



**How Banks in Palestine manage financial risk?**

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**The Graduate Faculty  
Birzeit University  
Palestine  
June 2005**



**Faculty of Graduate Studies: MBA Program**

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## ABSTRACT

Financial Risk Management, in its broad sense is a theoretical methodology that is developed to assist banks to forecast potential financial risks and build in the precautionary measures that would allow banks to quantify and qualify the risks and build in inherent mechanisms to allow the banks to cope, in the eventuality of such risks take place altogether.

The paper at hand attempts at identifying the mechanisms and procedures that Palestinian Banks have structures to allow them to cope with such risks as generally apply to any banking entity, with a variety in intensity of one risk compared to other and from one bank to another, depending on the political environment and the bank trading involvements.

By introducing the important concepts in risk management and giving a broad overview of the field of financial risk management, the paper sets the scale for two basic objectives:

1. Measuring first the extent of Palestinian Banks familiarization with the issues of financial risks and if they apply to the Palestinian Banks.
2. Familiarise with the proven measures, management mechanics and procedures built in the banking management systems and the extent of use to benefit the risk management efforts.

Risk types and risk management technique in the areas of credit risk (long and short term), market risk, interest rate risk, retail and liquidity risk and foreign exchange risk are items of financial risks that are addressed in the paper in relation to the targeted banks mode of attendance to.

The methodology adopted for achieving the targeted objectives heavily relied on field investigation through reciprocal interviews with a cross sectional representation of the various operating banks in the Palestine. To obtain accurate data as can be achieved a predetermined questionnaire is put to use. Various aspects of the questionnaire addressed various risk issues. The responses gave the level of attendance built in the banks systems of management.

The study shows that the banks in Palestine are lacking and have poor risk management system for monitoring, measuring, and mitigating risks. There's no department responsible to identify, monitor, control financial risks. The banks did not have internal guidelines, rules and concrete procedures. The study identifies that the banks established a relatively good risk management process related to credit department such as loans approval, limited to individuals. The study identify that bank management has a responsibility for forecasting and quantifying risks and report such forecasts in their periodical reports. The periodical major reports produced by banks touch on credit risk report, liquidity report and foreign exchange.

The survey shows that banks in Palestine lack instrument for managing risk faced, but it identifies certain control system by the internal auditors. This is achieved by review, verification and validation of, contingency plans against loan risks defaults. There is a total lack of separation of duties yet banks have clear data back –up and files under good use and control.

*Keywords:* risk management, credit risk, market risk, interest rate risk, liquidity risk and foreign exchange risk, management procedures, financial policies

## ملخص

هذه الدراسة تبحث في التعريف بمنهجية ادارات البنوك الفلسطينية للمخاطر المالية المرتبطة بالأعمال المصرفية ، والتي تولدت نتيجة طبيعة العمل المصرفي ونتيجة تعدد العوامل والتأثيرات المعاكسة وأهمها الظروف السياسية - الاقتصادية في ظل تطورات تكنولوجيا المعلومات وفي سرعة نقلها وإمكانية الاستفادة منها.

لتحقيق ما سبق فقد تضمن البحث التعريف بالأسس والمرجعية النظرية التي تحدد المفاهيم العامة لإدارة المخاطر المالية لدى البنوك. حيث بينت الدراسة أنواع المخاطر المالية المرتبطة بطبيعة العمل المصرفي ومناهج معالجتها. لقد تم التركيز على مخاطر الإقراض في ظل الظروف السياسية والاقتصادية الغير مستقرة بسبب الظروف السياسية - الاقتصادية في فلسطين، وأهمها الارتباط الواقع والمفروض على الأقتصاد الفلسطيني بالأقتصاد الإسرائيلي مع ما يلازمه من تضارب مصالح يتحمل فيه الطرف الفلسطيني سلبياته.

تناولت الدراسة المفهوم العام لإدارة المخاطر ، الحاجة الى ادارة المخاطر ، انواع المخاطر وسوف يتم التركيز على المخاطر الرئيسية التي تواجهها المصارف وهي المخاطر الائتمانية ، مخاطر السوق ، مخاطر اسعار الفائدة ، مخاطر السيولة و مخاطر تقلبات اسعار الصرف.

وللتعرف الوافي لمدى ادراك البنوك للمخاطر المالية واعتمادها للمنهجيات الإدارية لتجنب اثارها السلبية، اعتمدت الاستبانة كوسيلة لجمع البيانات، واستطلاع مواقف عن الدراسة بخصوص المخاطر المالية واساليب ادارتها. تم تصميم الاستبيان من خلال وضع مجموعة من الأسئلة وتبويب الإجابة في احدى الخانات الخاصة بالإجابة. تمت عملية المسح من خلال مقابلات مباشرة مع مختلف الإدارات صاحبة القرار في مختلف البنوك. وتمت مراجعة الأدبيات الخاصة بالمخاطر المالية وخاصة توصيات لجنة بازل لاهداف الدراسة.

اظهرت نتائج الدراسة ان البنوك العاملة في فلسطين تفتقر الى وجود منهجيات محددة او اجهزة ادارية متخصصة لإدارة المخاطر عموما والمخاطر المالية خاصة. وقد بينت الدراسة ان البنوك العاملة في فلسطين تعتمد سياسات وإجراءات محددة في عملية منح الائتمانات من حيث انها تتم بشكل موضوعي وعلى اسس من المعايير مثل تحديد سقف المسموح به ، التحوط ضد خسائر القروض وغيرها . حيث انها تعتمد معايير كفاية رأس المال تبعا لمتطلبات لجنة بازل ، وقد اكدت الدراسة ان البنوك تقوم برفع التقارير المتعلقة بالمخاطر وخاصة تقارير الائتمان ، السيولة واسعار الصرف بشكل دوري الى الادارة العليا .

ولكن الدراسة ايضا اوضحت ان البنوك العاملة في فلسطين تفتقر الى الادوات لمواجهة المخاطر المالية التي تواجهها. اما على صعيد الضوابط والرقابة الداخلية اظهرت الدراسة انه يتوفر نظام رقابي جيد يعتمد الرقابة الداخلية كاساس للضبط حيث ان ذلك يتم من خلال المراجعة الداخلية او الخارجية للحسابات ، وايضا خطة طوارئ ولكنها اظهرت بانه لا يوجد فصل كافي في المهام ، و ان البنوك تحتفظ بسجلات للبيانات.

# I

## INTRODUCTION

### 1.1 Overview:

The globalization of world economy has opened the financial markets for foreign capital flows. This term has exposed these markets to more volatility (risk), and more instruments of uncertainty are being developed. These instruments differ by each financial sector (banking, insurance, securities broker), as how they address key risks as well as how marketplace and the firms themselves seek to assess the quality of their risk management.

In an increasingly complex and interdependent world of financial markets and products, as well as in the context of new regulatory requirements (Basel II), efficient risk control and management is a crucial element which can determine the fate of a bank.

In discussing risk management techniques, the major focus in this assignment is on the key risks facing the banking sector and how to manage risks. As we know banking, by its nature, entails taking a wide array of risks. Today, banks financial risk management is one of the most important key functions in banking operations. **Bank supervisors need to understand the business of banking and have a working knowledge of the fundamental variables that affect the financial management process within the bank and to understand the risks and be satisfied that banks are adequately measuring and managing them.**



However, to provide financial services at low risk, conventional financial institutions have developed different contracts, processes, instruments and institutions to mitigate risk.

Palestine, being in its predominant political environment, is forced to be part of the larger Israeli economy. By signing the Paris Protocol (PP) in the year 1994 – formalized the Palestinian Israeli economic relationship. This protocol granted the Palestinian Authority (PA) a degree of administrative autonomy over the Palestinian Territories.

This Protocol deferred the declaration of a national currency and established the NIS, JD and US\$ as the legal currencies of Palestine. All the effects resulting from the uncertainty in the political environment and the multi currency utilization exacerbated (made worse) the hardships of the Palestinian banks in capital regulating and risk management in banking operations.

## **1.2 Study Objectives**

Due to the unprecedented developments in the areas of computing, information and mathematical finance, the financial services markets have become extremely complex.

*This study aims to accomplish the following objectives:*

- ◆ Determine type of financial risk banks face and which risks are more significant for banks especially in the Palestinian territories.
- ◆ Determine and assess if the banks operating in Palestine properly identify, consider and deal with financial risk in policy decisions they make.

- ◆ Determine how the management at banks measures and manage financial risks.

### **1.3 Study Questions**

Given this complexity, dynamism and transformation in the financial sector, there are several questions that can be related to subject matter

1. To what extent banks in Palestine recognize the issue of financial risk they face (encounter)?
2. What are the policies and procedures applied by banks in managing risk?
3. Are the banks considering financial risk when they make any decision?
4. What types of techniques are there for measuring, monitoring and controlling risks?

### **1.4 Importance of the Study**

“A year from now is going to be somewhat different from today, and one hundred years from now will be very different indeed. If each tomorrow would be exactly like each today, there would be no need for the study of risk and the practice of risk management.”(David McNamee, 1995, p.1).

Today's, risk management is a critical issue for the financial institution particularly in banking sector .The business of banking and finance has changed dramatically especially in the last decade in the face of deregulation, rapid advances in information and communications technology, and constant innovation

in financial technology. These have greatly expanded the opportunities, not only for financial institutions but for economies as a whole.

Managing risk is actually managing the organization: **planning, organizing, directing, and controlling organization, systems and resources to achieve objectives.** Managing risk must come from within and act to change the organization and its response to changes in the environment. Rather than try to guess what risks that will affect the organization, the organization should build in certain mechanisms to improve its ability to respond to change.

### 1.5 Terms Definition

*Risk:* The chance that an investment's actual return will be different than expected. This includes the possibility of losing some or all of the original investment. It is usually measured using the historical returns or average returns for a specific investment.

*Financial risk management*<sup>1</sup>: can be defined as a practice by which a firm optimizes the manner in which it takes financial risk.

*Basel II:* The New Accord on Banking Sector's Capital Requirements.

Basel 2<sup>2</sup> is a set of regulations for risk management that is due to come into force in 2006 Its application will have implications on IT Security due to the stringent requirements imposed on systems handling sensitive data, particularly in the banking industry.

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<sup>1</sup> [www.riskglossary.com/articles/risk\\_management.htm](http://www.riskglossary.com/articles/risk_management.htm)

<sup>2</sup> [www.business.cisco.com/glossary/tree.tafasset\\_id](http://www.business.cisco.com/glossary/tree.tafasset_id).

### **1.6 Outline of the study:**

The thesis is divided into two parts: the first part describes the theoretical results about financial risk and the second part deals with case assessment (banks in Palestine). The purpose is to review the theory about financial risk management and compare it with what is practiced within the Palestinian banks.

- ◆ Chapter 2 discusses the basic concepts of risk and their management as practiced in the conventional financial sector by giving a brief overview of how this process is viewed in theory. It is organized as follows:
  1. Palestine context
  2. Overview of new Basel accord which focuses on how banks need to create a risk management environment.
  3. Define risk management and describe the three main steps of the risk management process (identify, measure and manage).
  4. Define financial risk management and focuses on credit risk, market risk, interest rate risk, liquidity risk and foreign exchange risk. Provides details of the various processes (instrument) to manage different risks.
- ◆ chapter 3 , presents research methodology
- ◆ Chapter 4, reports on field surveys and findings in Palestine banks.
- ◆ Chapter 5 concludes conclusions of the study.

# II

## LITERATURE REVIEW

### **Introduction**

This chapter presents a review of literature related to the theme of the study, first part introduces an overview of Palestine and also introduces overall review of New Basel Accord , the second part introduce the basic concepts and issues related to risk management, after define and identify risk management, why risk management need, then outline background about risk management model and discuss the core principle of the risk management system for banking sector, while the third part presents the basic concepts of financial risk - and risk types, after defining and identifying different risks presents the main elements of the management and treatment for specific risks (credit, market, interest rate, liquidity, and foreign exchange risk).

### **2.1 Palestinian Context**

The Palestinian economy has been closely integrated with the larger and richer Israel's economy, since the year 1967 Israeli occupation of the Palestinian Territories. Trade between the Palestinian Territories and Israel effectively became internal, reflecting a customs union trade regime, and a large share of the Palestinian labor force was employed by Israeli firms. The result today is a high degree of Palestinian dependence on the Israeli economy: trade volumes with

Israel are very large – 96 percent of Palestinian exports are destined for Israel – and labor flows into the Israeli labor market account for nearly a quarter of total Palestinian employment.

The main activities of the Palestinian economy are shaped by the nature of economic relations with Israel. Palestinian production is largely oriented toward providing inexpensive, low value-added products for Israeli consumption or re-export, and specialization in low-productivity construction and agriculture sector jobs.

The advent of the peace process in the early 1990s and the 1994 signing of the Paris Protocol formalized the Palestinian-Israeli economic relationship between two administratively and physically distinct entities, although considerable overlap remained. The Paris Protocol gave the Palestinians administrative autonomy over the Palestinian Territories in terms of public service delivery, and formalized policies of economic cooperation and integration with Israel relating to the exchange of goods, fiscal policies, currency arrangements, and labor services.

*Economic outcomes post-Oslo Accord.* Despite high expectations for economic normalization and growth following the peace accord and Paris Protocol, economic performance was modest at best, and suffered periods of sharp decline. The deep recession of 1995-1996 was the result of Israeli security measures under which the West Bank and Gaza Strip were effectively cut off from Israel and from each other. The prospects and unpredictability of closures created an environment of uncertainty and risk. This in turn was compounded by extraordinarily high

transactions costs and restrictions on access to alternative markets for import or export under the agreed trade regime. Domestic output and exports declined, private sector investment dried up, and labor flows to Israel were sharply curtailed, all of which contributed to joblessness and rising poverty.

After three years of entirely negative economic performance, the recent data on the Palestinian economy indicates a modest economic recovery. This conclusion is emphasized by the increase in the area of buildings which started in 2003<sup>3</sup> and the steady increase in new employment in both the West Bank and Gaza Strip during 2003<sup>4</sup>. On the other hand, recent data on foreign trade for the same period provides evidence of continued deterioration<sup>5</sup>. Likewise, the latest business confidence survey of April 2004<sup>6</sup> shows that the business community does not expect much positive improvements in sales and investments. These contradicting signals of various indicators reflect the types of difficulties and obstacles which face the Palestinian economy. These are mainly man-made obstacles, with devastating impact on the economy from month to month, and are difficult to predict.

### **The Financial Sector<sup>7</sup>:**

The financial sector witnessed unprecedented growth in both the banking and insurance sectors. The number of banks increased from two banks with 13 branches in 1993 to 22 banks with 133 branches in 2003. Private deposits have

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<sup>3</sup> Palestinian Central Bureau of Statistics, Changes of Building Licenses in Remaining WBGS During 1996 to Fourth Quarter 2003.

<sup>4</sup> Palestinian Central Bureau of Statistics, Labor Force Survey January – March 2004.

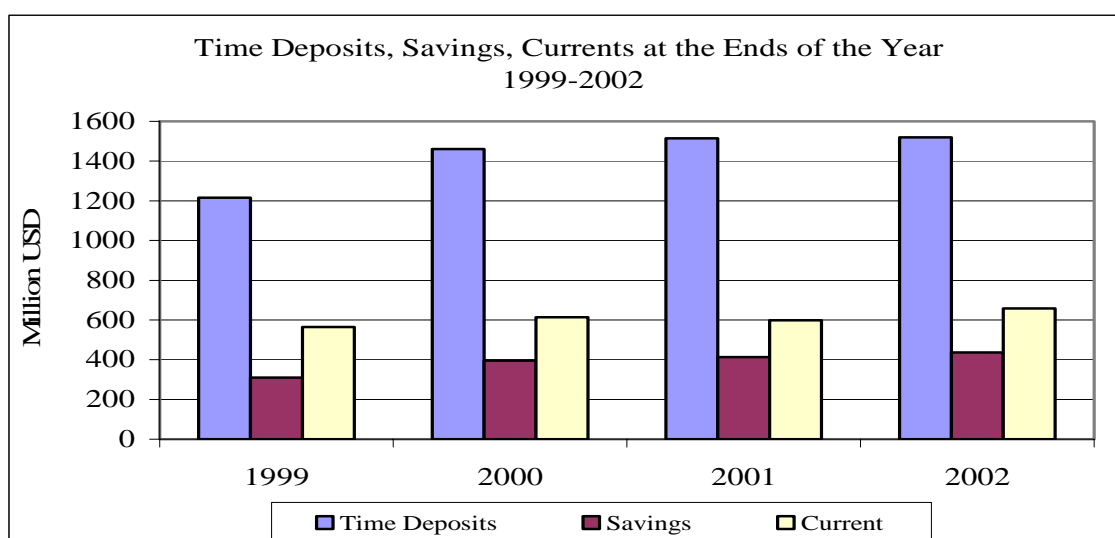
<sup>5</sup> World Bank Report March 2004, West Bank/Gaza Update

<sup>6</sup> Palestinian Central Bureau of Statistics, Survey on the Perception of Owners/ Managers of the Economic Establishments Towards the Economic Conditions, April 2004.

<sup>7</sup> Palestinian investment fund. overview of the Palestinian economy , annual report

grown from less than US \$150 million prior to 1993 to US \$1501 million in December 1996 and to US \$3.506 billion in September 2000. Since then, there has been a slight decline due to the deterioration in the political situation and private deposits totaled US \$3.4 billion in June 2002.

**Figure 2.1**  
**Financial sector 1999-2002**



*Source:* Palestine investment fund annual report 2003

Bank credit to the private sector witnessed steady but slow growth from 1994 to September 2000 but growth then slowed as a result of the deterioration in the investment climate and in all aspects of economic activity. Credit grew from US \$1005.5 million in 1999 to US \$1346 million in 2000, but then started a gradual decline to US \$1221 million in 2001 and US \$950 million in 2002. In 2003, bank credit resumed an upward trend and grew to US \$970 million by June 2003.

Credit extended to the private sector was predominantly overdraft facilities with one year or less maturity (55%), term loans with 3 years or less maturity (45%)



and under 3% discounted bills. The Palestinian economy lacks the provision of long term credit to finance investment.

The number of insurance companies rose from one to nine. Four of these are new Palestinian companies, two Arab, and the others are foreign companies which opened branches in the WBGS. These companies now employ 718 employees and their added value was US \$15 million.

## **2.2 Basel Capital Accord**

### **2.2.1 Background**

The Basel committee on banking supervision is a committee established after 1930 by the bank of international settlements consisting of representative from national banking regulators .It is an international body that formulates policy on best practice in financial regulation.

The 1988 Basel Capital Accord, or Basel 1 (Basel Committee on banking supervision (BCBS) (1988)), which set minimum capital standards for internationally active banks, was really the first international accord of its kind. The purpose of the Basel Capital Accord is: first, promote safety and soundness of the financial system. Second, ensure adequate level of capital in international banking system. Third, enhance competitive equality (level the playing field). It succeeded at raising capital levels at a time when they were quite low. Aside from defining what types of capital were eligible, Basel 1 set a capital ratio at 8% of risk – adjusted assets. It was the risk – adjustment of the assets which become the

focus of concern and current regulatory reform resulting in the new Basel capital accord or Basel 2 (BCBS (2001)).

### **2.2.2 The New Basel Capital Accord: Overview**

The Basel committee on banking supervision is revising the original accord to align the minimum capital requirements more closely with the actual risk faced by banks. The committee recognizes that the new Basel capital accord (BCBS (2001)) is more extensive and complex than the 1988 accord, which results to develop a risk –sensitive framework that contains a range of new options for measuring both credit and operational risk. Compliance with an even more risk sensitive capital ratio is one of the three pillars under the accord, Pillar 1: minimum capital requirement, this pillar is aimed to increase the emphasis on assessments of the credit risk and operational risk throughout financial institutions and across markets. revisions to the new accord also introduce banks internal assessments (subject to supervisory review –pillar 2) of capital adequacy and market discipline (through enhanced transparency – pillar 3) as key components or prudential regulation .Greater disclosure of key elements of risk and capital will provide important information to counterparties and investors who need such information to have an informed view of a banks profile. The new accord outlines two new approaches to assessing credit risk (standardized manner and another approach internal rate based (IRB), there are two variant of the IRB approach, foundation and advanced). While market risk approaches unchanged 1996 amendment (standardized approach, internal model approach). The work on

operational risk is in a development stage, but three different approach of increasing sophistication (basic indicator, standardized, and internal measurement).

