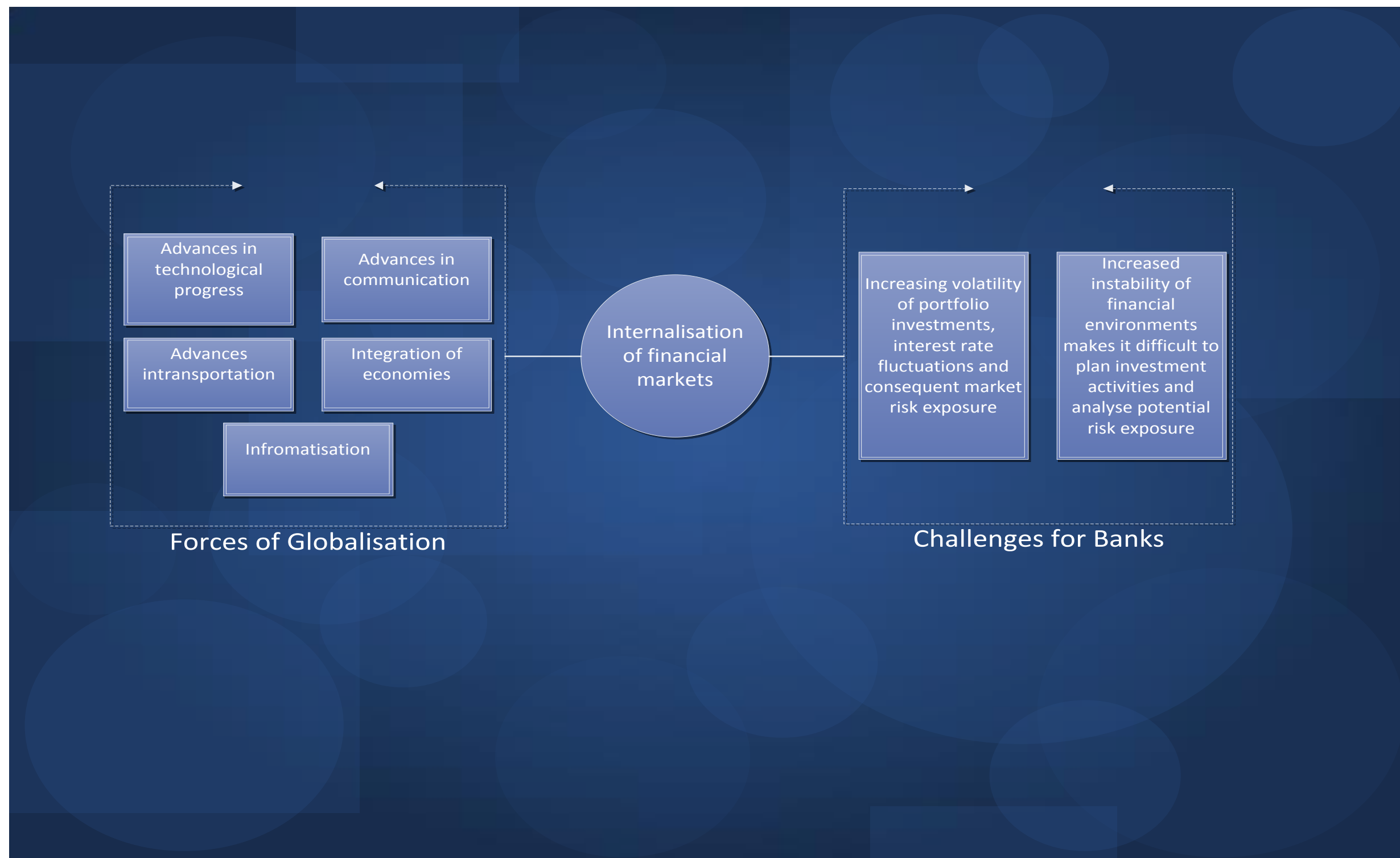
Stress testing – a method that allows estimating probable negative effects of a certain phenomenon under extreme conditions on a portfolio of assets ([investopedia.com](http://investopedia.com)).

Unlisted securities – are securities that are commonly traded through the OTC market and not the stock exchanges.