The banking industry world wide support the objective of the new capital accord and generally acknowledge the benefit .however, as usual,” the devil is in the detail.”(Arab bank review, vol.3, no.2, Oct (2001)).

In sum, the proposal for the new accord makes change to areas that were already included the accord and another important dimension to regulatory capital requirements –operational risk.

Thus, there are now three areas of risk that are related to minimum capital requirement:

1. Credit risk (which focuses on the original 1988 accord).
2. Market risk of trading activities ( which was introduced in 1996, amendment to the accord )
3. Operational risk implementation and development (new accord (2001)) which will be implement by the end of 2006.

## **2.3 Risk Management**

### **2.3.1 Introduction**

Risk management is more important in the financial sector than in other parts of the economy, it is also more difficult.

To introduce concept of risk management, two of the most relevant definition are:

“Risk management can be described as the performance of activities designed to minimize the negative impact (cost) of uncertainty (risk) regarding possible losses.”(Schmit and Roth, 1990, p.457).

“Risk management is defined as a systematic process for the identification and evaluation of pure loss exposure faced by an organization or an individual, and for the implementation of the most appropriate techniques for treating such exposure.”(Radja, 1997, p.40).

Two main concepts can be extracted from these definitions: uncertainty and process. We live in a world of *uncertainty*, or said in other words, we cannot predict the future with accuracy. uncertainty arises when an individual perceives risk; it pushes him to control or at least to be prepared to the possible outcomes. For this reason a *process* is set in place, which includes three steps: identify measure and manage the risk.

### *Identification*

The first step consists in the identification of sources of risks, in order to identify these sources the risks need to be defined. Definition and identification will be different for each institution. This is due to the fact that risk has always two sides: real and perception risk. The sources of risk can be various: physical environment, social, political, legal, operational or economical which will affect different parts of the firm such as financial and human assets.

### *Measurement*

Once identified, a risk should be measured in order to assess its importance. The emphasis on risk measurement can be related to efforts to manage significant risks

through hedging or holding capital and / or provisions<sup>8</sup> when measuring a risk two concepts are crucial: loss frequency shows how often a loss is expected to occur and loss severity indicates the total amount of loss that a firm could face, both give future expected losses. At this stage, forecasting models are used to predict losses and their influence on the company's earnings and balance sheet.

### *Management*

The third step is to select and implement the appropriate technique to manage risk. Policies and procedures exist to ensure that an independent assessment of risks occurs and that controls are in place to limit the amount of risk that can be taken on by individual business area, and to develop quantitative measures of risk.

### **2.3.2 Risk Management Background and Evolution<sup>9</sup>**

Though business activities have been always exposed to risks, in this section we review some of the key theories and models, and show how they relate to the development of approaches to risk management in banking. However, it is worth making clear at the outset that the theoretical work on risk management is based on many simplifying assumptions, and that the implementation of theoretical work is not always straightforward. Real life is complicated and is composed of many details that models cannot, and maybe should not, accommodate. Instead the role of models is often to simplify complicated structures and to highlight the most important factors. A 'good' financial model is one that helps the analyst

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<sup>8</sup> Risk management practices and regulatory capital see BCBS November (2001)

<sup>9</sup> Crouhy, Galai and Mark (2000, p 22-29)

separate out the major explanatory variables from the noisy background and has predictive power.

- ◆ The foundations of modern risk analysis are contained in *Markowitz's* 1952 paper concerning the principles of portfolio selection. Markowitz showed that a rational investor, i.e., an investor who behaves in a way that is consistent with expected utility maximization, should analyse portfolios based on the mean and on the variance of their rates of return. Markowitz made two additional assumptions: first, that capital markets are perfect, and second that rates of return are normally distributed. Since the utility choices of a consumer can be expressed in terms of two parameters only (mean and variance), portfolios of investments can also be presented for selection according to these two parameters. Note that the two-parameter presentation, while valid for well-diversified portfolios, does not apply to individual securities. A security should be evaluated only in the context of the portfolio of investments to which it belongs, through its contribution to the mean and variance of the portfolio. More specifically, the risk of a single investment should be measured in terms of the co-variability of its rate of return with that of the portfolio. Markowitz's portfolio analysis suggests that the specific risk of a single security (i.e. the elements of its risk profile that it does not share with other investments) should not be measured in terms of its volatility as measured by the variance of the returns. The variance measures the potential dispersion of future rates of return, but this is not a relevant risk measure for a single security. This is

because most of the specific risk due to volatile returns can be diversified away and eliminated at virtually no cost. It follows that the specific risk of a security should not be priced in the marketplace if it can be offset against the returns of other securities.

- ◆ Sharpe (1964) and Lintner (1965) take the portfolio approach one step further by adding the assumption that a risk-free asset exists. They show that financial markets are in equilibrium when all investors hold a combination of a risk-less asset and the market portfolio of all assets in the economy. Therefore, prices of risky assets are determined in such a way that they are included in the market portfolio. They show that in order to be in the market portfolio, a risky asset must be priced according to its relative contribution to total risk of the market portfolio, as measured by the security's beta. Beta is defined as the ratio between the co-variance of the rate of return of the asset and the rate of return of the market portfolio, and the variance of the market portfolio. It measures the systematic risk of the asset, i.e. the risk that cannot be diversified away. Sharpe (1964) and Lintner (1965) proved under certain equilibrium conditions that the expected rate of return for a specific security could be expressed as a function of the risk-free rate, the market return and the beta of the security. This is referred to as the *Capital Asset Pricing Model* (CAPM).
- ◆ The next important development in the analysis of risk occurred in 1973, with the publication of a paper by Black and Scholes (1973) on the pricing of options. The paper makes use of a framework similar to that used by

Markowitz, Sharpe and Lintner, namely, they assume the existence of perfect capital markets and assume that security prices are log-normally distributed. To these they add the assumptions that trading in all securities is continuous and that the distribution of the rates of return is stationary. They then derived the famous Black-Scholes (BS) *option-pricing model (OPM)*.

Of course, developing fundamental theories of risk management and implementing those theories within a business are two very different challenges. There are two prerequisites for any risk management system: first, reliable, broad, and up-to-date data-bases concerning both the bank's transactional positions and the financial rates available in the wider market place; and second, statistical tools and procedures that allow the bank to analyze the data. Global banks and corporations are engaged in many transactions each day, and may carry millions of open positions in their books. All these positions have to be evaluated periodically, usually on a daily basis for international banks, to assess the net risk exposure of the bank. This often means that a bank must bring together data from a multiplicity of systems with different data structures, from all of its branches and businesses worldwide. The data collected must be as accurate as possible, while minimizing omissions. In addition, historical market data for interest rates, foreign exchange rates, commodities, equities, and other associated derivatives must be collected and analyzed in order to estimate volatilities and correlations of major risk factors. The results of these analyses form key inputs into the pricing models used to assess the risks inherent in the various financial claims. Measuring



risk is thus based on statistical procedures. The major tools used by financial analysts in this regard are often based on research by academics seeking to improve statistical inference procedures. For example, in the last decade, in reaction to evidence that volatility in financial markets can be non-stationary, researchers have begun to make use of increasingly sophisticated procedures such as ARCH, GARCH and other extensions.

### **2.3.3 The Need for Risk Management<sup>10</sup>**

Since modern banks began to evolve in the 17<sup>th</sup> century, most bank failures have been due to exposure to bad debts. However, some spectacular bank failures over the last 25 years have been due in part to market exposures generated by derivative positions. Politicians and the media have suggested that this is because the banking system as a whole is failing to control these new forms of risk. It is true that for many years, banks concentrated their efforts on assessing credit risk. Rating agencies like Moody's and Standard and Poor's, were employed to evaluate (or confirm) the credit quality of large firms that applied for a loan. The key weakness in this traditional risk analysis was that credit risk was evaluated on a case-by-case basis.

Correlation risk, i.e. the risk associated with the cross dependencies among loans, such as the concentration of loans in a certain geographical area or industry, was often ignored. As a result, American commercial banks suffered large losses to Latin-American counterparties in the 1980's as a result of an economic crisis in

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<sup>10</sup> Crouhy , Galai, ,& Mark.(2000,p31-34)

that continent. These losses eventually led to the collapse of Continental Bank in Chicago. Credit correlations are one source of risk, but it has become increasingly clear that concentrations among different kinds of risk are also crucial. Perhaps the most striking case of correlation risk across market and credit risk is the crisis of the savings and loan industry in the United States in the 1980's. It is only in the late 1990's that the banking industry has begun to appreciate the risks of correlations between credit and market risk, on the one hand, and liquidity risk on the other. The near-collapse of Long-Term Capital Management (LTCM) in 1998 highlighted the risks of high leverage to an individual institution. But it also showed how problems in one institution might spill over into the entire financial system when, simultaneously, market prices fall and market liquidity dries up, making it impossible for some institutions to unwind their positions in order to satisfy margin calls. LTCM discovered too late how negatively correlated its returns were with liquidity risk. The industry as a whole is now looking at how the relationship between liquidity risk, leverage risk, and market and credit risk can be incorporated into risk measurement and stress testing models.

If 'correlation risk' can be identified as one principal source of hidden bank risk, then operational risks are the second major source. The downfall of Barings in February 1995 is often depicted as the result of the actions of a single trader, Nicholas Lesson, who exposed the bank to huge futures positions. As the investigation into the disaster revealed, the bank's collapse also bore witness to the failings of senior managers. Put simply, they lacked the ability to monitor effectively Lesson's trading activities.

As stated previously, currently the focus is very much on Enterprise Wide Risk Management (ERM). The essence of ERM is the management of overall institutional risk across all risk categories and business units. The challenge is now to develop integrated risk models where the interaction between the risk components is well understood and modeled.

#### **2.3.4 A Comprehensive Risk Management system for the Banking Sector <sup>11</sup>**

◆ *Establishing Appropriate Risk Management Environment and Sound Policies and Procedures*

- This stage deals with the overall objectives and strategy of the bank towards risk and its management policies. The board of directors is responsible for outlining the overall objectives, policies and strategies of risk management for any financial institution.
- The overall risk objectives should be communicated throughout the institution. Other than approving the overall policies of the bank regarding risk, the board of directors should ensure that the management takes the necessary actions to identify, measure, monitor, and control these risks. The board should periodically be informed and review the status of the different risks the bank is facing through reports.
- Senior management is responsible to implement these broad specifications approved by the board. To do so, the management should establish policies and procedures that would be used by the institution to manage risk. These include maintaining a risk management review process, appropriate limits

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<sup>11</sup> BCBS(1999 and 2001)

on risk taking, adequate systems of risk measurement, a comprehensive reporting system, and effective internal controls. Procedures should include appropriate approval processes, limits and mechanisms designed to assure the bank's risk management objectives are achieved. Banks should clearly identify the individuals and/or committees responsible for risk management and define the line of authority and responsibility. Care should be taken that there is adequate separation of duties of risk measurement, monitoring and control functions.

– Furthermore, clear rules and standards of participation should be provided regarding position limits, exposures to counterparties, credit and concentration. Investment guidelines and strategies should be followed to limit the risks involved in different activities. These guidelines should cover the structure of assets in terms of concentration and maturity, asset-liability mismatching, hedging, securitization, etc.

◆ ***Maintaining an Appropriate Risk Measurement, Mitigating, and Monitoring Process.***

– Banks must have regular management information systems for measuring, monitoring, controlling and reporting different risk exposures. Steps that need to be taken for risk measurement and monitoring purposes are establishing standards for categorization and review of risks, consistent evaluation and rating of exposures. Frequent standardized risk and audit reports within the institution are also important. The actions needed in this regard are creating standards and inventories of risk based assets, and

regularly producing risk management reports and audit reports. The bank can also use external sources to assess risk, by using either credit ratings, or supervisory risk assessment criterion.

- Risks that banks take up must be monitored and managed efficiently. Banks should do stress testing to see the effects on the portfolio resulting from different potential future changes. The areas a bank should examine are the effects of downturn in the industry or economy and market risk events on default rates and liquidity conditions of the bank. Stress testing should be designed to identify the conditions under which a bank's positions would be vulnerable and the possible responses to such situations. The banks should have contingency plans that can be implemented under different scenarios.

◆ ***Adequate Internal Controls***

- Banks should have internal controls to ensure that all policies are adhered to an effective system of internal control includes an adequate process for identify and evaluating different kinds of risks and having sufficient Information systems to support these. The system would also establish policies and procedures and their adherence are continually reviewed. These may include conducting periodic internal audits of different processes and producing regular independent reports and evaluations to identify areas of weakness. An important part of internal control is to ensure that the duties of those who measure, monitor, and control risks are separated.

– Finally, an incentive and accountability structure that is compatible with reduced risk taking on part of the employees is also an important element to reduce overall risk. A prerequisite of these incentive-based contracts is accurate reporting of the bank's exposures and internal control system. An efficient incentive compatible structure would limit individual positions to acceptable levels and encourage decision makers to manage risks in a manner that is consistent with the banks goals and objectives.

## **2.4 Financial Risk Management: Basic Concepts and Techniques**

### **2.4.1 Introduction**

Financial risk management has been defined by the Basel committee (2001)" as a sequences of four process: the identification of events into one or more broad categories of market, credit, operational and other risks and into specific sub categories, the assessment of risks using data and a risk model, the monitoring and reporting of the risk assessments on a timely basis and the control of these risks by senior management."

The theory and practice of financial risk management has its roots in the broader and older field of risk management in a general context. This broader field of risk management is usually termed 'decision analyses and forms a sub-discipline of statistics, operations research and economics. In next section we will discuss financial risk management in more detail, Firstly, we will define risk and the various risk types.

#### 2.4.2 Risk and Type of Risk

“Risk arises when there is a possibility of more than one outcome and the ultimate outcome is unknown.” The word ‘risk’ has many meanings and connotations. It is widely used by professional traders, risk managers, and the public.

“Risk can be defined as the variability or volatility of unexpected outcomes “(Jorion and Khoury, 1996, p.2). It is usually measured by the standard deviation of historic outcomes. Though all businesses face uncertainty, financial institutions face some special kinds of risks given their nature of activities. The objective of financial institutions is to maximize profit and shareholder value-added by providing different financial services mainly by managing risks.

Price water house coopers defines” risks as uncertain future events that could influence the achievement of an organization’s strategic ,operational and financial objectives , and stresses that risk should no longer be viewed only as a downside or hazard but also must be seen as clearly linked to opportunity and upside.”

There are different ways in which risks are classified. One way is to distinguish between business risk and financial risks. *Business risk* arises from the nature of a firm’s business. It relates to factors affecting the product market. *Financial risk* arises from possible losses in financial markets due to movements in financial variables (Jorion and Khoury 1996, p. 2). It is usually associated with leverage with the risk that obligations and liabilities cannot be met with current assets (Gleason 2000, p. 21).

Another way of decomposing risk is between systematic and unsystematic components. While *systematic risk* is associated with the over all market or the

economy, *unsystematic risk* is linked to a specific asset or firm. While the asset-specific unsystematic risk can be mitigated in a large diversified portfolio, the systematic risk is non-diversifiable. Parts of systematic risk, however, can be reduced through the risk mitigation and transferring techniques.

Accordingly, financial institutions face the following three types of risks: risks that can be eliminated, those that can be transferred to others, and the risks that can be managed by the institution. The practice of financial institutions is to take up activities in which risks can be efficiently managed and shift risks that can be transferred.

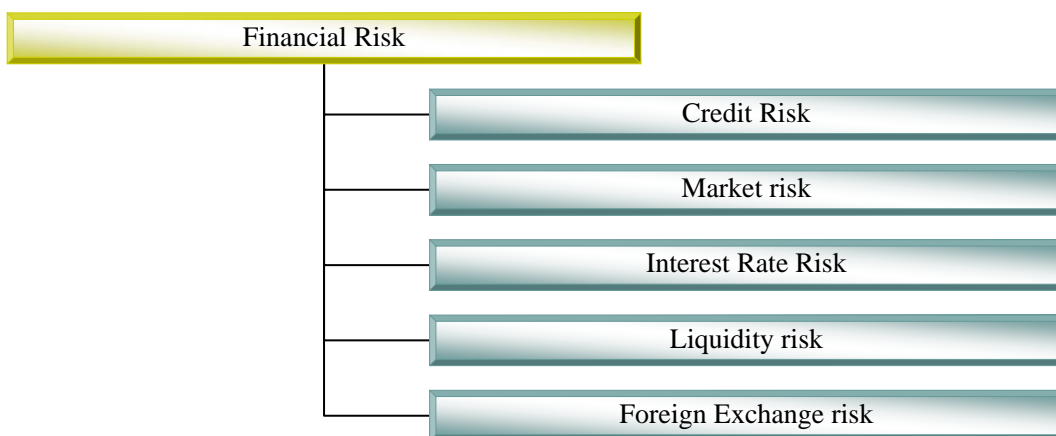
Risk avoidance techniques would include the standardization of all business-related activities and processes, construction of diversified portfolio, and implementation of an incentive-compatible scheme with accountability of actions. Some risk that banks face can be reduced or eliminated by transferring or selling these in well-defined markets. Risk transferring techniques include, among others, use of derivatives for hedging, selling or buying of financial claims, changing borrowing terms, etc.

There are, however, some risks that cannot be eliminated or transferred and must be absorbed by the banks. The first is due to the complexity of the risk and difficulty to separate it from asset. The second risk is accepted by the financial institutions as these are central to their business. These risks are accepted because the banks are specialized in dealing with them and get rewarded accordingly. Examples of these risks are the credit risk inherent in banking book activities and market risks in the trading book activities of banks.



*Our focus in this paper on the financial risks can be broadly divided into credit risk, market risk, interest rate risk, liquidity risk and foreign exchange risk.*

**Figure 2.2**  
**Financial risk**



## 2.4.3 CREDIT RISK

### 2.4.3.1 Definition and identification

Credit risk is one of the most significant risks that financial institutions face and is regarded as the most fundamental financial risk. First would like to introduce concept of credit risk, two of the most relevant definition.

Credit risk is the risk that a change in the credit quality of counterparty will affect the value of the bank's position. Default, whereby counterparty unwilling or unable to fulfil its contractual obligations, is the extreme case; however, banks are also exposed to the risk that the counterparty might be downgraded by a rating agency. Credit risk is only an issue when the position is in an asset, i.e. when it exhibits a positive replacement value. In that instance, if the counterparty defaults, the bank either loses all of the market value of the position, or, more commonly, the part of the value that cannot be recovered following the credit event. The value it is likely to recover is called the "recovery value"; the amount it is expected to lose is called the "loss given default". (Crouhy, Galai and Mark (2000)).

The Basel committee defines "credit risk as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with the agreed terms." This risk can occur in the banking and trading books of the bank. In the banking book, *loan credit risk* arises when counterparty fails to meet its loan obligations fully in the stipulated time. This risk is associated with the quality of assets and the probability of default. Due to this risk, there is uncertainty of net-income and market value of equity arising from non-payment and delayed payment of

principal and interest. Similarly, trading book credit risk arises due to a borrower's inability or unwillingness to discharge contractual obligations in trading contracts. This can result in settlement risk when one party to a deal pays money or delivers assets before receiving its own assets or cash, thereby, exposing it to potential loss. Settlement risk in financial institutions particularly arises in foreign-exchange transactions. While a part of the credit risk is diversifiable, it cannot be eliminated completely.