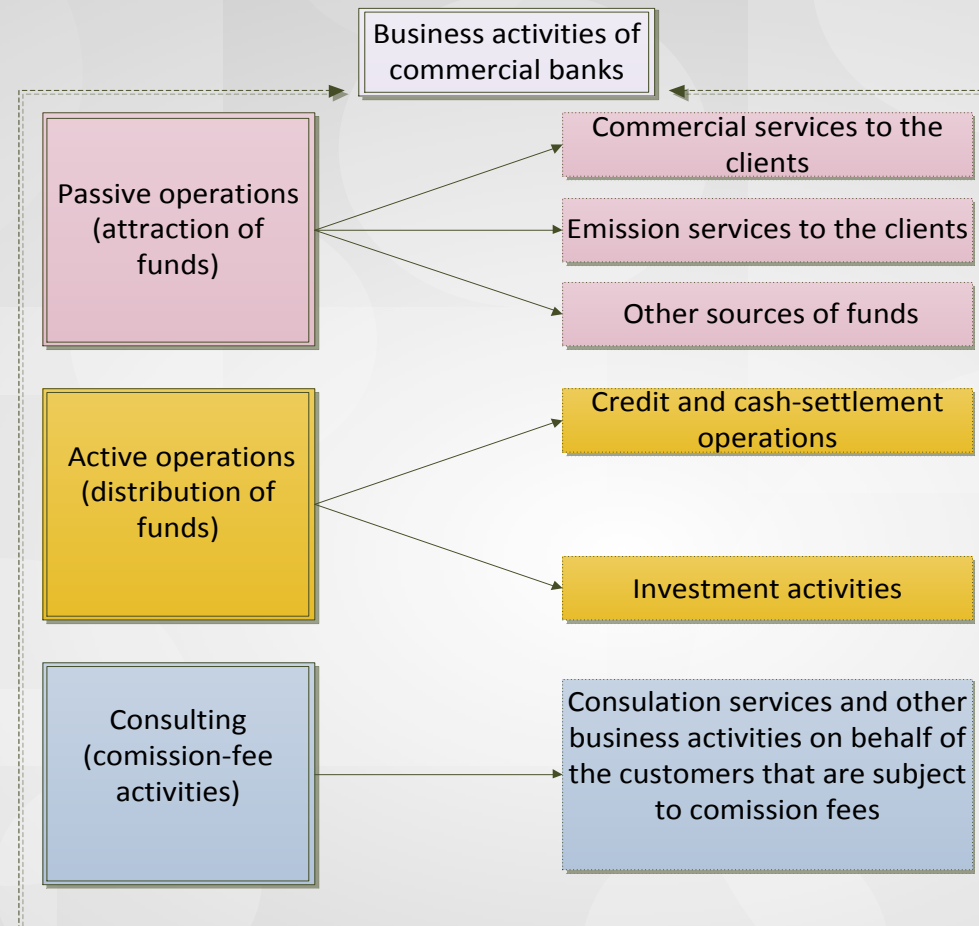
Unrealised loss – is a loss resulting from a price devaluation of a particular financial instrument that investor does not immediately sell, rather decides to withhold for a certain time period, hoping that the price will change again – in his favour.