### ***Credit risk identification***<sup>12</sup>

Institutions face credit risk, we distinguish:

- *Loans*: credit risk arises because a borrower may not be able to pay interest or repay the principal amount of the loan. Borrowers can be both companies and private individuals.
- *Contingent credit facilities*. These are facilities on which credit risk may arise in the future. Examples are guarantees (which will be invoked only when a borrower on whose behalf the guarantee has been provided defaults on his obligations) and un-drawn credit lines (under which the beneficiary may decide to draw down funds at a future point in time). Contingent liabilities are recorded off-balance sheet as long as there is no direct exposure on the counterparty.
- *Traded or invested assets, such as bonds*. Credit risk is present because the value of the assets may decline as a result of an increase in the perceived likelihood that the issuer will not be able to meet scheduled payments in the

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<sup>12</sup> Risk measurement within financial conglomerates: best practices and risk type prepared by klaas knot et al.(2003)

future. When present in a bank's trading book, credit risk on the assets is usually captured under market risk (as in the 1996 Market Risk Amendment to the 1988 Capital Accord) and measured over a short time period.

- Derivatives. Credit risk in this case only exists if the market value of a derivatives contract is positive (i.e., the net present value of all cash flows owed by the counterparty exceeds the net present value of all payments to be made by the institution). Credit risk on derivatives transactions is usually referred to as counterparty risk;
- *Re-insurance contracts*. Credit risk is present as the re-insurer may not be able to pay when a claim arises. The timing and size of such claims are obviously uncertain. An additional complication is that the creditworthiness of the re-insurer and the institution itself may be correlated.

***For most banks, lending activities are typically the main source of credit risk.***

#### **2.4.3.2 Credit risk management**

The goal of credit risk management is to maximise a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters, the effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking organization so the Basel committee set a major principle of banks credit risk management system.

*Attention to sound Credit risk management address below is taken from principles for management of credit risk BCBS (1999).*

- The board of directors should outline the overall credit risk strategies by indicating the bank's willingness to grant credit to different sectors, geographical location, maturity, and profitability. In doing so it should recognize the goals of credit quality, earnings, growth, and the risk-reward tradeoff for its activities. The credit risk strategy should be communicated throughout the banking organization.
- The senior management of the bank should be responsible to implement the credit risk strategy approved by the board of directors. This would include developing written procedures that reflect the overall strategy and ensure its implementation. The procedures should include policies to identify, measure, monitor, and control credit risk. Care has to be given to diversification of portfolio by setting exposure limits on single counterparty, groups of connected counterparties, industries, economic sectors, geographical regions, and specific products. Banks engaged in international credit need to assess the respective country risk and transfer risk.
- Banks should have a system for ongoing administration of various credit Risk-bearing portfolios. A proper credit administration by a bank would include an efficient and effective operation related to monitoring documentation, contractual requirements, legal covenants, collateral, etc., accurate and timely reporting to management, and compliance with management policies and procedures and applicable rules and regulations.

- Banks must operate under sound, well-defined credit-granting criteria to enable a comprehensive assessment of the true risk of the borrower or counterparty to minimize the adverse selection problem. Banks need Information on many factors regarding the counterparty to which they want to grant credit. These include, among others, the purpose of the credit and the source of repayment, the risk profile of the borrower and its sensitivity to economic and market developments, borrower's repayment history and current capacity to repay, enforceability of the collateral or guarantees, etc.
- Banks should have a clear and formal evaluation and approval process for new credits and extension of existing credits. Each credit proposal should be subject to careful analysis by a credit analyst so that information can be generated for internal evaluation and rating. This can be used for appropriate judgments about the acceptability of the credit.
- Granting credit involves accepting risks as well as producing profits. Credit should be priced so that it appropriately reflects the inherent risks of the counterparty and the embedded costs. In considering the potential credit, the bank needs to establish provisions for expected loss and hold adequate capital to absorb the unexpected losses. Banks can use collateral and guarantees to help mitigate risks inherent in individual transactions. Note, however, that collateral cannot be a substitute for comprehensive assessment of a borrower and strength of the repayment capacity of the borrower should be given prime importance.

- Banks should identify and manage credit risk inherent in all of its assets and activities by carefully reviewing the risk characteristics of the asset or activity. Special care is needed particularly when the bank embarks on new activities and assets. In this regard, adequate procedures and controls need to be taken to identify the risks in new asset or activity. Banks must have analytical techniques and information systems to measure credit risk in all on- and off-balance sheet activities. The system should be able to provide information on sensitivities and concentrations in the credit portfolio. Banks can manage portfolio issues related to credit through loan sales, credit derivatives, securitization, and involvement in secondary loan markets.
- Banks should develop internal risk rating systems to manage credit risk. A well-structured internal rating system can differentiate the degree of credit risk in different credit exposures of a bank by categorizing credits into various gradations in risk. Internal risk ratings are important tool in monitoring and controlling credit risk as periodic ratings enable banks to determine the overall characteristics of the credit portfolio and indicates any deterioration in credit risk. Deteriorating credit can then be subject to additional monitoring and supervision.
- Banks can use stress testing in setting limits and monitoring by considering economic cycles, interest rate and other market movements and liquidity conditions.
- Banks must have a system for monitoring individual credits, including determining the adequacy of provisions and reserves. An effective monitoring

system would provide the bank, among others, the current financial condition of the counterparty. The system would be able to monitor projected cash-flow and the value of the collateral to identify and classify potential credit problems. While monitoring the overall composition and quality of the portfolio, a bank should not only take care about the concentrations with respect to counterparty's activities but also the maturity.

- A bank should have independent ongoing credit reports for the board of directors and senior management to ensure that the bank's risk exposures are maintained within the parameters set by prudential standards and internal limits. Banks should have internal controls to ensure that credit policies are adhered to. These may include conducting periodic internal audits of the credit risk processes to identify the areas of weakness in the credit administration process. Once the problem credits are identified, banks should have a clear policy and system for managing problem credits. The banks should have effective workout programs to manage risk in their portfolio.

#### **2.4.3.3 Credit Risk and New Basel Capital Accord**

The last few years credit risk modeling has been evolving faster than ever and many commercially available models have appeared on the market, this phenomenon could be explained mainly by the two following reasons:-

The first reason is the Basel 11 capital accord, the three pillars of the recently reinforced Basel capital accord which by the end of 2001 will be adopted by regulators in most industrialized countries are ,minimum capital requirements



,Supervisory review of an institution's capital adequacy and internal assessment process and Market discipline through disclosure of banking practices.

In particular, with the Basel capital Accord of 1998 banks around the world have been allowed to assess regulatory capital issues related to credit risk using internal models.

The second reason is the development of the securitization of bond portfolios that has brought to light the need for quantitative estimation of credit risk.

Moreover, Basel 1 was restricted to measure of market risk and basic measures for credit risk, Basel 2 introduces an array of sophisticated credit risk approaches which focus on new management and sound and comprehensive corporate governance practice. Basel 2 makes substantive changes to current accord's methods of calculating regulatory capital requirements specifically in its pillar 1 treatment of credit risk and operational risk.

#### *Minimum capital requirements*

##### **Basel I**

$$\text{The bank's capital ratio} = \frac{\text{Total Capital}}{\text{Credit Risk (old) + Market Risk}}$$

(minimum 8%)

##### **Basel II**

$$\text{The bank's capital ratio} = \frac{\text{Total Capital (unchanged)}}{\text{Credit Risk (new) + Market Risk + Operational Risk}}$$

(Minimum 8%)

*Source: Bank for International Settlements (BIS), 2001.*

#### **2.4.3.4 Treatment of credit risk under the proposed New Accord**

*The consultative document for the proposed New Accord offers three approaches to determine risk – weighted capital for credit risk, see appendix A*

- Standardized approach
- Internal rating based (IRB) approach
  1. foundation approach
  2. Advanced approach.

The objective of offering alternative approaches is to encourage risk management culture in banks by requiring lesser regulatory capital from those banks which have put in place standard risk management systems. The risk management systems of banks that will opt to adopt the IRB approaches will be verified by supervisors.

Depending on the supervisory risk assessment, banks can graduate from the standard approach to the foundation IRB approach and from there to the advanced IRB approach taking benefit from the regulatory capital relief offered.

#### **2.4.3.5 Regulatory capital for credit risk**

Credit risks are so much important for banks and from regulators' perspective that the 1988 Capital Accord requires capital only against credit risks for on-balance sheet and off-balance sheet assets of banks. Banks are in the business of borrowing money to lend. As a result of lending, receivables from clients make an overwhelming part of their total assets. The quality of these assets, therefore, depends on the timely and full repayment by the clients. A failure to do so, i.e.

default, is always probable depending on the credit quality of the client. The primary concern of regulators is, therefore, that banks should be aware of their credit risk and maintain a minimum level of capital to overcome any instability caused by default by a client. Total assets of a bank are put into five risk categories (0%, 10%, 20%, 50% and 100%). Summary composition of each risk bucket for on-balance sheet items is given in Table 2.1<sup>13</sup>.

Total capital requirement for on-balance sheet assets is reached by putting all assets into their respective buckets and deriving RWAs of the bucket as a first step. For example, assets in 0% risk weight category are default risk free assets. These assets do not need any capital for their protection. Assets in 100% risk weight category are very risky and all such assets need minimum 4% tier-1 and 8% total capital protection. If the assets in this category are \$100 million, a minimum of \$ 8 million ( $\$100m \cdot 0.08$ ) total capital is required for this category of assets. In the second step the required capital for all categories is added up to calculate the minimum capital requirement for the on-balance sheet items.

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<sup>13</sup> See BCBS(1988)

**Table 2. 1****Summary of risk capital weights by broad on- balance sheet asset categories**

<b>RISK WEIGHTS (%)</b>	<b>ASSET CATEGORY</b>
0	Cash and gold bullion claims on OECD governments such as treasury bonds or insured residential mortgages
0,10,20,or 50% at national discretion	Claims on national public sector entities excluding central government and loans guaranteed by them
20	Claims on OECD banks and OECD public sector entities such as securities issued by us government agencies or claims on municipalities claims on multilateral banks or claims guarantee by them.
50	Loans fully secured by mortgage on residential property
100	All other claims such as corporate bonds and less – developed country debt ,a claim on non-OECD banks , equity , real estate , premises ,plant and equipment

*Source:* BCBS (1988)

For the non-derivative off-balance sheet exposures a credit conversion system and a set of risk weights is provided. Using these guidelines the off balance sheet exposures are converted into their on-balance sheet equivalents and capital requirement is determined. Capital requirement for the off-balance sheet derivative positions is calculated separately, again using the standards set for this purpose. The over all credit risk capital requirement according to the 1988 Accord is the sum total of the on-balance sheet and off-balance sheet capital requirements

## **2.4.4 MARKET RISK**

### **2.4.4.1 Definition and type of risk**

Market risks are also important for banks and their affiliates that hold significant positions that are marked to market. Each author has its own definition of market risk, the most relevant is,

*“Market Risk is the risk originating in instruments and assets traded in well-defined markets. Market risks can result from macro and micro sources. Systematic market risk result from overall movement of prices and policies in the economy. The unsystematic market risk arises when the price of the specific asset or instrument changes due to events linked to the instrument or asset. Volatility of prices in various markets gives different kinds of market risks. Thus market risk can be classified as equity price risk, interest rate risk, currency risk, and commodity price risk. As a result, market risk can occur in both banking and trading books of banks. While all of these risks are important, interest rate risk is one of the major risk that banks have to worry about.”* (Gleason, 2000)

#### ***Type of market risk***

There are four major types of market risks. The following definitions of the different types are taken from Crouhy, Galai and Mark (2000)

1. *Interest rate risk*: the simplest form of interest rate risk is the risk that the value of a fixed-income security will fall as result of change in market interest rates that arise from differences in the maturities, nominal values and reset dates of instruments and cash flow that are asset like “longs” and liabilities like “shorts”. Price risk for fixed –income products can be

decomposed into a “general market” risk component and a “specific “risk component.

2. *equity price risk*: the price risk associated with equities also has two components.” general market risk” refers to the sensitivity of an instrument or portfolio value to a change in the level of stock market indices, not eliminated through portfolio diversifications, “specific” or “idiosyncratic” risk refers to that portion of a stock’s price volatility that is determined by characteristics specific to the firm such as line of business but this risk can be diversified.
3. *Foreign exchange risk*: the major sources of foreign exchange risk are imperfect correlations in the movement of currency prices and fluctuations in international interest rates, which arise from open or imperfectly hedged positions.
4. *Commodity price risk*: the price risk of commodities differs considerably from interest rate and foreign exchange risk; most commodities are traded in markets in which the concentration of supply can magnify price volatility.

#### **2.4.4.2 Market risk management<sup>14</sup>**

- Banks accurately measure, monitor and adequately control market risks. Where material, it is appropriate to provide an explicit capital cushion for the price risks to which banks are exposed, particularly those arising from their trading activities.
- Capital requirements impose can be an important further step in strengthening the soundness and stability of financial markets. There should also be well – structured quantitative and qualitative standards for risk management process related to market risk.
- Bank management has set appropriate limits and implemented adequate internal controls for their foreign exchange business.

#### **2.4.4.3 The” 1996 Amendment “or BIS98”**

##### **Preface**

In April 1995 the Basel committee issued a consultative proposal to amend the accord 1988 which became known as the “1996 Amendment” or after it was implemented ,”BIS98”. It require financial institutions to measure and hold capital to cover their exposure to the “market risk “associated with debt and equity positions in their trading book and foreign exchange and commodity positions in both trading and banking books .these positions include all financial instruments that are marked to market whether they are plain vanilla products such as bonds or stock or complex derivative instruments such as options, swaps or credit

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<sup>14</sup>core principles for effective banking supervision BCBS.(1997) .p.27

derivatives. 1996 amendment introduced the requirement of measuring market risk in addition to credit risk in the trading book, market risk must be measured for both on and off- balance sheet traded instrument, however on-balance sheet assets are subject only to the market risk capital charge only while off-balance sheet derivatives such as swaps and options are subject to both market risk charge and to credit risk capital charges stipulated in the original 1988 accord.

#### **2.4.4.4\_The capital requirement**

- *Definition of capital*<sup>15</sup>

The committee confirms its April 1995 proposal to allow banks, at national discretion, to issue short –term subordinated debt subject to a lock – in clause (so called “tier 3 capital”) to meet a part of their market risks eligible capital will consist of shareholders ‘equity and retained earnings (tier 1 capital), supplementary capital (tier 2 capital) as defined in the 1988 accord and short – term subordinated debt (tier 3 capital). Tier 3 capital will be subject to the following conditions:

- It should have an original maturity of at least two years and will be limited to 250% of the banks tier 1 capital that is allocated to support market risk;
- It is only eligible to cover market risk including foreign exchange risk and commodities risk;
- Insofar as the overall limits in the 1988 accord are not breached, tier 2 elements may be substituted for tier 3 up to same limit of 250%.

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<sup>15</sup> Overview of the amendment to the capital accord to incorporate market risk January (1996)



- It is subject to a lock –in clause which stipulates that neither interest nor principle may be paid if such payment means that the bank's fall below or remain below its minimum capital requirement.

In addition, a significant number of member countries are of the opinion that the principle in the present accord that tier 1 capital calculated on a consolidated basis should represent at least half of total eligible capital should be retained, i.e. the sum total of tier 2 plus tier3 may not exceed total tier 1. however, the committee has decided that any decision whether or not to apply such a cap on the use of tier 3 should be a matter for national discretion.

- *Calculation of the capital ratio*<sup>16</sup>

In calculating a bank's overall capital ratio , an explicit numerical link between credit and market risk will be created by multiplying the measure of market risk by 12.5 (i.e. the reciprocal of the minimum capital ratio of 8%) and adding the resulting figure to the sum of risk – weighted assets compiled for credit risk purpose .the ratio will then be calculated in relation to the sum of the two using as the numerator only eligible capital which will be the sum of the whole tier 1 and tier 2 capital under the limits imposed in the 1988 accord. Unused but eligible tier 3 capital may be reported separately.

#### **2.4.4.5 Regulatory Treatment of Market Risk**

Market risks which include interest rate, commodity price, exchange rate risk and equity price risks faced by the banks' asset portfolios as a result of their trading

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<sup>16</sup> The overview of the amendment to the capital accord to incorporate market risk January (1996)

positions. As mentioned earlier, the original 1988 Basel Accord does not require capital for these risks. The risks were brought under the regulatory umbrella by the 1996 amendment to the Accord and the amendment became effective in 1998. The amendment introduces two approaches to regulatory assessment of market risks:

1. The standardized approach; and
2. The internal ratings-based approach.

The choice of an approach is a supervisory discretion based on review and understanding of risk management systems and processes existing in banks.

Supervisors may also encourage banks to use both approaches simultaneously. Capital requirements of banks in the first category are meant to be higher than the second category. The objective of these alternative approaches is to introduce an effective incentive system for better risk management by setting lower capital requirements opting for internal ratings and relatively higher capital requirements for the standardized approach. In fact this incentive system proved to be successful and has triggered a revolutionary enhancement of risk management culture in banks in a short period of time. Impressed by the benefits of the alternative approaches, as discussed in case of credit risk, the New Accord suggests adopting the internal ratings approach for credit risk as well. Therefore, the New Accord, in some sense is an extension of the approaches of 1996 Accord to cover credit risks. In other words as far as market risks are concerned, the 1996 amendments to the 1988 Accord will continue beyond 2005 with minor modifications.

In the standardized approach the capital charge for each market risk is first determined separately following standardized methods for each risk. After that these capital charges are added to determine the total capital requirements.

Interest rate risk is subdivided into specific and general risks. Specific capital charges are designed to capture the risk underlying any net position due to the non-systematic risks of the counterparty and hence more specific to positions in individual instruments. General risk refers to the risk of loss arising from the changes in the market interest rates. Two methods: “maturity ladder” and “duration” are allowed to banks to choose for allocating risk weights. The underlying principle of the more commonly practiced maturity ladder approach is the fact that longer maturity requires higher risk weights and short maturity lower risk weights. For this specific general principle, it is alleged that the regulatory framework is biased against long-maturity systemically stable sources of funding and favors short maturity unstable sources of funding. As a result, the system might have contributed to the flow of short-term of funds and the resultant financial instability. The internal ratings approach is essentially based on value at risk technique (VaR) is a popular technique used to measure a portfolio’s market risk .it represents an estimate of the likely maximum amount that could be lost on a banks portfolio with a certain degree of statistical confidence.

## 2.4.5 INTEREST RATE RISK

### 2.4.5.1 Definition

“*Interest Rate Risk* is the exposure of a bank’s financial condition to adverse movements in interest rates.”(BCBS, 2004)

### 2.4.5.2 Source and effect of interest rate risk

#### Sources of interest rate risk

Interest rate risk can arise from different sources:

- *Repricing risk*: arises due to timing differences in the maturity (for fixed-rate) and reprising (for floating –rate) of assets, liabilities and off-balance sheet items.
- *Basis risk*: even with similar reprising characteristics, basis risk may arise if the adjustment of rates on assets and liabilities are not perfectly correlated.
- *Yield curve risk*: is the uncertainty in income due to changes in the yield curve.
- *Optionality*: instruments with call and put options can introduce additional risks, an option provides the holder the right but not the obligation to buy or sell or in some manner alter the cash flow of an instrument or financial contract.

### Effects of interest rate risk

Changes in interest rate affect banks in many ways:

1. Earnings perspective: affect a banks earning by changing its net interest income and the level of other interest –sensitive income and operating expenses.
2. Economic value perspective: changes in interest rates also affect the underlying value of the banks assets; liabilities and off-balance sheet (OBS) instruments because the present value of future cash flows change when interest rates change.

#### **2.4.5.3 Interest Rate Risk Management**<sup>17</sup>

- The board of directors should approve the overall objectives, broad strategies and policies that govern the interest rate risk of a bank. Other than approving the overall policies of the bank regarding interest rate risk the board of directors should ensure that the management takes the necessary actions to identify, measure, monitor, and control these risks. The board should periodically be informed and review the status of interest rate risk the bank is facing through reports.
- Senior management must ensure that the bank follows policies and Procedures that enable the management of interest rate risk. These include maintaining an interest rate risk management review process, appropriate limits on risk taking, adequate systems of risk measurement, a comprehensive interest rate risk reporting system, and effective internal

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<sup>17</sup> Principles for the management and supervision of interest rate risk discussed in BCBS (2004).

controls. Banks should be able to identify the individuals and/or committees responsible for interest rate risk management to avoid potential conflicts of interest and define the line of authority and responsibility.

- Banks should have clearly defined policies and procedures for limiting and controlling interest rate risk by delineating responsibility and accountability over interest rate risk management decisions and defining authorized instruments, hedging strategies and position taking opportunities. Interest rate risk in new products should be identified by carefully scrutinizing the maturity, repricing or repayment terms of an instrument. The board should approve new hedging or risk management strategies before these are implemented.
- Banks should have a management information system for measuring, monitoring, controlling and reporting interest rate exposures. Banks should have interest rate risk management systems that assess the effects of rate changes on both the earnings and economic value. These measurement systems should be able to utilize generally accepted financial concepts and risk management techniques to assess all interest risk associated with a bank's assets, liabilities, and off-balance sheet positions. Some of the techniques for measuring a bank's interest risk exposure are GAP analysis, duration, and simulation. Possible stress tests can be undertaken to examine the effects of changes in the interest rate, changes in the slope of the yield curve, changes in the volatility of the market rates, etc. Banks

should consider the “worse case” scenarios such as multi-currency exposure and ensure that appropriate contingency plans are available to tackle these situations.

- Banks must establish and enforce a system of interest rate risk limits and risk taking guidelines that can achieve the goal of keeping the risk exposure within some self-imposed parameters over a range of possible changes in interest rates. An appropriate limit system enables the control and monitoring of interest rate risk against predetermined tolerance factors. Any violation of limits should be made known to senior management for appropriate action.
- Interest rate reports for the board should include summaries of the bank’s aggregate exposures, compliance with policies and limits, results of stress tests, summaries of reviews of interest rate risk policies and procedures, and findings of internal and external auditors. Interest rate risk reports should be in details to enable senior management to assess the sensitivity of the institution to changes in the market conditions and other risk factors.
- Banks should have adequate system of internal controls to ensure the integrity of their interest rate risk management process and to promote effective and efficient operations, reliable financial and regulatory reporting, and compliance with relevant laws, regulations, and institutional policies. An effective system of internal control for interest rate risk includes an adequate process for identify and evaluating risk and having sufficient information systems to support these. The system would also

establish policies and procedures and their adherence are continually reviewed. These periodic reviews would cover not only the quantity of interest rate risk, but also the quality of interest rate risk management. Care should be taken that there is adequate separation of duties of risk measurement, monitoring and control functions.

#### **2.4.5.4 Capital adequacy and banking interest rate risk**

##### Capital adequacy

Banks must hold capital commensurate with a level of interest rate risk they undertake, change in interest rate expose banks to the risk of loss, capital has an important role to play in mitigating and supporting this risk

##### Banking Book Interest Rate Risk<sup>18</sup>

The banking book interest rate risk refers to income or asset value loss due to a change in the market rates of interest. This is recognized to be an important risk, which warrants allocation of capital. However, the risk greatly varies from bank to bank; therefore, it is not possible to set uniform standards for capital allocation. Therefore, the New Accord keeps the allocation of capital for this risk in the discretion of bank supervisions under pillar-2 of the Accord that gives the framework for the supervisory review process. Supervisions are in particular required to be attentive to the problem of “outlier” banks – banks whose interest rate risk can lead to the decline in its asset value equal to 20% or more of its tier-1 and tier-2 capital. Supervisors also need to carefully assess and review bank’s internal risk assessment and management systems.

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<sup>18</sup> A new Basel capital accord :pillar 2 , (BCBS, January ,2001)



#### **2.4.5.5 Interest rate risk measurement techniques:**

The methods vary in their ability to capture the different forms of interest rate exposure: the simplest methods are intended primarily to capture the risks arising from maturity and reprising mismatches( gap analysis and duration ) while the more sophisticated methods can more easily capture the full range of risk exposures like simulation approaches ( static and dynamic simulation ) . *See appendix B*

#### **2.4.6 Liquidity risk**

##### **2.4.6.1 Definition**

This risk is generally very hard to quantify .each author has its own definition of liquidity risk, selected two that consider to be the most relevant.

*“Liquidity risk* comprises both ‘funding liquidity risk’ and ‘trading-related liquidity risk’ though these two dimensions of liquidity risk are closely related. Funding liquidity risk relates to a financial institution’s ability to raise the necessary cash to roll over its debt, to meet cash, margin and collateral requirements of counterparties, and to satisfy capital withdrawals. Trading-related liquidity risk is the risk that an institution will not be able to execute a transaction at the prevailing market price because there is, temporarily, no appetite for the deal on the “other side” of the market. If the transaction cannot be postponed, its execution may lead to a substantial loss on the position.”(Crouhy, Galai and Mark, 2000, p.36).

“*Liquidity Risk* arises due to insufficient liquidity for normal operating requirements reducing the ability of banks to meet its liabilities when it falls due. This risk may result from either difficulties in obtaining cash at reasonable cost from borrowings (*funding or financing liquidity risk*) or sale of assets (*asset liquidity risk*). One aspect of asset-liability management in the banking business is to minimize the liquidity risk. While funding risk can be controlled by proper planning of cash-flow needs and seeking newer sources of funds to finance cash-shortfalls, the asset liquidity risk can be mitigated by diversification of assets and setting limits of certain illiquid products.”(Gleason, 2000)

#### **2.4.6.2 Why liquidity is important?<sup>19</sup>**

Liquidity is an important factor to be considered for investments, because liquidity helps reverse your investment decisions. A bank’s need for liquidity depends on internal and external factors. If the bank plans and budgets well; it can anticipate many of its internal liquidity needs (such as funding loan growth, meeting depositor demands and paying operating expenses) and structure its balance sheet accordingly. If the bank knows its market, it can plan for many external events (such as seasonal borrowing patterns, deposit run-off and business payrolls).

Liquidity takes on importance because of its implications for bank operations and, in the extreme, bank viability. Poor liquidity limits a bank’s flexibility and puts a brake on its ability to take advantage of new loan and investment opportunities.

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<sup>19</sup> ALCO ,Monitoring Bank Liquidity see [http:// www.stlouised .org](http://www.stlouised.org)

Acute liquidity problems can spell serious trouble for a bank when funds aren't available to meet depositors' withdrawal demands. At that point, the bank is liquidity insolvent and can be closed. Because of this, it is important that you, as a director, pay close attention to your bank's liquidity position and are aware of factors that can affect that position.

*Source of liquidity:*

Banks primarily use three funding sources to finance lending:

1. Customer deposits: This can be looked upon as a stable source of financing, are the most important source.
2. The bond market: is another relatively stable funding source for banks, is the market for all types of bonds, whether on an exchange or over the counter.
3. Money market financing is the market in which dealers' trade riskless, short-term and hence somewhat more unstable funding source.

#### **2.4.6.3 Factors that Affect Liquidity**

In general, factors that can influence bank liquidity include its:

- Financial Market Access
- Financial Condition
- Balance Sheet Structure

**Financial Market Access:** All banks have some degree of financial market access, but smaller banks tend to have less access to financial markets than do larger banks.

**Financial Condition:** Poor earnings and asset quality, both of which play a large role in a bank's financial condition, can adversely affect liquidity. Because earnings represent a flow of funds to help meet liquidity needs,

- Low earnings translate into less available cash.
- Low quality assets or high levels of nonperforming assets (for example, loans with principal and interest payments past due) damage earnings and lock a bank into assets with low marketability
- Furthermore, low earnings and poor asset quality raise questions about solvency and can make potential lenders less willing to provide funds.

**Balance Sheet Structure:** Banks adjust their holdings of assets and liabilities to manage their liquidity. These decisions are reflected on their balance sheets. Thus, it is said that how a bank structures its balance sheet can affect its liquidity position.

*A bank is considered to be more liquid the more of its assets and liabilities are concentrated in categories near the top of the balance sheet.* The most liquid bank (the one that can most easily handle a surprise need for funds) is one that holds only cash and obtains this cash only through core deposits (and the owners' capital). However, such a bank would not be very profitable because cash doesn't earn income. The challenge for bank managers is to maintain a prudent degree of liquidity while still structuring the balance sheet to earn a reasonable profit.

For more information about how liquidity risk affects the structure of balance sheet. Once you have reviewed the balance sheet, [Consider Your Bank's Funding Sources](#).

**Table 2.2**  
**Bank Funding Sources**

ASSETS		LIABILITIES	
More Liquid	Cash	Checking accounts	More Stable
	Fed funds sold	Savings accounts	<b>Core Funding (Deposits)</b>
	Securities	MMDA / NOW accounts	
	Mortgages	Insured CDs	
	Other loans	Fed funds purchased	
	Other real estate owned	<b>FHLB advances</b>	<b>Noncore Funding</b>
	Building and equipment	Subordinated debt	
Less Liquid		Uninsured CDs	Less Stable
		<b>Brokered deposits</b>	
		Capital	

*There is another factor affect liquidity but not be reflected directly on the balance sheet:*

*First, timing differences in the flow of funds from assets and liabilities can leave a bank with excess funds or not enough if it does not plan carefully.*

*Second, off-balance-sheet activity can introduce both liquidity sources and potential liquidity drains. For example, if a bank has a large number of loan commitments or unused lines of credit, it may be required to make good on these obligations on short notice.*

#### 2.4.6.4 Liquidity Risk Management <sup>20</sup>

- As banks deal with other people's money that can be withdrawn, managing liquidity is one of the most important functions of the bank. The senior management and the board of directors should make sure that the bank's priorities and objectives for liquidity management are clear. Senior management should ensure that liquidity risk is effectively managed by establishing appropriate policies and procedures. A bank must have adequate information system to measure, monitor, control and report liquidity risk. Regular reports on liquidity should be provided to the board of directors and senior management. These reports should include, among others, the liquidity positions over particular time horizons.
- The essence of liquidity management problem arises from the fact that there is a trade-off between liquidity and profitability and mismatch between demand and supply of liquid assets. While the bank has no control over the sources of funds (deposits), it can control the use of funds. As such, a bank's liquidity position is given priority in allocating funds. Given the opportunity cost of liquid funds, banks should make all profitable investments after having sufficient liquidity. Most banks now keep protective reserves on top of planned reserves. While the planned reserves are derived from either regulatory requirements or forecasts, the amount of the protective reserve depends on the management's attitude towards liquidity risk.

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<sup>20</sup> Sound practices for the managing liquidity in banking organization is derived from BCBS (2000)

- Liquidity management decisions have to be undertaken by considering all service areas and departments of the bank. Liquidity manager must keep track and coordinate the activities of all departments that raise and use funds in the bank. Decisions regarding the banks liquidity needs must be analyzed continuously to avoid both liquidity surplus and deficit. In particular, the liquidity manager should know in advance when large transactions (credit, deposits, and withdrawals) would take place to plan effectively for resulting liquidity surpluses or deficits.
- A bank should establish a process of measuring and monitoring net funding requirements by assessing the bank's cash inflows and outflows. This includes funding requirements for off-balance sheet commitments. It is also important to assess the future funding needs of the bank. An important element of liquidity risk management is to estimate a bank's liquidity needs, both in the very short-term and for longer time periods. Several approaches have been developed to estimate the liquidity requirements of banks. These include the sources and uses of funds approach, the structure of funds approach, and the liquidity indicator approach. A maturity ladder is a useful device to compare cash inflows and outflows for different time periods. The deficit or surplus of net cash flows is a good indicator of liquidity shortfalls and excesses at a series of points in time.
- Unexpected cash flows can arise from some other sources. As more and more banks are engaged in off-balance sheet activities, banks should also examine the cash flows from its off-balance –sheet activities ( other than loan

commitments already considered ).the contingent liabilities , such as letters of credit and financial guarantees represent substantial sources of outflows of funds. After identifying the liquidity requirements, a series of worse case scenarios can be analyzed to estimate both possible bank specific shocks and economy-wide shock. The bank should have contingency funding plans of handling the liquidity crises. Possible responses to these shocks would include the speed with which assets can be liquidated and the sources of funds that banks can use in the crisis. If the bank is dealing with foreign currency, it should have a measurement, monitoring and control system for liquidity in active currencies

- Banks should have adequate internal controls over its liquidity risk management process that should be a part of the overall system of internal control. An effective system includes a strong control environment and has an adequate process of identifying and evaluating liquidity risk. It should have adequate information system that can produce regular independent reports and evaluations to review adherence to established policies and procedures. The internal audit function should also periodically review the liquidity management process to identify any problems or weaknesses for appropriate action by the management.



## 2.4.7 FOREIGN EXCHANGE RISK

### 2.4.7.1 Definition and identification

“Foreign exchange (FX) settlement risk is the risk of loss when a bank in a foreign exchange transaction pays the currency it sold but does not receive the currency it bought FX settlement failures can arise from counterparty default, operational problems, market liquidity constraints and other factors.”(BCBS, 2000).

“Foreign exchange risk is commonly defined as the additional variability experienced by a multinational corporation in its world wide consolidated earnings that results from unexpected currency fluctuations.”(Jacques, 1981, p81-82).

#### *Foreign exchange risk identification*<sup>21</sup>

Foreign Exchange Exposure:

Foreign exchange exposure measures the potential for a firm’s

- Profitability
- net cash flow
- market value

To change because of a change in exchange rates.

*Foreign exchange exposure can be classified into three types:*

1. *Transaction risk:* measures changes in the value of financial obligations incurred before a change in exchange rates but to be settled after the change, i.e. purchasing or selling on credit when prices are stated in a

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<sup>21</sup>flash.lakeheadu.ca/~pgreg/assignments/4079chapter8n.pdf

foreign currency another example borrowing or lending funds when repayment is to be made in a foreign currency.

2. *Operating exposure or economic exposure*: measures the change in the present value of the firm resulting from any change in expected future operating cash flows caused by an unexpected change in exchange rates.
3. *Translation exposure or accounting exposure*: measures the potential losses or gains that would appear on the consolidated financial statements following a change in exchange rates, i.e. convert financial statements express in foreign currencies into the home currency.

#### **2.4.7.2 Sources of foreign exchange risk<sup>22</sup>**

*Foreign exchange rate fluctuations affect banks both directly and indirectly.*

First, the direct effect comes from banks' holdings of assets (or liabilities) with net payment streams denominated in a foreign currency. Foreign exchange rate fluctuations alter the domestic currency values of such assets. This explicit source of foreign exchange risk is the easiest to identify, and it is the most easily hedged.

Second, the indirect sources of risk are more subtle but just as important. A bank without foreign assets or liabilities can be exposed to currency risk because the exchange rate can affect the profitability of its domestic banking operations. For example, consider the value of a bank's loan to a U.S. exporter. An appreciation of the dollar might make it more difficult for the U.S. exporter to compete against foreign firms. If the appreciation thereby diminishes the exporter's profitability, it

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<sup>22</sup> <http://www.frbsf.org/econsrch/wklyltr/el96-27.html>

also diminishes the probability of timely loan repayment and, correspondingly, the profitability of the bank. In this case, the bank is exposed to foreign exchange risk: a stronger dollar decreases its profitability. In essence, the bank is "short" dollars against foreign currency. Any time the value of the exchange rate is linked to foreign competition, to the demand for loans, or to other aspects of banking conditions; it will affect even "domestic" banks.

Finally, Foreign exchange risk also may be linked to other types of market risk, such as interest rate risk. Interest rates and exchange rates often move simultaneously. So, a bank's interest rate position indirectly affects its overall foreign exchange exposure. The foreign exchange rate sensitivity of a bank with an open interest rate position typically will differ from that of a bank with no interest rate exposure, even if the two banks have the same actual holdings of assets denominated in foreign currencies. Again, the vulnerability of the bank as a whole to foreign exchange fluctuations depends on more than just its holdings of foreign exchange.

### **Why Hedge?**

*Hedging* is the taking of a position, acquiring either a cash flow, an asset, or a contract (including a forward contract) that will rise (fall) in value and offset a fall (rise) in the value of an existing Position

- Hedging protects from a potential loss.
- Hedging reduces the variance of future cash flows.

### 2.4.7.3 Foreign exchange exposure measurement<sup>23</sup>

When we talk about foreign exchange exposure measurement, we should precise that only transaction exposure can be easily measured. Translation exposures as well as economic exposure are much more difficult to measure.

#### Transaction risk measurement

Steps to assess transaction exposure, first step are to identify the currencies in which the transactions will be settled. Then it can measure the volatility of each currency based on historical data. Finally, assess the “net” effect of currency exposures.

Measurement of Transaction Exposure:

- Foreign exchange transaction exposure can be managed by *contractual*, *operating*, and *financial hedges*.
- The main contractual hedges employ the forward, money, futures, and options markets.
- Operating and financial hedges employ the use of risk-sharing agreements, leads and lags in payment terms, swaps, and other strategies.
- The term *natural hedge* refers to an off-setting operating cash flow, a payable arising from the conduct of business.
- A financial hedge refers to either an off-setting debt obligation (such as a loan) or some type of financial derivative such as an interest rate swap.
- Care should be taken to distinguish *operating* hedges from *financing* hedges.

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<sup>23</sup> The same source as footnote no.1

### Economic exposure measurement

Economic exposure can be measured by two techniques: earnings sensitivity to exchange rates and cash flow sensitivity to exchange rates. To measure the earnings sensitivity, the firm needs to separate each line of its income statement and analyze the effect of an increase or decrease of currency .while cash flow sensitivity can also be implemented since firm value the present value of future cash flows, exchange rate exposure is the sensitivity of the firm value to exchange rate changes.

*A firm is relatively insulated from exchange rate movements if costs and revenues are affected by similar magnitudes.*

### Translation exposure measurement

Translation exposure appears when a bank has foreign subsidiaries and needs to translate their earnings into its base currency. To measure translation exposure the bank needs to estimate future expected earnings of each subsidiary and then to apply a sensitivity analysis in order to evaluate the potential effect of fluctuations of exchange rates.

#### **2.4.7.4 Foreign exchange Risk Management <sup>24</sup>**

- Policies for managing the risk should be developed at the highest levels within the bank.
- The senior management of the bank should be responsible to implement Strategy on FX settlement risk approved by the board of directors. A bank must have a management information system support

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<sup>24</sup> Supervisory guidance for managing settlement risk in foreign exchange transaction derived from BCBS (2000).

the integration of the necessary information and senior management should ensure that they fully understand the FX settlement risks incurred by the bank and should clearly define lines of authority and responsibility for managing these risks.

- The bank should have contingency planning, that should be established to include a broad spectrum of stress events, ranging from internal operational difficulties to individual counterparty failures to broad market.
- Banks should have adequate internal audit coverage of the FX settlement process to ensure that operating procedures are adequate to minimize risk. Audit report should be provided to a management for information in a particular time.

#### **2.4.7.5 Foreign exchange Risk technique**

Risk and in particular foreign exchange risk can be managed in various manners as following:

1. **Netting:** is probably one of the most used methods. “The idea is to reduce the amount of a bank’s exposure to a particular level of trading.”(BCBS, 2000). Two types of netting exist: bilateral and multilateral netting.
  - *Bilateral netting:* can significantly reduce the value of currencies settled; it also reduces the number of payments to one per currency either to or from each counterparty .netting is more suitable for payments between two subsidiaries.