## APPENDIX 2. Graphical Representation of the Research Process



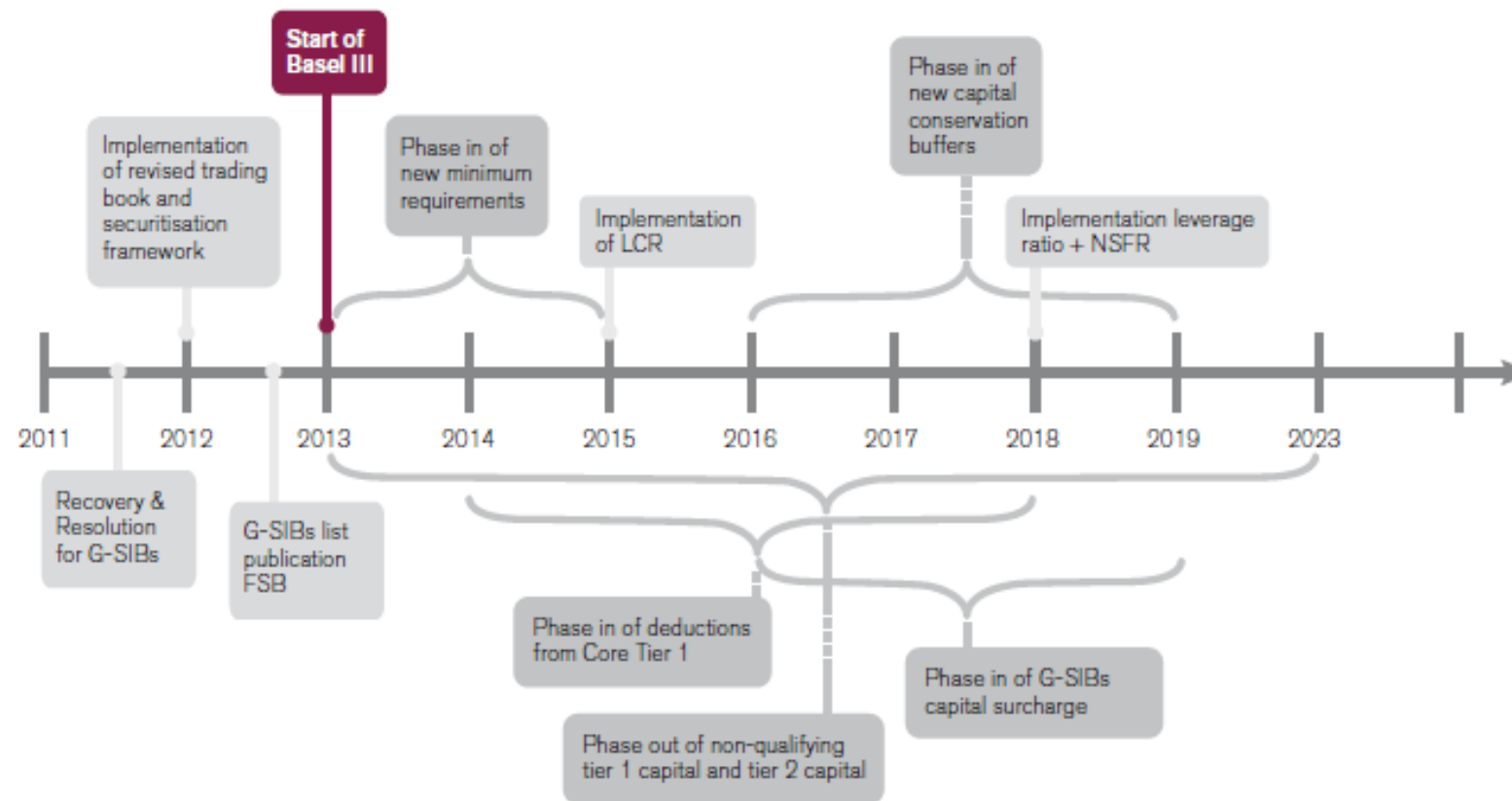
**APPENDIX 3. Forces of globalization and their effects on commercial banks**

**APPENDIX 4. Business operations of commercial banks**

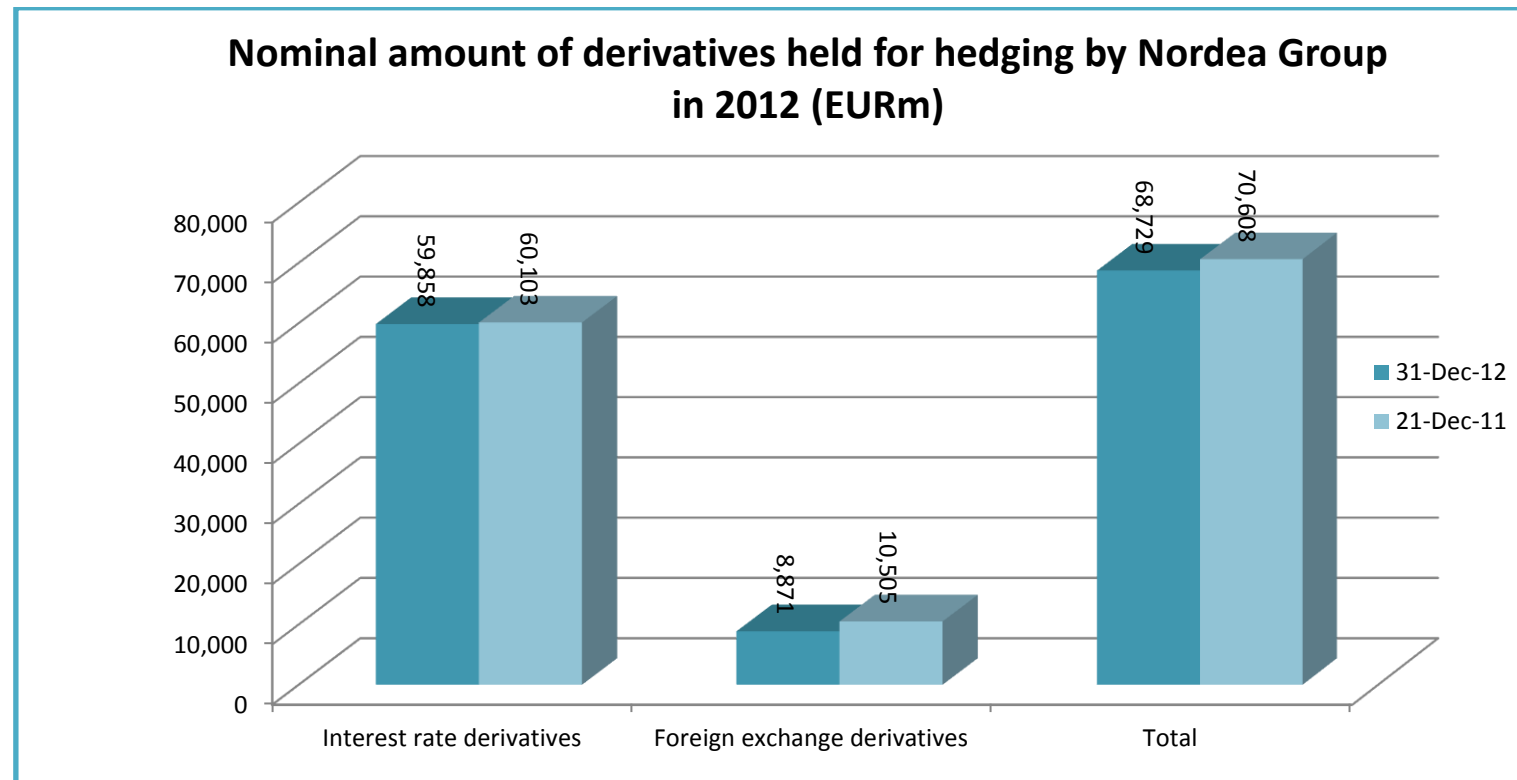
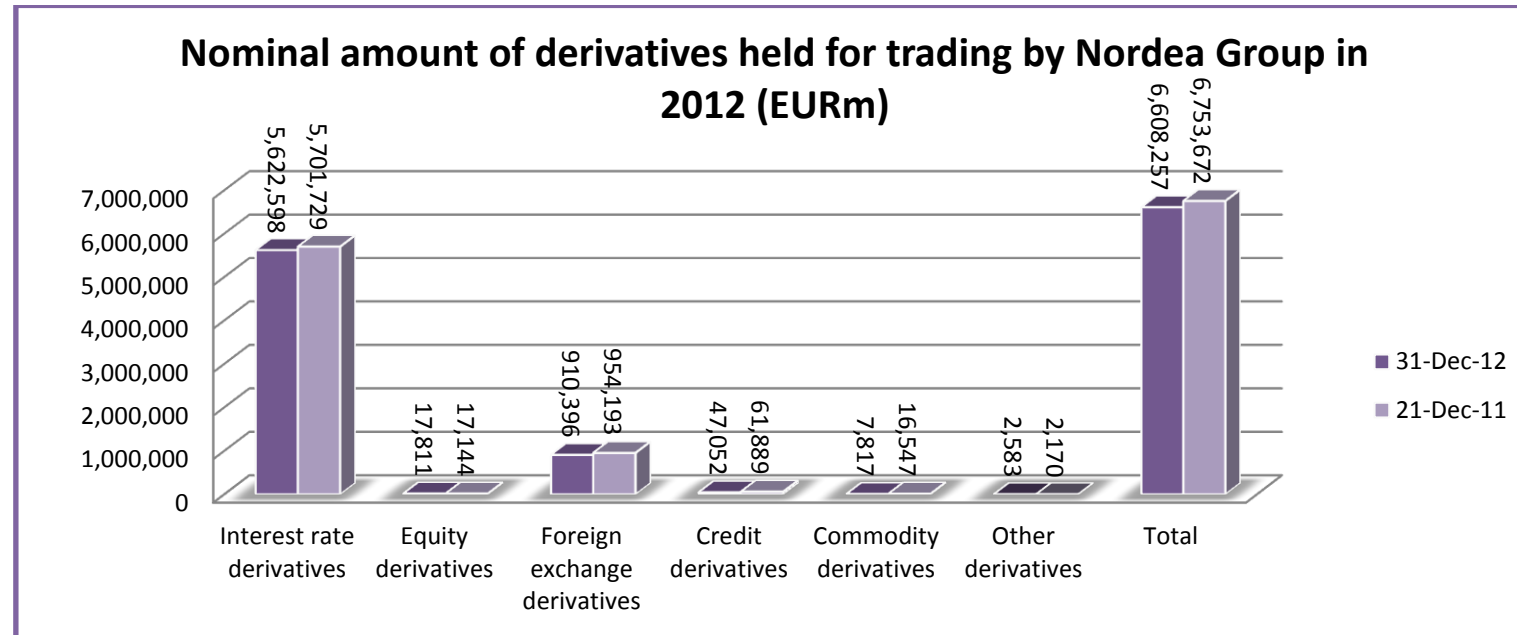