- *Multilateral netting*<sup>25</sup>: the committee's approach builds upon the belief that a well – constructed multilateral netting system can reduce forward credit exposure for its participants and it also assumes that the multilateral system has received approval from the relevant authority responsible therefore it satisfies certain standard concerning at a minimum , legal soundness of the netting arrangement , these standards are defined primarily by the legal and payments system experts of the host authorities together with the responsibility for the supervision of the participants in the netting arrangements.
- 2. ***Currency forward and futures***: are the most effective instruments of hedging against currency risks. The fundamental difference between futures and forwards is the fact that futures are traded on exchange. Forwards trade over the counter. A forward exchange contract is a contract between two parties (the bank and the customer) one party contract to sell and the other party contracts to buy, one currency for another at an agreed future date at a rate of exchange which is fixed at the time the contract is entered into.
- 3. ***Options***: options on foreign currencies are an alternative to hedging in the forward or future. Options can be traded both on an organized exchanged trade and on the over the counter market with banks. Buying a call and at the same time selling a put or selling a call and at the same time buying a

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<sup>25</sup> Derived from section 2 of interpretation of the capital accord for the multilateral netting of forward value foreign exchange transaction , April , 1996

put, blocks the exchange rate between a minimum and a maximum corresponding to the two exercise prices of the options.

4. *Swaps*: another popular instrument and provide a long -term flexible hedge with low transaction costs. two kinds of swap – currency swap and foreign exchange swap
  - Currency swap: a purchase and sell a given currency at a fixed exchange rate and then re-exchange those currencies at a future date.
  - Foreign exchange swap: no interim interest payments but instead the notional amounts are re-exchanged at a different exchange rate.



# III

## METHODOLOGY

### **Introduction**

This chapter describes and explains the methodology employed to achieve the objectives of this study. The purpose of this research design is to create a framework that would serve as a reference point for data collection activation, and the design of a questionnaire. The Research design forms the fundamental guide for data collection. The research design not only informs the rest of the research process, but it also ensures that the researcher understands the findings within the confines of the same framework when results are presented.

### **3.1. Type of study:**

For the purpose of meeting the objectives stated earlier, this study is scientific in approach as the researcher is seeking to assess how banks in Palestine manage and understand financial risk by examining different aspects of financial risk management and generating more knowledge and understanding of the financial risk management.

This study is based on quantitative methods of assessment requiring the use of standard measures (surveys, questionnaires, etc.) .This study is a practical project of field study type.

### **3.2. Study procedures:**

This study is divided into three stages:

1. A preliminary study through a literature review was made by identifying risk management concepts and type of risk, by describing in detail financial risk management through an extensive review of Basel 1 and 11, and by reviewing other research on financial risk management.
2. Designing a questionnaire as a measuring instrument to assess how banks in Palestine manage financial risk.
3. Final stages provide the reader with a finding of analytical result to understand the main text of my dissertation.

### **3.3. Sample of the study:**

Assume that my sampling population is all managers at banks in Palestinian territory, which include 22 banks and consists of 133 branches.

The sample size is managers at banks in Ramallah city, which will be chosen through a simple random sampling. My sample size is 11 banks only because not all banks have a treasury department; the response rate was 100 %.

### 3.4. Data collection method:

For the purpose of this study, and to gain rich data that describes my study and to reduce the likelihood of misinterpretation, I designed a questionnaire. The following types of questions were used: *Likert scale type* questions where the question is presented in the form of a statement and the respondent is required to select one of five options, namely strongly disagree, disagree, no opinion, agree, strongly agree, and *Yes /No type* questions where the respondent is required to answer only with a yes or no. (See appendix). It could be assumed that each statement for *Likert scale type* questions can be identified as being ‘**yes indicative**’ or ‘**no indicative**’. Yes indicative in this sense means a positive response (either Agree or Strongly Agree) translates into “yes, the bank has risk management “, while a negative response (either Disagree or Strongly Disagree) translates into “No the bank does not have risk management.”

The questionnaire was given to the treasury managers of Palestinian banks. I supported the study by interviewing some of managers selected. Each interview was ‘semi-structured,’ although based on the same questionnaire, which led me to a new idea on the topic by viewing the respondent (managers’ experiences and opinions). The questionnaire consisted of general information about risk management. The Questionnaire was sent to 11 of 22 banks (sample population) because not all of the banks in Palestine had a treasury department. The Questionnaire asked respondents to identify risk management policy the bank faced on a scale of 1 to 5, 1 indicating “strongly disagree” and 5 indicating “strongly agree”. The response of the sample was 100 %.

*With data collection completed the research process moved into the analysis phase.*

### **3.5. Goodness of measure:**

We made sure that the instrument that we used to measure a particular concept actually measuring the concept thoroughly:

1. The reliability of a measure indicates the extent to which it is without bias (error free) by testing the internal consistency of measures, in this case each response to a Likert scale type statement ( ranging from “ Strongly Disagree “ to “ Strongly Agree”) was given a rated score ranging from one (1) to five (5). Results indicate that our data is highly consistent; with Cronbach’s Alpha equal 80 % ( the results are presented in appendix C)
2. Validity: validity of instruments was ensured by consultating Dr. Naser Abdelkarim.

### **3.6.Data analytic techniques used:**

After receiving survey responses from the random sample, data is tested by applying the frequency distributions by using the (SPSS version 10.0 computer programs), the responses were analyzed and the findings were presented in different tables and figures in chapter four.

# IV

## SURVEY FINDINGS

Following the gathering of the data through the distribution of a questionnaire, to a selected sample of 11 banks in Ramallah city. The topics presented in the survey are primarily based on the study questions, this chapter presents and analysis the survey findings of the study.

The results from the survey discussed different aspects of risk management systems and processes, to do so; the discussion is divided into three constituents of risk management process outlined in Chapter 2.

The basis of the questionnaire and the grading system employed in the survey intend to identify the extent of utilization or application of the risk management systems established and implemented in banks operations in Palestine. The tables used in the survey and the resulting findings indicate “Strongly disagree” indicating the total lack of attendance to the elements set in the question.

“Disagree” indicates partial attendance to risk management items indicated in the relevant question.

“No Opinion” indicates that the person providing the data is not aware if any activity in relation to the elements of risk management indicated in the question are attended to by the bank file and rank or not.

“Agree” indicates that the bank attends to the elements of risk management, procedures and techniques, presented in the particular question.

“Strongly Agree” indicates the total and systematic utilization of the risk management element presented in the question. Such systematic attendance is supported and utilized at the management level and is part and parcel of the employment duties that are properly resourced by the bank.

#### **4.1 Establishing Appropriate Risk Management Environment and Sound Policies and Procedures.**

##### **RESEARCH QUESTION No.1:**

**To what extent banks in Palestine recognize the issue of financial risk they face (encounter)?**

Tables 4.1.1, 4.1.2, report some aspects of establishing a risk management environment. While there is only one bank (9.1 percent) in process to establish risk management system, we notice that 9 banks (81.8 percent) don't have formal risk management system, 5 (45.5 percent) banks have a department / committee responsible for identifying, monitoring and controlling risks and 6 (54.6 percent) banks don't have.

Table 4.1.1 identify lack and poor risk management system in Palestine banks, risk management is more important in the financial sector than in others parts of economy with the rapidly changing financial world, financial institution in general and banks in particular are most sensitive for these changes.

Table 4.1.1

**You have formal system of Risk management in bank organization**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	2	18.2	18.2	18.2
Disagree	7	63.6	63.6	81.8
No opinion	1	9.1	9.1	90.9
Agree	1	9.1	9.1	100.0
Total	11	100.0	100.0	

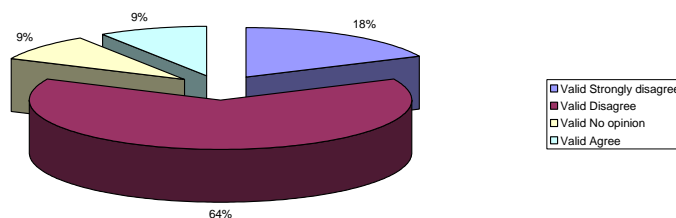
**Figure 4.1 Risk Management Environment and Sound Policies and Procedures.****Figure 4.1.1  
Formal system of risk management**

Table 4.1.2 identify that there is no risk management department or committee deals with financial risks faced by banks but 45.5 % mention there is a monitoring mechanism for these risks through certain bank department such as credit department. The findings, on the surface, indicate poor risk management and banks must commence to learn how to cope with rapidly changing banking operations and rapidly changing and diversifying banks services and investment

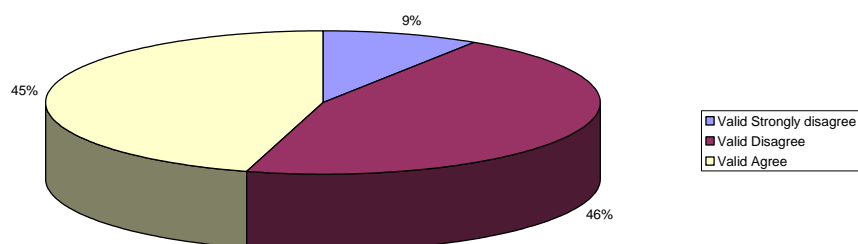
activities resulting from globalization and information technology advancement. The importance of introducing risk management to the banks operations in Palestine gets more pressing as more and more national authority is conceived and more national rights and self control are gained by the Palestinians in their lands. Banks must clearly identify the committees or personnel responsible for risk management and define the line of authority and responsibility within such committees. Mode of application of financial risk management systems must be identified and must reciprocate with diversification of bank services and trades.

**Table 4.1.2**

**There a department / committee responsible for identifying, monitoring and controlling risks**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	1	9.1	9.1	9.1
Disagree	5	45.5	45.5	54.5
Agree	5	45.5	45.5	100.0
Total	11	100.0	100.0	

**Figure 4.1.2**  
**Department responsible for identify, Monitor and control risk**





## **RESEARCH QUESTION No.2:**

### **What are the policies and procedures applied by banks in managing risk?**

Tables 4.1.3, present 8 (72.7percent) banks don't have internal guidelines, rules and concrete procedures related to risk management system. Guidelines and strategies should be followed to limits the risks involved in different activities. These guidelines should cover the structure of assets in terms of concentration and maturity, assets –liability mismatching, hedging, etc. but the survey results identify lack of guidelines in Palestine banks.

**Table 4.1.3**

**Banks have internal guidelines / rules and concrete procedures with respect to the risk management system**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	1	9.1	9.1	9.1
Disagree	7	63.6	63.6	72.7
Agree	1	9.1	9.1	81.8
Strongly Agree	2	18.2	18.2	100.0
Total	11	100.0	100.0	

**Figure 4.1.3**  
**Internal guidelines, rules and procedures**

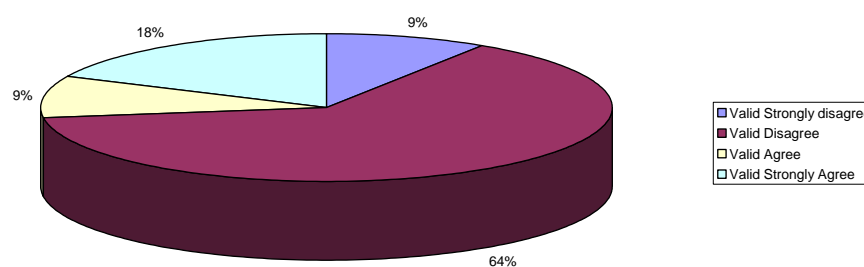


Table 4.1.4, present 9 (81.8 percent) bank applicable Basel committee standard. the objectives of the New Basel Capital Accord to promote safety and soundness in the financial systems, the Accord should continue to enhance competitive equality and also the Accord should constitute a more comprehensive approach to addressing risks.81.8% of Palestine bank complies with Basel Committee standards.

**Table 4.1.4**

**Your banks comply with Basel committee standards?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	1	9.1	9.1	9.1
Disagree	1	9.1	9.1	18.2
Agree	9	81.8	81.8	100.0
Total	11	100.0	100.0	

**Figure 4.1.4**  
**Basel committee standards**

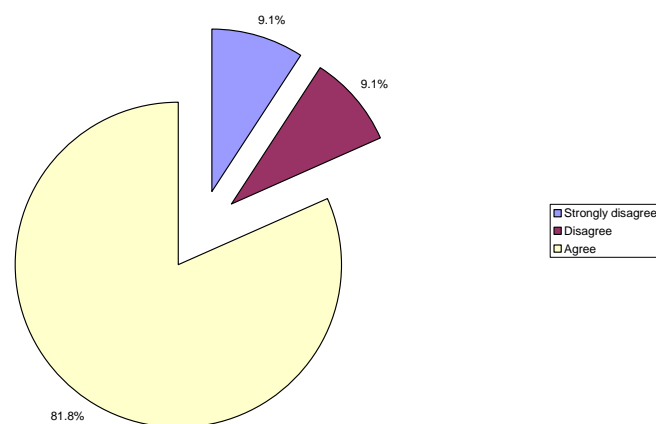


Table 4.1.5, 4.1.6, 4.1.7 present the following results. 11 (100 percent) banks have guidelines that are used for loan approvals. 8 banks (72.7 percent) have documented risk management system. Most banks (90.9 percent) determine a capital requirement enough to capture financial risk.

Table 4.1.5 identify that Palestinian bank set a major guidelines for a loan approval as we see Basel Committee set a major principle of banks credit risk management system by developing written procedures that reflect the overall strategy and ensure its implementation , the procedures should include policies to identify ,measure , monitor and control credit risk.

**Table 4.1.5**

**The bank adopted and utilized guidelines for a loan approval system**

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	5	45.5	45.5	45.5
Strongly Agree	6	54.5	54.5	100.0
Total	11	100.0	100.0	

**Figure 4.1.5**  
**Guidelines for a loan approval system**

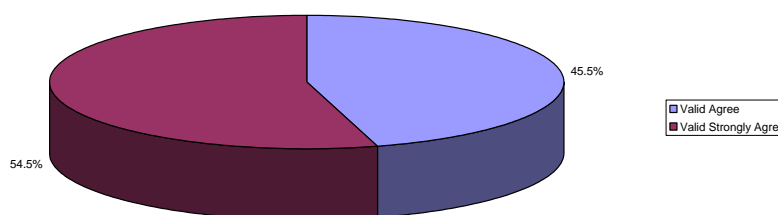


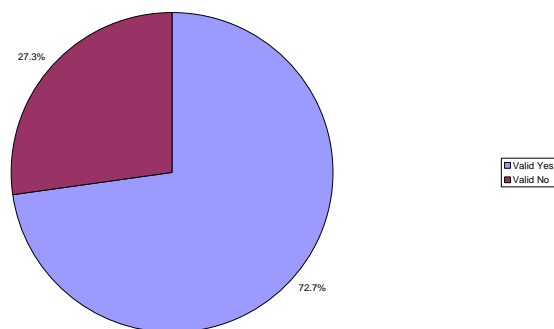
Table 4.1.6 identify that banks have a documented risk management policy, this result may conflict with table 4.1.1 about formal risk management system and table 4.1.2 department or committee , because bank in Palestine tell this time don't have a system deal with all risk faced by banks , but they try to have documented related to Basel accord about risk management .

**Table 4.1.6**

**Your bank has a documented risk management policy**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	8	72.7	72.7	72.7
No	3	27.3	27.3	100.0
Total	11	100.0	100.0	

**Figure 4.1.6**  
**Documented risk management policy**



Bank capital is the most effective source of protection against risks. It is also an effective means of regulation because capital standards can be enforced uniformly across institutions and jurisdictions. Capital is required to support the risks of assets and for its stabilization and confidence building role, particularly, against the eventuality of any crisis and in fact when it arises as table 4.1.7 most banks consider capital requirement to capture financial risk.

**Table 4.1.7****Your bank determine a capital requirement to capture financial risk**

	Frequency	Percent	Valid Percent	Cumulative Percent
No opinion	1	9.1	9.1	9.1
Agree	6	54.5	54.5	63.6
Strongly Agree	4	36.4	36.4	100.0
Total	11	100.0	100.0	

**Figure 4.1.7**  
**Capital requirement to capture financial risk**

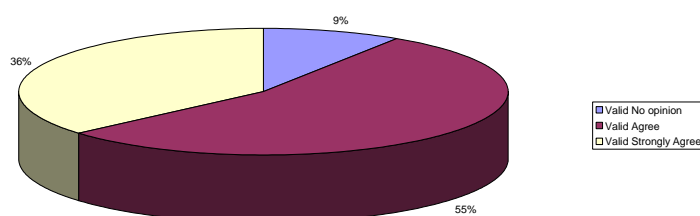


Table 4.1.8, 4.1.9, 4.1.10 present bank management team constitute the highest percentage (72.7) who approved financial risk management policy, then board of directors (18.2 percent), 6 bank (54.5 percent) senior management implement the policy, followed by 3 bank (27.2 percent) credit department and 2 banks (18.2 percent) implement risk policies by the finance department. The risk management policy promulgate to executive management where 9 bank (81.8 percent) followed by 2 bank (18.2 percent) promulgated for chief executive officer / board. Management responsibility, in particular, the board of directors can create the risk management environment by clearly identifying the risk objectives and strategies. In Palestinian banks, only 18.2% identify risk objectives by the BOD, considering

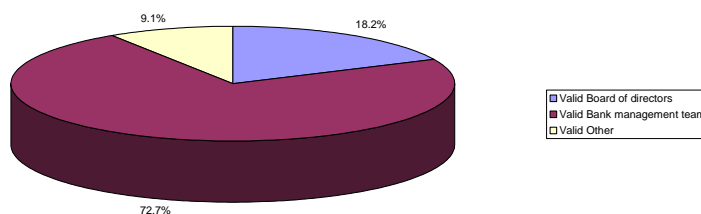
that banks in Palestine are with limited services and are with small size operations in general, basic reasons for lack of attendance to financial risk management systems and procedures and ad hoc basis and management level implementation of risk management if applied.