General structure of commercial bank's operations

**APPENDIX 5. Overview of BASEL III implementation and transition agreements**



**APPENDIX 6. Nominal amounts of derivatives instruments held for trading and hedging by the Nordea Group**



## Appendix 7. Sensitivity of investment risks and their effects on shareholder's equity

The table below shows the sensitivity of investment risks and their effect of on shareholders' equity:

Non-life Insurance	Risk parameter	Change	Effect on shareholders' equity, € million	
			31 Dec 2011	31 Dec 2010
Bonds and bond funds 1)	Interest rate	1 pp	84	92
Equities 2)	Market value	20 pps	70	83
Private equity funds and unquoted equities	Market value	20 pps	19	16
Commodities	Market value	20 pps	0	5
Real property	Market value	10 pps	25	21
Currency	Value of currency	20 pps	39	48
Credit risk premium 3)	Credit spread	0.5 pps	42	47
Derivatives 4)	Volatility	10 pps	4	0

1) Include money-market investments, convertible bonds and interest-rate derivatives

2) Include hedge funds and equity derivatives

3) Includes bonds and money-market investments, including government bonds and interest-rate derivatives issued by developed countries

4) 20 percentage points in equity derivatives, 10 percentage points in interest rate derivatives and 5 percentage points in currency derivatives

## APPENDIX 8. Concluding summary of the empirical research

Investment Risks	Liedon Säästöpankki	Nordea Bank	Osuuspankki	Danske Bank	Handelsbanken
Commonly used investment methods	Corporate mutual bonds with rating BBB- or higher	Money market instruments; short-and long-term bonds; fund investments; derivative contracts.	Bonds and bond funds; equity market operations; money market instruments; fund investments	Bonds, derivative instruments,	Short-and long-term financial securities
Most crucial investment risks (listed in order of importance)	Low-interest rate, market and liquidity risks	Counter-party (and concentration), market, liquidity risks	Market, counter-party, liquidity risks	Market, counter-party and liquidity risks.	Counter-party, market (interest rate, equity) and liquidity risks
Market risks (interest rate, equity price and foreign-exchange risks)	Hedging with options, futures and SWAPS.	Protective measures based on VaR, IRM and CRM calculations	Interest-rate derivatives; equity derivatives (options, futures); VaR calculations	Core funds, derivatives; interest rate SWAPS/forwards; VaR models	Exposure limits; VaR and yield curve; capital buffers; interest rate SWAPS
Counter-party credit risk	Is not recognized	Portfolio diversification, credit derivatives, interest rate SWAPS, CVA, PFE, RWA	Investing in securities with higher credit rating; credit derivatives	Investing into high credit rating securities	PFE calculations; capital buffers; exposure limits; Netting agreements
Liquidity risk	Prediction of interest-rates, unemployment, inflation, customer demand.	Combining short-and long-term financial instruments; stress testing; LCR calculations	Management of liquidity buffer and short-term investment instruments; setting limits to liquidity risk exposure	LCR liquidity buffer; monitoring short-and long-term liquidity risks; stress tests	Stable long-term investment orientations
General investment strategy	Focuses on stability, with profitability being on the second place	Barbell strategy	Long-term (and, therefore, profit) oriented investment strategy	Long-term oriented investment strategy	Barbell strategy
Reaction to the upcoming regulation of the banking sector	—	Liquidity buffer construction with the LCR model; stable long-term sources of funding (NsFR); structural reorganizations for risk management	—	Achieving compliance with the basic LCR requirements by restructuring the liquidity buffer: highly liquid CB bonds	Structural reorganizations for risk management; focus on stability in long run (NsFR); new pricing structure for liquidity buffers