**Table 4.1.8**

**Approval of the financial risk management policy by**

	Frequency	Percent	Valid Percent	Cumulative Percent
Board of directors	2	18.2	18.2	18.2
Bank management team	8	72.7	72.7	90.9
Other	1	9.1	9.1	100.0
Total	11	100.0	100.0	

**Figure 4.1.8**  
**Approved financial risk management policy**

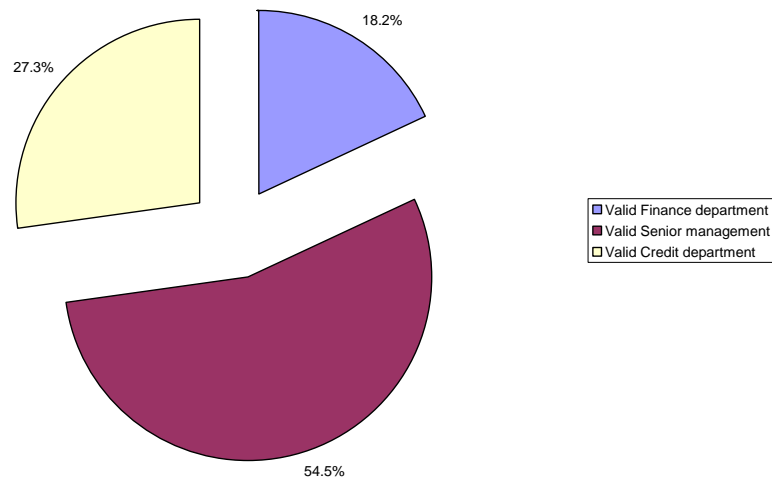


**Table 4.1.9**

**Implements the risk management policy**

	Frequency	Percent	Valid Percent	Cumulative Percent
Finance department	2	18.2	18.2	18.2
Senior management	6	54.5	54.5	72.7
Credit department	3	27.3	27.3	100.0
Total	11	100.0	100.0	

**Figure 4.1.9**  
**Implements the policy**

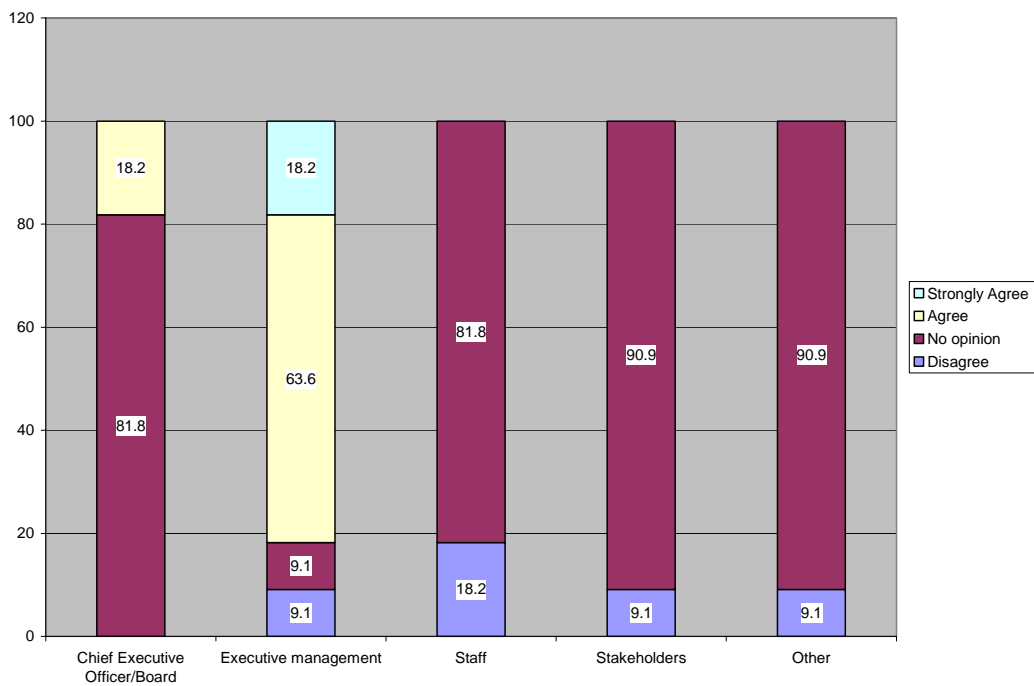


**Table 4.1.10**

**The extent of risk management policy promulgated through the following administrative Level is....**

<b>Frequency</b>					
	<b>Chief Executive Officer/Board</b>	<b>Executive management</b>	<b>Staff</b>	<b>Stakeholders</b>	<b>Other</b>
Disagree		1	2	1	1
No opinion	9	1	9	10	10
Agree	2	7			
Strongly Agree		2			
<b>Total</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>

**Figure 4.1.10**  
**Promulgated risk management policy**



**RESEARCH QUESTION No.3:**

**Are the banks considering financial risk when they make any decision?**

Table 4.1.11 present the result 4 banks (36.4) have no opinion about disclosure of financial risk in annual report and 6 banks (54.6 percent) have a disclosure about financial risk management in the annual report. The system should be able to provide information on sensitivities and concentration in the credit portfolio, interest rates. Reports are also important to provide summaries of the interest rate risk policies and procedures to enable to assess the sensitivity of the institution to



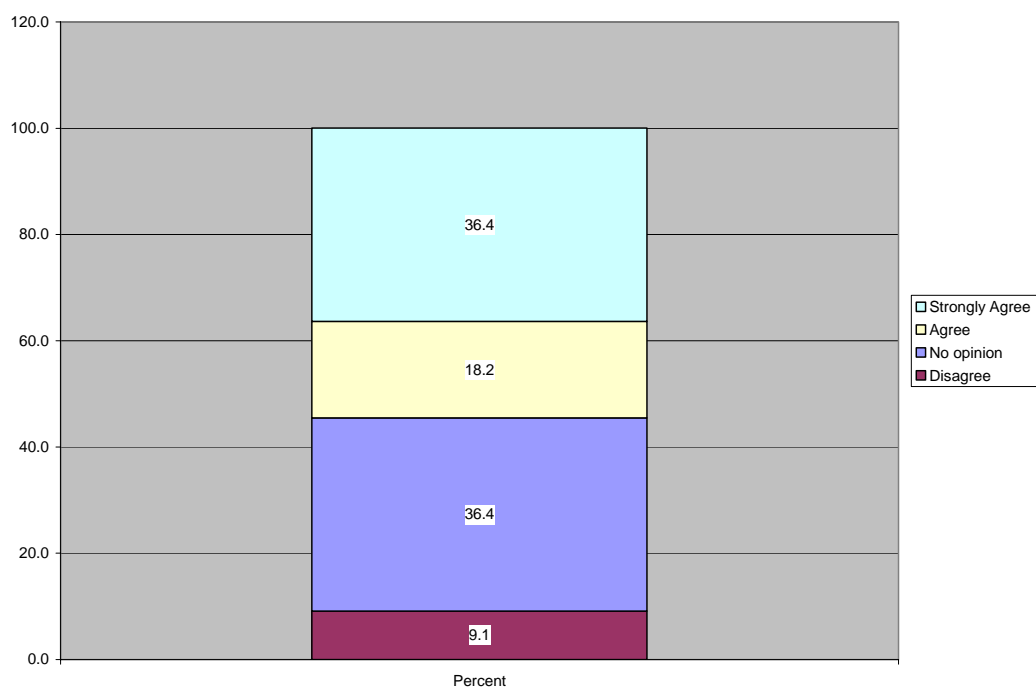
changes in the markets conditions and other risk factors, and also provide information about liquidity risk and other risks involved.

**Table 4.1.11**

**There is a disclosure about financial risk in the annual report**

	Frequency	Percent	Valid Percent	Cumulative Percent
Disagree	1	9.1	9.1	9.1
No opinion	4	36.4	36.4	45.5
Agree	2	18.2	18.2	63.6
Strongly Agree	4	36.4	36.4	100.0
Total	11	100.0	100.0	

**Figure 4.1.11**  
**Disclosure about financial risk**



**Table 4.1.A**  
**Summary of 4.1**

**Establishing Appropriate Risk Management Environment and Sound Policies and Procedures.**

		<b>Strongly Disagree</b>	<b>Disagree</b>	<b>No Opinion</b>	<b>Agree</b>	<b>Strongly agree</b>
1. You have formal system of Risk management in bank organization.	<b>Frequency</b>	2	7	1	1	
	<b>percent</b>	18.2	63.6	9.1	9.1	
2. There a department / committee responsible for identifying, monitoring and controlling risks.	<b>Frequency</b>	1	5		5	
	<b>percent</b>	9.1	45.5		45.5	
3. The banks have internal guidelines / rules and concrete procedures with respect to the risk management system.	<b>Frequency</b>	1	7		1	2
	<b>percent</b>	9.1	63.6		9.1	18.2
4. Your banks comply with Basel committee standards.	<b>Frequency</b>	1	1		9	
	<b>percent</b>	9.1	9.1		81.8	
5. The bank adopted and utilized guidelines for a loan approval system.	<b>Frequency</b>				5	6
	<b>percent</b>				45.5	54.5
6. Your banks have a documented risk management policy.	<b>Frequency</b>		3		8	
	<b>percent</b>		27.3		72.7	
7. Your bank determines a capital requirement to capture financial risk.	<b>Frequency</b>			1	6	4
	<b>percent</b>			9.1	54.5	36.4
8. There is a disclosure about financial risk in the annual report.	<b>Frequency</b>		1	4	2	4
	<b>percent</b>		9.1	36.4	18.2	36.4

**In Summery**

- 9% of Palestinian banks formally employ risk management systems.

- 45.5% employ an appoint a committee to follow up on identifying and controlling banking operations risks.
- 27% have set guidelines for the risk management functions.
- 82% confirmed compliance with Basel Accord - Basel committee standards.
- 100% of the banks employ guidelines for credit approval.
- 91% of the banks establish or determine the capital limits that mitigate or capture financial risks.
- 54% of the banks in Palestine present disclosure about the financial risks in their respective annual report.

#### **RESEASRCH QUESTION NO.4:**

**What types of techniques are there for measuring, monitoring and controlling risks?**

#### **4.2 Maintaining an Appropriate Risk Measurement, Mitigating, and Monitoring Process.**

Table below shows number of responses to some issues related to risk measurement and mitigating process and focuses on the monitoring aspects of risk management.

Table 4.2.1 present 11 (100 percent) banks review and approve control process periodically.

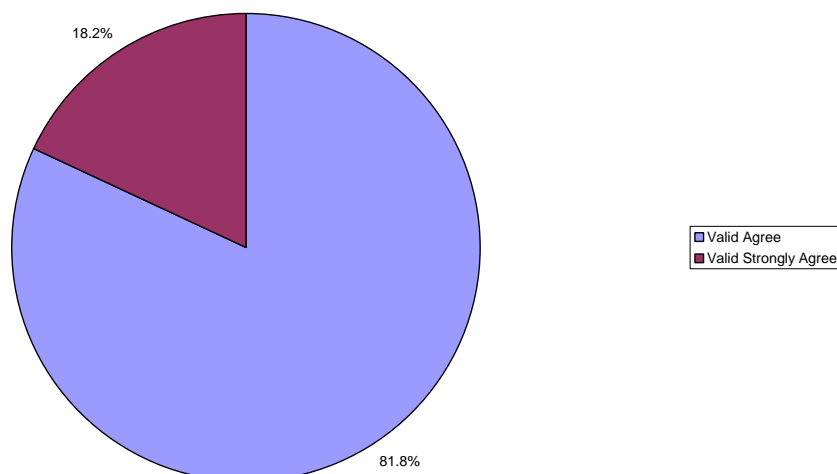
**Table 4.2.1**

#### **Review and approve control process takes place periodically**

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	9	81.8	81.8	81.8
Strongly Agree	2	18.2	18.2	100.0
Total	11	100.0	100.0	

## Figure 4.2 Risk Measurements, Mitigating, and Monitoring Process.

**Figure 4.2.1**  
**Review and approve control process**



The main risk faced by banks is credit risk, to mitigate this risk, table 4.2.2 below present that 10 banks (90.9 percent) have credit limits for individual counterparty, bank work according to Basel Accord procedures that include policies to diversify portfolio by setting exposure limits on single counterparty, groups of Connected counterparties, industries, economic sectors, act.

**Table 4.2.2**

### Credit limits for individual counterparty set and monitor

	Frequency	Percent	Valid Percent	Cumulative Percent
Disagree	1	9.1	9.1	9.1
Agree	4	36.4	36.4	45.5
Strongly Agree	6	54.5	54.5	100.0
Total	11	100.0	100.0	

**Figure 4.2.2  
Credit limits**

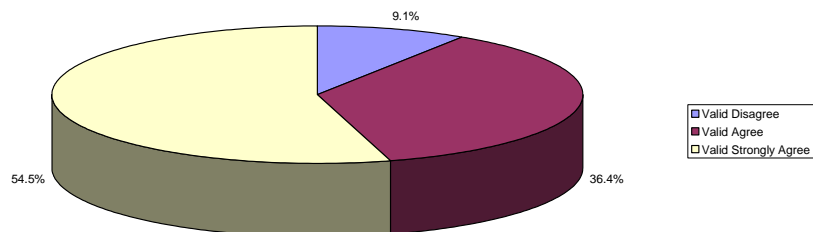


Table 4.2.3 present that 10 banks (90.9 percent) have a system for managing problem loans, banks should develop in a system for ongoing administration of various credit risks -bearing portfolios; banks have a system for monitoring individual credits including determining the adequacy of provisions and reserves.

**Table 4.2.3**

**The banks have in place a system for managing problem loans**

	Frequency	Percent	Valid Percent	Cumulative Percent
Disagree	1	9.1	9.1	9.1
Agree	6	54.5	54.5	63.6
Strongly Agree	4	36.4	36.4	100.0
Total	11	100.0	100.0	

**Figure 4.2.3  
Manage problem loans**

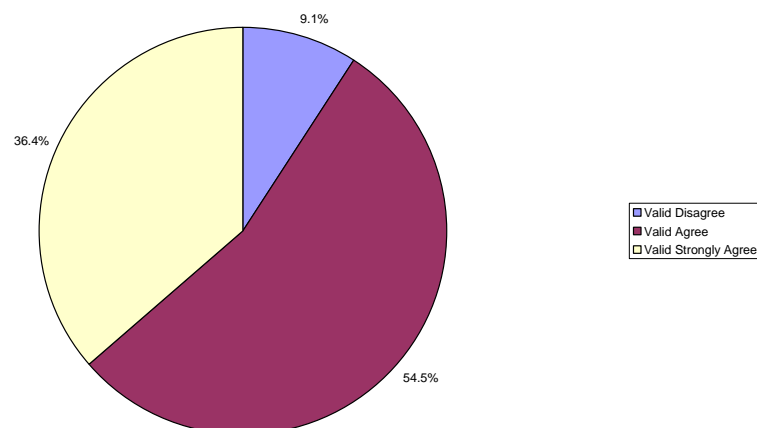


Table 4.2.4,4.2.5 present 9 banks (81.8 percent) have a regular reporting system on risk management for senior management, each bank prepares these reports in different times, usually on monthly basis (27.3 percent) and the same number on daily. According to BCBS (1999) a bank should have independent credit reports for the senior management to ensure that the banks exposures are maintained within the parameters set by prudential standards and internal limits. So banks in Palestine work according to Basel accord about regular reporting.

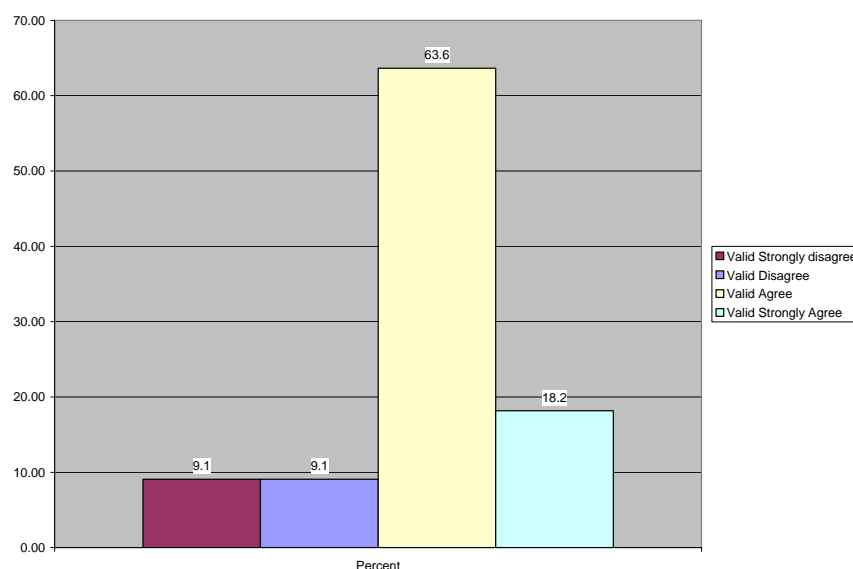
**Table 4.2.4**

**The banks have in place a regular reporting system regarding risk management for senior officers and management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	1	9.1	9.1	9.1
Disagree	1	9.1	9.1	18.2
Agree	7	63.6	63.6	81.8
Strongly Agree	2	18.2	18.2	100.0
Total	11	100.0	100.0	

**Figure 4.2.4**

**Regular reporting system regarding risk management  
For senior officers and management**



**Table 4.2.5****Bank prepares these reports on:**

	Frequency	Percent	Valid Percent	Cumulative Percent
Daily	3	27.3	27.3	27.3
Weekly	2	18.2	18.2	45.5
Monthly	3	27.3	27.3	72.7
Quarterly	1	9.1	9.1	81.8
Other	2	18.2	18.2	100.0
Total	11	100.0	100.0	

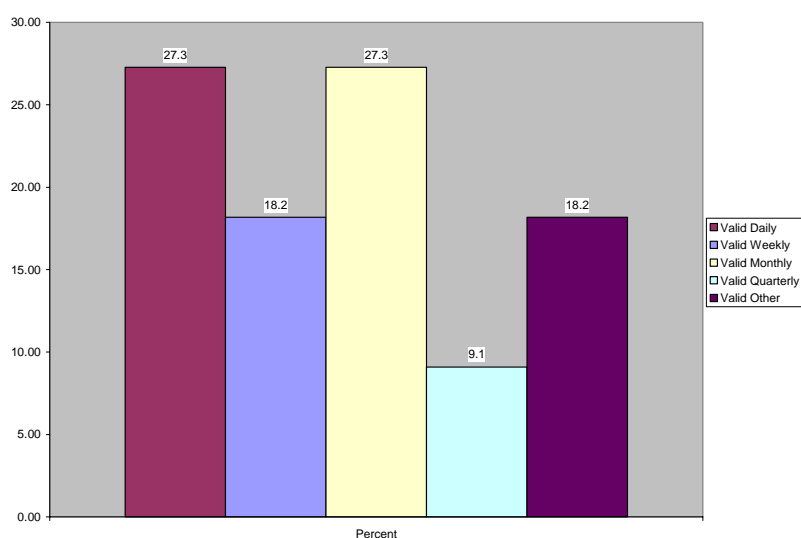
**Figure 4.2.5****Regular reporting system prepared**

Table 4.2.6 present 8 banks (72.7 percent) supervisors assess the true risk, but 3 (27.3 percent) banks disagree. The Supervisory aims to strengthen the soundness and stability of banking system and enhanced competitive equality.

**Table 4.2.6****Supervisors / regulators able to assess the true risks inherent in banks**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	1	9.1	9.1	9.1
Disagree	2	18.2	18.2	27.3
Agree	8	72.7	72.7	100.0
Total	11	100.0	100.0	

**Figure 4.2.6**  
**Assess true risks**

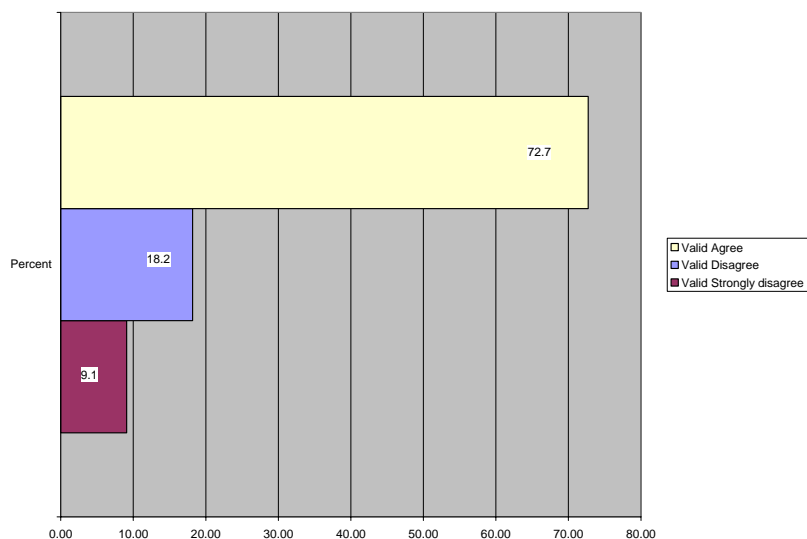


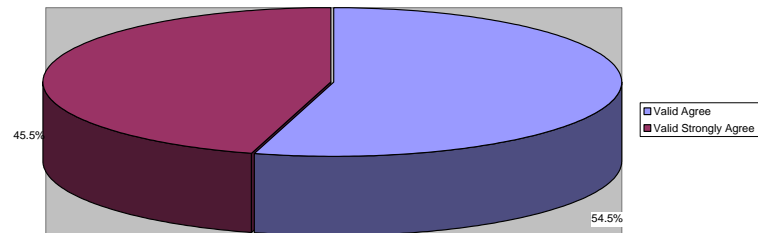
Table 4.2.7 11 banks (100 percent) have a system for assessing borrower's credit standing quantitatively, banks work according Basel accord by gathering information about counterparty ,the purpose of the credit and the source of repayment, the risk of the borrower and its sensitivity to economic and market developments , borrowers capacity , enforceability of the collateral or guarantees,etc.

**Table 4.2.7**  
**The Banks have a system for assessing borrower's credit standing quantitatively**

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	6	54.5	54.5	54.5
Strongly Agree	5	45.5	45.5	100.0
Total	11	100.0	100.0	



**Figure 4.2.7**  
**Assess borrower's credit**



**Table 4.2.A**  
**Summary 4.2.1 – 4.2.7**

**Maintaining an Appropriate Risk Measuring, Mitigating, and Monitoring Process**

		<b>Strongly Disagree</b>	<b>Disagree</b>	<b>No Opinion</b>	<b>Agree</b>	<b>Strongly agree</b>
1. Review and approve control process takes place periodically	<b>Frequency</b>				9	2
	<b>percent</b>				81.8	18.2
2. Credit limits for individual counterparty set and monitor.	<b>Frequency</b>	1			4	6
	<b>percent</b>	9.1			36.4	54.5
3. The banks have in place a system for managing problem loans.	<b>Frequency</b>	1			6	4
	<b>percent</b>	9.1			54.5	36.4
4. The banks have in place a regular reporting system regarding risk management for senior officers and management.	<b>Frequency</b>	1	1		7	2
	<b>percent</b>	9.1	9.1		63.6	18.2
5. Supervisors / regulators able to assess the true risks inherent in banks.	<b>Frequency</b>	1	2		8	
	<b>percent</b>	9.1	18.2		72.7	
6. The banks have a system for assessing borrower's credit standing quantitatively.	<b>Frequency</b>				6	5
	<b>percent</b>				54.5	45.5

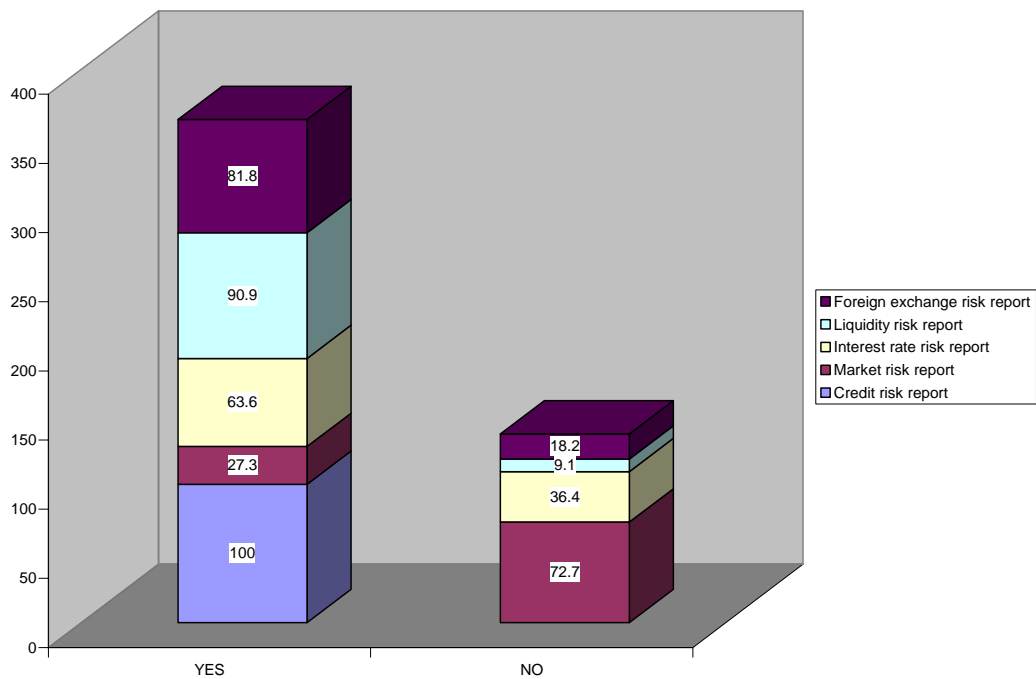
Table 4.2.8 shows the different risk reports that the banks in the sample produce. Note that a few institutions have indicated that they may not have separate risk reports as indicated in the table, but may prepare report(s) that may include information on some of these risks. The table shows that the most widely used report in the banks is credit risk report with 11 banks (100 percent) producing these, followed by liquidity risk report (90.9 percent), and followed by foreign exchange risk report 9 banks (81.8 percent). Banks produce interest rate reports (63.6 percent). The market risk reports are least used with only 3 banks (27.3 percent) producing these.

**Table 4.2.8**

**The bank produces the following reports at regular intervals**

		<b>Credit risk report</b>	<b>Market risk report</b>	<b>Interest rate risk report</b>	<b>Liquidity risk report</b>	<b>Foreign Exchange risk report</b>
YES	Frequency	11	3	7	10	9
	Percent	100	27.3	63.6	90.9	81.8
NO	Frequency		8	4	1	2
	Percent		72.7	36.4	9.1	18.2
<b>Total</b>	Frequency	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>
	Percent	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

**Figure 4.2.8**  
**Financial risk reports**



**Summary Table 4.2.8**

**Maintaining an Appropriate Risk Measuring, Mitigating, and Monitoring Process- risk report**

	<b>No. of affirmative Responses</b>	<b>Percentage</b>
<b>Credit risk report</b>	11	100
<b>Market risk report</b>	3	27.3
<b>Interest rate risk report</b>	7	63.6
<b>Liquidity risk report</b>	10	90.9
<b>Foreign exchange risk report</b>	9	81.8

Table 4.2.9 present 6 banks that use model to predict credit risk , 1 bank use models to predict market risk ,7 banks use models to predict interest rate risk , 9 banks use models to predict liquidity risk and 9 banks use models to predict foreign exchange risk.

Table 4.2.9

The bank uses any model to predict...

		Credit risk model	Market risk model	Interest rate risk model	Liquidity risk model	Foreign exchange risk model
YES	Frequency	6	1	7	9	9
	Percent	54.5	9.1	63.6	81.8	81.8
NO	Frequency	5	10	4	2	2
	Percent	45.5	90.9	36.4	18.2	18.2
<b>Total</b>	Frequency	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>
	Percent	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Figure 4.2.9

The bank uses any model to predict

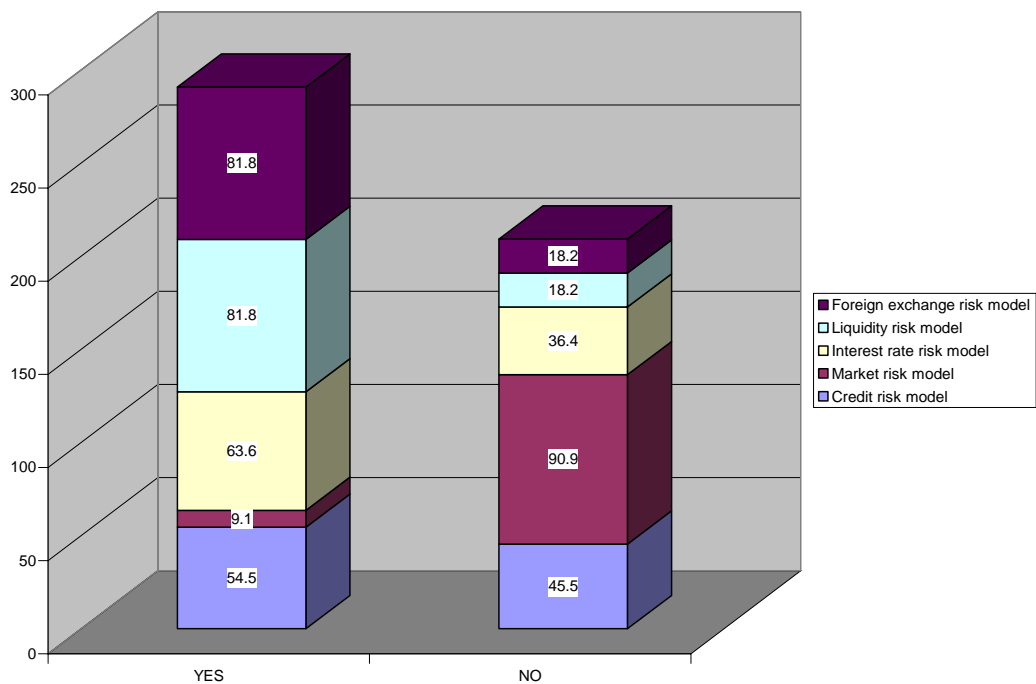


Table 4.2.10 exhibits different risk measuring and mitigation techniques used by banks. There may be a variety of formats in which these techniques can be used, ranging from very simple analysis to sophisticated models. The most common used is the standardized approach used by banks to mitigate credit risk, maturity ladder to mitigate liquidity risks is used by 8 banks (72.7 percent), while 2 of banks (18.2 percent) estimate worst case scenarios, 4 (36.4 percent) banks used gap analysis to mitigate interest rate risk and 2 (18.2 percent) used duration analysis to estimate interest rate risk. No bank use value at risk (VaR) to mitigate market risk we notice from table 4.2.2 3 banks prepared market risk report. Around 45.5 percent of bank use netting system to mitigate foreign exchange rate risk and around 36.4 use swap and the same percent use other techniques.

Table 4.2.10

## Risk management technique bank regularly utilizes

		FREQUENCY			Total	No. of affirmative Responses	Percentage of total
		YES	NO				
<b>CREDIT RISK</b>	standardized approach	10	1	<b>11</b>	10	90.9	
	IRB approach	1	10	<b>11</b>	1	9.1	
	Other (CR)	2	9	<b>11</b>	2	18.2	
<b>MARKET RISK</b>	Value at risk (VaR)		11	<b>11</b>	0		
	Standardized approach (MR)	3	8	<b>11</b>	3	27.3	
	Other (MR)	1	10	<b>11</b>	1	9.1	
<b>INTEREST RATE RISK</b>	Gap analysis	4	7	<b>11</b>	4	36.4	
	Duration	2	9	<b>11</b>	2	18.2	
	Other (IR)	1	10	<b>11</b>	1	9.1	
<b>LIQUIDITY RISK</b>	Maturity ladder	8	3	<b>11</b>	8	72.7	
	worst-case scenarios	2	9	<b>11</b>	2	18.2	
	Other (LR)	1	10	<b>11</b>	1	9.1	
<b>FOREIGN EXCHANGE RATE RISK</b>	Netting	5	6	<b>11</b>	5	45.5	
	swap	4	7	<b>11</b>	4	36.4	
	Other (FR)	4	7	<b>11</b>	4	36.4	

The banks indicate the use of some other techniques not listed in table 4.2.10.

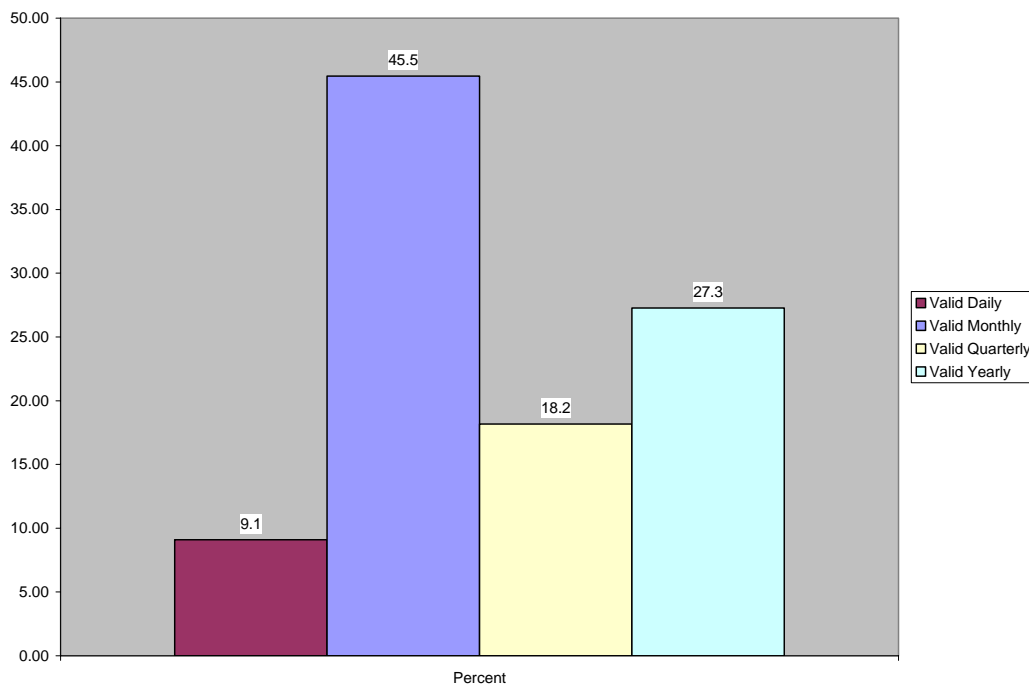
These include analysis of customer such as collateral, sector ...act.

Table 4.2.11 present that Banks measured financial risks in different time, 5 banks ( 45.5 percent ) measured on monthly , 3 bank ( 27.3 percent ) measured yearly ,2 (18.2 percent ) quarterly and 1 bank ( 9.1 percent) daily.

**Table 4.2.11**  
**The bank measuring financial risk**

	Frequency	Percent	Valid Percent	Cumulative Percent
Daily	1	9.1	9.1	9.1
Monthly	5	45.5	45.5	54.5
Quarterly	2	18.2	18.2	72.7
Yearly	3	27.3	27.3	100.0
Total	11	100.0	100.0	

**Figure 4.2.10**  
**Measure financial risk**



### 4.3. Adequate Internal Controls

Table 4.3 points out some aspects of internal controls that banks have in place. according to Basel accord banks should have internal controls to ensure that all policies are adhered to an effective system of internal control includes an adequate process to identify and evaluating different kinds of risks , the results from survey listed in tables below 4.3.1,4.3.2present that 7 banks (63.7 percent) indicate that they have some form of internal control system in place that can promptly identify risks arising from changes in the environment.4 banks (36.4 percent) don't have separation of duties between who generate risks and who manage and control risk, but an important part of internal control is to ensure that the duties of those who measure ,monitor and control risks are separated , while 5 (45.5 percent) of the banks has separated duties of those who generate risks and those who manage and control risks.

**Table 4.3.1**

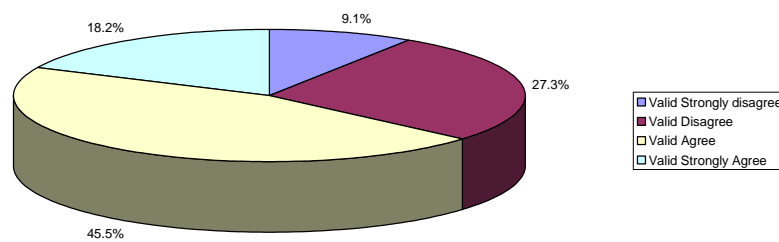
**The Banks have an internal control system capable of dealing with newly recognized risks arising from changes in environment, etc.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	1	9.1	9.1	9.1
Disagree	3	27.3	27.3	36.4
Agree	5	45.5	45.5	81.8
Strongly Agree	2	18.2	18.2	100.0
Total	11	100.0	100.0	



**Figure 4.3 Adequate Internal Controls**

**Figure 4.3.1**  
**Internal control system capable of dealing with newly recognized risks arising from changes in environment,**



**Table 4.3.2**

**A separation of duties between those who generate risks and those who manage and control risks**

	Frequency	Percent	Valid Percent	Cumulative Percent
Disagree	4	36.4	36.4	36.4
No opinion	2	18.2	18.2	54.5
Agree	4	36.4	36.4	90.9
Strongly Agree	1	9.1	9.1	100.0
Total	11	100.0	100.0	

**Figure 4.3.2**  
**Separation of duties**

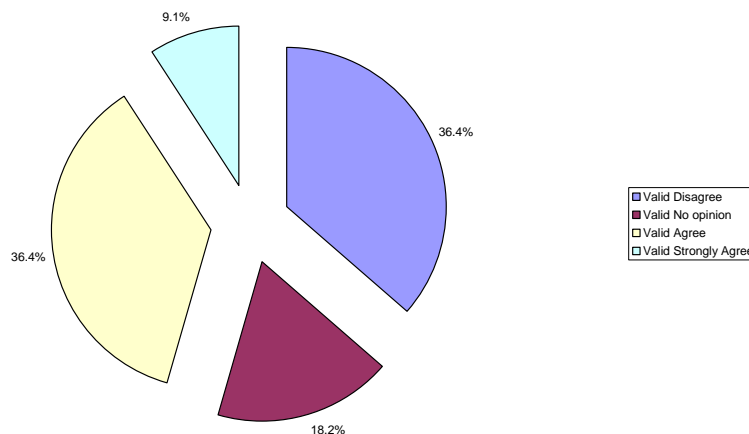


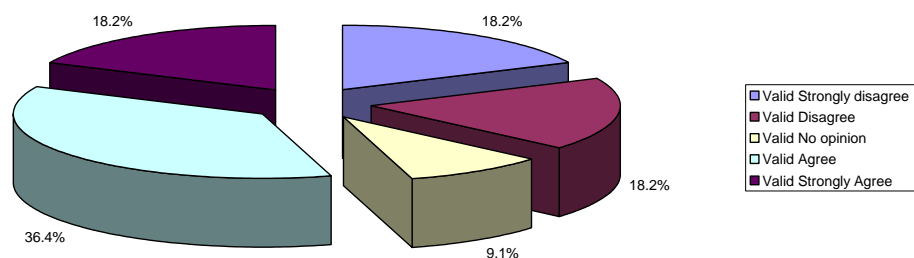
Table 4.3.3, 4.3.4, 4.3.5, present 6 banks (54.6 percent) have contingency plans against disasters and accidents. The same number of bank (54.6 percent) indicate that internal auditor reviews and verifies the risk report, while 4 (36.4 percent) bank no responsibility to review and verify guidelines and risk reports. A 100 percent of these banks have backups of software and data files.

**Table 4.3.3**

**The banks have contingency plans against disasters and accidents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	2	18.2	18.2	18.2
Disagree	2	18.2	18.2	36.4
No opinion	1	9.1	9.1	45.5
Agree	4	36.4	36.4	81.8
Strongly Agree	2	18.2	18.2	100.0
Total	11	100.0	100.0	

**Figure 4.3.3**  
**Contingency plans against disasters and accidents**

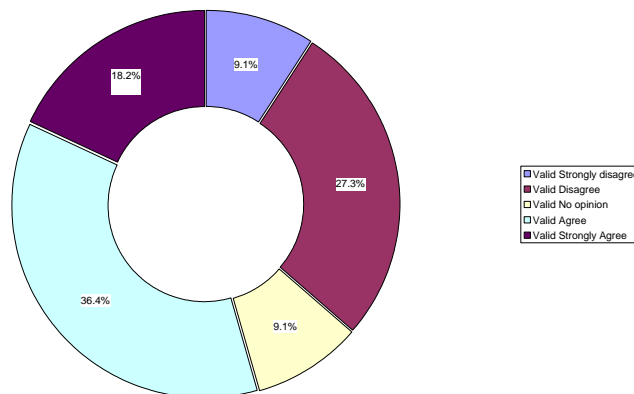


**Table 4.3.4**

**The internal auditor responsible to review and identify the risk management systems, guidelines and risk reports**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	1	9.1	9.1	9.1
Disagree	3	27.3	27.3	36.4
No opinion	1	9.1	9.1	45.5
Agree	4	36.4	36.4	81.8
Strongly Agree	2	18.2	18.2	100.0
Total	11	100.0	100.0	

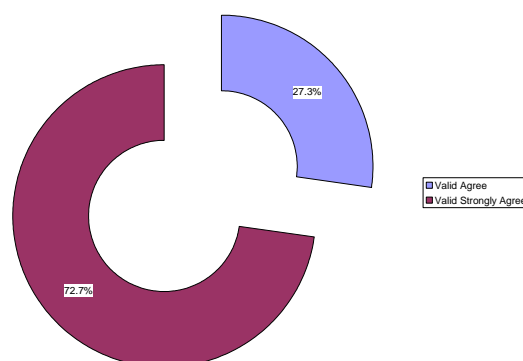
**Figure 4.3.4  
Responsibility of internal control**



**Table 4.3.5  
Banks have backups of software and data files**

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	3	27.3	27.3	27.3
Strongly Agree	8	72.7	72.7	100.0
Total	11	100.0	100.0	

**Figure 4.3.5  
Backups of software and data files**



**Table 4.3. A**  
**Summary of 4.3.1 – 4.3.5**

**Adequate Internal Controls**

		<b>Strongly Disagree</b>	<b>Disagree</b>	<b>No Opinion</b>	<b>Agree</b>	<b>Strongly agree</b>
1. The banks have in place an internal control system capable of dealing with newly recognized risks arising from changes in environment, etc.	<b>Frequency</b>	1	3		5	2
	<b>percent</b>	9.1	27..3		45..5	18.2
2. There a separation of duties between those who generate risks and those who manage and control risks.	<b>Frequency</b>	4		2	4	1
	<b>percent</b>	36.4		18.2	36.4	9.1
3. The banks have contingency plans against disasters and accidents.	<b>Frequency</b>	2	2	1	4	2
	<b>percent</b>	18.2	18.2	9.1	36.4	18.2
4. The internal auditor responsible to review and identify the risk management systems, guidelines and risk reports.	<b>Frequency</b>	1	3	1	4	2
	<b>percent</b>	9.1	27.3	9.1	36.4	18.2
5. The banks have backups of software and data files.	<b>Frequency</b>				3	8
	<b>percent</b>				27..3	72.7

#### **4.4 Conclusion**

This chapter summarizes the general findings of the surveys distributed, to treasury manager in banks and the study shows that banks in Palestine are lacking and have poor risk management system for monitoring, measuring and mitigating risks. The following chapter summarizes the main conclusions of the study.

# V

## CONCLUSION AND RECOMMENDATIONS

### Introduction

This chapter summarizes the conclusions made in the previous chapters. It covers a number of important areas concerning risk management issues in the banking sector.

The introductory chapter covered, among other subjects, the importance of how to manage financial risk in banks. An overview of the various concepts of risks and the risk management techniques were discussed in chapter two. The perception of the banks about various risks was surveyed through a questionnaire and analyzed in chapter four. In the present chapter we summarize the main conclusions of the study, especially in section 5.1.4.

### 5.1 Conclusions

#### 5.1.1 The Environment

The future of financial institutions depends on how the banks develop coping mechanisms with the rapidly changing financial world. With globalization and information technology revolution, activities of different financial institutions expanded beyond limits of national jurisdictions. As a result, the financial sector in particular has become more dynamic, competitive, and complex. Moreover, there is a rapidly growing trend of cross-segment mergers, acquisitions and

financial consolidation, which blurs the unique risks of the various segments of the financial industry. As a result, the general premise of universal banking is becoming more dominant. Furthermore, there has been an unprecedented development in computing, mathematical finance and innovation of risk management techniques. All these developments are expected to magnify the challenges that financial institutions face. Financial institutions need to equip themselves with the up-to-date management skills and operational systems to cope with this environment. One major factor that will determine the survival and growth of the industry is how well these institutions manage the risks.

### **5.1.2 Basel Capital Accord II**

The New Basel Accord represents a major change in the way that regulatory capital for banks is calculated. Ensuring that the capital requirements set by the committee are accurately aligned with risks faced by banks, while the implementation of Basel II expected to be year – ended 2006 , a top priority for the banking industry is the integration and enhancement of systems to meet regulatory requirements .

### **5.1.3 Financial Risk Management**

The management of financial risk has become an essential part of the management of financial institutions. In definition, modeling and analysis of financial risk, in this paper we gave a brief overview of some dimensions of risks faced by banks such as credit risk, market risk, interest rate risk, liquidity risk and foreign

exchange risk and indicated a number of techniques that play a major role in the management of and coping with these risks.

#### **5.1.4 Summery of Findings**

Results from a survey of 11 banks confirm the concerns about how banks manage the risks faced, summarized below the conclusion concerning these risk management:

- ◆ How important is effective risk management strategy for alleviating financial risks? The survey identifies lack and poor risk management process in Palestine bank. The survey identifies that banks in Palestinian Banks don't have a systematic risk management practices, Banks have a poor risk management environment for measuring, mitigating and monitoring process, Banks don't have department responsible to identify, monitor and control risk and also don't have internal guidelines, rules and concrete procedures.
- ◆ The survey also identifies that the banks established a relatively good risk management process related to credit department. Banks have a guideline for loans approval which includes a documented risk management system and they comply with Basel committee in terms of maintaining enough capital requirements. Disclosures of risk management systems are extremely important for strengthening the risk management standings, the results from the survey were not clear because 36.4 % of the banks surveyed have no

opinion and 54.6 % of the banks present financial risk disclosure in the annual report.

- ◆ Management responsibility in particular , the Board of Directors can create the risk management environment by clearly identifying the risk objectives and strategies and the management needs to implement these policies efficiently by establishing system that can identify , measure , monitor and manage various risk exposures , the survey identify that :
  1. Bank management team (72.7 %) has a responsibility for approving risk management.
  2. While the senior management level (54.5%) is the top management who has overall responsibility for risk management.
  3. Some of the banks manage risks by different department such as finance department 18.2% and credit department 27.3 %.
  
- ◆ The survey identifies that banks establish good risk management environment mitigating, monitoring process such as banks review and approve control process periodically. Credit risk is the major risk faced by banks. To mitigate credit risk banks have limits for individual counterparty, also they have system to manage problem loans and have system for assessing borrower's credit. Banks have a regular reporting system on risk management for senior management usually reporting is maintained on monthly basis.



- ◆ Risk reporting is extremely important for the development of an efficient risk management system the survey results indicate that Banks produce different risk reports. Few institutions have indicated that they may not have separate risk reports such as market risk report, interest risk report, but may prepare report(s) that may include information on some of these risks. The major reports produced by banks are credit risk report, liquidity risk report and foreign exchange risk report.
- ◆ The survey also identifies the problems that banks face in managing risk; these include lack of instruments such as worst case scenarios, value at risk (VaR) ... act. Also bank measure financial risk in different time such as daily, monthly...etc.
- ◆ The survey identifies that banks have a good environment control system. The results indicate the following.
  - Banks have form of internal control system to identify risk arising from changes in the environment. They have separation of duty by 45.5 % between who generates risks analysis and the party or entity that manage and control risks.
  - Banks have contingency plans against disasters and accidents
  - Internal auditor plays an important role in risk management programs. However , internal auditors do review, verify validate or otherwise the risk report

- Banks do have automatic data back-up of data and files under control.

## **5.2 Recommendations**

Based on what has been reported in this study, a number of recommendations can be suggested for the development of risk management culture in the financial institutions. Some of these are mentioned here:-

5.2.1 Banks must introduce formal risk management system to their respective bank operations. A good start would be by banks clearly identify and dedicate the qualified personal to be responsible for risk management.

5.2.2 Risk management culture in banks can be practiced by involving the various bank departments/sections in the risk management process through regular discussion meetings. Particular emphasis must be laid on involving the Board of Directors. Banks can create the risk management environment by clearly identifying the risk management objectives and strategies. Various Banks managements need to implement risk management policies efficiently by establishing systems that can identify, measure, monitor, and manage various risk exposures.

To ensure the effectiveness of the risk management process, banks also need to establish a proficient internal control system.

5.2.3 Risk reporting is extremely important for the development of an efficient risk management system. Considering that the risk management systems in banks can be substantially improved, allocating resources to prepare the periodic risk reports such as Credit Risk Report, Interest Rate Risk Report and act as need be to eliminate the negative effects of any and all risk reported in the process.

5.2.4 Disclosures about risk management systems are extremely important for strengthening the systems. Introducing a number of risk-based systems as given here can enhance risk disclosures.

- a. Risk-based Management Information System
- b. Risk-based Internal Audit Systems and
- c. Risk-based Accounting Systems

5.2.5 Risk management systems strengthen financial institutions. Therefore, risk management needs to be assigned as a priority area of research and training Programs.

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**Appendix A**  
**Credit risk approaches**

**Table A.1**

Criteria	Standardized approach	Internal Ratings based (IRB) approach	
		Foundation	Advanced
Rating	External *	Internal	Internal
Risk weight	Calibrated on the basis of external ratings by the Basel committee	Function provided by the basal committee	Function provided by the Basel committee
Probability of Default (PD): Borrower will default over a given time period	Implicitly provided by the Basel Committee; tied to risk weights based on external ratings	Provided by bank based on own estimates.	Provided by bank based on own estimates.
Exposure of default (EAD):loans the amount of the facility that is likely to be drawn if a default occurs	Supervisory values set by the Basel committee	Supervisory values set by the Basel committee	Provided by bank based on own estimates
Loss given default (LGD):the proportion of the exposure that will be lost if a default occurs	Implicitly provided by the Basel committee :tied to risk weights based on external ratings	Supervisory values set by the Basel committee	Provided by bank based on own estimates: extensive process and internal control requirement
Maturity : the remaining economic maturity of the	Implicit recognition	Supervisory values set by the Basel	Provided by bank based on own estimates(with

exposure		committee or at national discretion , provided by bank based on own estimates (with an allowance to exclude certain exposures )	an allowance to exclude certain exposures)
Data requirements	<ul style="list-style-type: none"> <li>▪ Provision dates</li> <li>▪ Default events</li> <li>▪ Exposure data</li> <li>▪ Customer segmentation</li> <li>▪ Data collateral segmentation</li> <li>▪ External ratings</li> <li>▪ Collateral data</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rating data</li> <li>▪ Default events</li> <li>▪ Historical data to estimate PDs (5 years).</li> <li>▪ Collateral data</li> </ul>	<p>same as IRB foundation, plus:</p> <ul style="list-style-type: none"> <li>▪ Historical loss data to estimate LGD(7 years)</li> <li>▪ Historical exposure data to estimate EAD(7years)</li> </ul>
Credit risk mitigation techniques (CRMT)	Defined by the supervisory regulator including financial collateral , guarantees , credit derivatives ,”netting “ (on and off balance sheet )and real estate	All collaterals from standardized approach , receivables from goods and services , other physical securities if certain criteria are met	All types of collaterals if bank can prove a CRMT by internal estimation
Process requirements(compliance with minimum requirements will be	<ul style="list-style-type: none"> <li>▪ Minimum requirements for collateral management</li> </ul>	Same as standardized , plus minimum requirements to ensure quality of	Same as the IRB foundation, plus minimum requirements to ensure quality y

subject to supervisory review under pillar 2)	(administration/evaluation) ▪ Provisioning process	internal ratings and pd estimation and their use in the risk management process	estimation of all parameters
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Source: KPMG, 2003

**\* Standardized approach**

Under this approach ratings from external agencies such as Standard & Poor's or Moody's provide the basis for measuring the credit risk posed by a particular customer, see the table.

**Table A.2**

**External credit assessment based risk weighting system**

Claims on		Assessment					
		AAA TO AA-	A+ TO A-	BBB+ TO BBB-	BB+ TO B-	BELOW B-	NOT RATED
<i>Sovereigns</i>		0%	20%	50%	100%	150%	100%
	Option 1	20%	50%	100%	100%	150%	100%
<i>Banks</i>	Option 2 long - term	20%	50%	50%	100%	150%	50%
	Option 2 short - term	20%	20%	20%	50%	150%	20%
<i>Corporations</i>		20%	100%	100%	100%	150%	100%

Source: taken from BCBS 2001 (The New Basel Accord)

## Appendix B

### Interest rate risk measurement technique

*The interest rate risk technique divided into:*

A. Repricing schedules : the simplest technique which begin with a maturity / repricing schedule that distributes interest – sensitive assets , liabilities and OBS positions into certain number of predefined time bands according to their maturity (fixed –rate ) or time remaining to next repricing (floating –rate ).

1. **Gap analysis:** GAP analysis is an interest rate risk management tool based on the balance sheet. GAP analysis focuses on the potential variability of net-interest income over specific time intervals. In this method a maturity/repricing schedule that distributes interest-sensitive assets, liabilities, and off-balance sheet positions into time bands according to their maturity (if fixed rate) or time remaining to their next repricing (if floating rate) is prepared. These schedules are then used to generate indicators of interest rate sensitivity of both earnings and economic value to changing interest rates.

GAP models focus on managing net interest income over different time intervals. After choosing the time intervals, assets and liabilities are grouped into these time buckets according to maturity (for fixed rates) or first possible repricing time (for flexible rates). The assets and liabilities that can be repriced are called rate sensitive assets (RSAs) and rate sensitive liabilities (RSLs) respectively, and GAP equals the difference between the former and the latter. Thus for a time interval, GAP is given by,

$$\text{GAP} = \text{RSAs} - \text{RSLs}$$

Note that GAP analysis is based on the assumption of repricing of balance sheet items calculated according to book value terms. The information on GAP gives the management an idea about the effects on net-income due to changes in the interest rate.

**2. Duration:** Duration model is another measure of interest rate risk and managing net interest income derived by taking into consideration all individual cash inflows and outflows. Duration is value and time weighted measure of maturity of all cash flows and represents the average time needed to recover the invested funds.

The duration analysis compares the changes in market value of the assets relative to its liabilities. Average duration gaps of assets and liabilities are estimated by assuming the duration of individual asset/liability multiplied by its share in the total asset/liability.

**B. Simulation approaches:** involve detailed assessments of the potential effects of changes in interest rates on earnings and economic value by simulating the future path of interest rates and their impact on cash flows.

1. **Static simulation:** estimate the cash flow arising from bank's current on – and off –balance sheet positions and resulting earnings streams over a specific period.
2. **Dynamic simulation:** the simulation build s in more detailed assumptions about future course of interest rates and the expected changes in a banks business activity over that time.

## Appendix C

### RELIABILITY

#### Reliability

\*\*\*\*\* Method 1 (space saver) will be used for this analysis \*\*\*\*\*

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#### RELIABILITY ANALYSIS - SCALE (ALPHA)

#### Reliability Coefficients

N of Cases = 11

N of Items = 35

Alpha = .80

**Appendix D**

**QUESTIONNAIRE**

Dear Sir / Madam

This questionnaire serves for the purpose of preparing the MBA thesis under the supervision of Dr. Naser Abdelkarim. This thesis aims to study how banks in Palestine manage financial risk. The information you provide will help me better document the procedures and policies you follow in your work.

I assure you that the information you provide will be kept strictly confidential, and used only for the purpose of this thesis.

Thank you very much for your time and cooperation and I greatly appreciate your honesty.

Maisa Burbar  
MBA Student

## QUESTIONNAIRE

*Please follow the instructions and complete the following questions:*

### I. GENERAL

1. Name of the bank \_\_\_\_\_
2. Year of Establishment \_\_\_\_\_
3. Number of Employees \_\_\_\_\_
4. Number of branches \_\_\_\_\_
5. Nature of Activities :( please mark the appropriate boxes with **x** )
  - Commercial Banking
  - Investment Banking
  - Islamic banking

### II. RISK MANAGEMENT

This section seeks information about importance of risk management (can you please circle the number that best characterizes the situation in your organization).

	Strongly disagree	Disagree	No opinion	Agree	Strongly Agree
1. You have formal system of Risk management in bank organization.	1	2	3	4	5
2. There is a section / committee responsible for identifying, monitoring and controlling risks.	1	2	3	4	5
3. The banks have internal guidelines / rules and concrete procedures with respect to the risk management system.	1	2	3	4	5



	<b>Strongly disagree</b>	<b>Disagree</b>	<b>No opinion</b>	<b>Agree</b>	<b>Strongly Agree</b>
4. The banks have in place an internal control system capable of dealing with newly recognized risks arising from changes in environment, etc.	1	2	3	4	5
5. The banks have in place a regular reporting system regarding risk management for senior officers and management.	1	2	3	4	5
6. If your answered yes ,does your bank prepares these reports on :					
▪ Daily	1	2	3	4	5
▪ Weekly	1	2	3	4	5
▪ Monthly	1	2	3	4	5
▪ Other ( please specify)_____	1	2	3	4	5
7. The internal auditor responsible to review and identify the risk management systems, guidelines and risk reports.	1	2	3	4	5
8. The banks have contingency plans against disasters and accidents.	1	2	3	4	5
9. Your banks comply with Basel committee standards?	1	2	3	4	5

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>No opinion</b>	<b>Agree</b>	<b>Strongly Agree</b>
10. Supervisors / regulators able to assess the true risks inherent in banks.	1	2	3	4	5
11. There is a separation of duties between those who generate risks and those who manage and control risks.	1	2	3	4	5
12. The banks have backups of software and data files.	1	2	3	4	5
13. Your banks determine a capital requirement to capture financial risk.	1	2	3	4	5
14. Review and approve control process takes place periodically	1	2	3	4	5
15. There is a disclosure about financial risk in the annual report.	1	2	3	4	5
16. The banks have a system for assessing borrower's credit standing quantitatively.	1	2	3	4	5
17. The bank adopted and utilized guidelines for a loan approval system.	1	2	3	4	5
18. Credit limits for individual counterparty set and monitor.	1	2	3	4	5

- |   | Strongly disagree | Disagree | No opinion | Agree | Strongly Agree |
|---|-------------------|----------|------------|-------|----------------|
| 19. The banks have in place a system for managing problem loans.  | 1                 | 2        | 3          | 4     | 5              |
| 20. How often is the bank measuring financial risk?   |                   |          |            |       |                |
| ▪ Daily   | 1                 | 2        | 3          | 4     | 5              |
| ▪ weekly  | 1                 | 2        | 3          | 4     | 5              |
| ▪ Monthly   | 1                 | 2        | 3          | 4     | 5              |
| ▪ quarterly   | 1                 | 2        | 3          | 4     | 5              |
| ▪ yearly  | 1                 | 2        | 3          | 4     | 5              |
| 21. To what extent is your organization's risk Management policy promulgated through the following administrative level |                   |          |            |       |                |
| ▪ Chief Executive Officer/Board   | 1                 | 2        | 3          | 4     | 5              |
| ▪ Executive management?   | 1                 | 2        | 3          | 4     | 5              |
| ▪ Staff   | 1                 | 2        | 3          | 4     | 5              |
| ▪ Stakeholders  | 1                 | 2        | 3          | 4     | 5              |
| ▪ Other( <i>please specify below</i> )  | 1                 | 2        | 3          | 4     | 5              |
| _____   |                   |          |            |       |                |
| _____   |                   |          |            |       |                |
| 22. Does the bank produce the following reports at regular intervals?   |                   |          |            |       |                |

		Yes	No
1	Credit risk report	1	2
2	Market risk report	1	2
3	Interest rate risk report	1	2
4	Liquidity risk report	1	2
5	Foreign exchange risk report	1	2
6	Other _____	1	2

23. Does the Bank use any model to predict ...

		Yes	No
1	Credit risk	1	2
2	Market risk	1	2
3	Interest rate risk	1	2
4	Liquidity risk	1	2
5	Foreign exchange risk	1	2

24. What is the risk management technique your bank regularly utilizes?

		Yes	No
1	Credit risk		
	▪ standardized approach	1	2
	▪ IRB approach	1	2
	▪ Other _____	1	2
2	Market risk		
	▪ Value at risk (VaR)	1	2
	▪ Standardized approach	1	2
	▪ Other _____	1	2
3	Interest rate risk		
	▪ Gap analysis	1	2
	▪ Duration	1	2
	▪ Other _____	1	2
4	Liquidity risk		
	▪ Maturity ladder	1	2
	▪ Worst –case scenarios	1	2
	▪ Other _____	1	2
5	Foreign exchange risk		
	▪ Netting	1	2
	▪ Swap	1	2
	▪ Other _____	1	2

		Yes	No
25.	Does your bank have a documented risk management policy?	1	2

26. Who approval of the financial risk management policy?

- Board of directors
- Bank management team
- Audit committee
- Chief financial officer
- Other (Please specify) \_\_\_\_\_

27. Who implements the risk management policy?

- Finance department
- Treasurer
- Senior management
- Credit department
- Other (Please specify) \_\_\_\_\_

*Thank you*