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RISK MANAGEMENT IN BANKING AND AN APPLICATION OF BASEL I IN TRNC BANKING SECTOR

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ABSTRACT

Basel I issued in 1988 first set the capital standards for banks. Nevertheless, Basel I was deeply criticized because of its deficiencies in measurement of banking risk since the first day it issued. In order to cover these deficiencies in Basel standards, Basel Committee introduced a new proposal for bank capital standards and made it available for discussions in 1999. This study examines the effect on capital adequacy ratio of an application of Basel I Standards on three Turkish banks by using a date set for the years 2003, 2004 and 2005. The empirical results point out that the application of Basel I standards in measurement of capital adequacy of the three Turkish banks comparison between TRNC banking sector ratio and would significantly higher its capital adequacy ratio on this Turkish banks.

In the first section shows the study aim, problem statement and methodology. In the second section states the importance of banking sector in economy and fundamentals of risk management in banking sector. In section three, Basel applications defined and last section three Turkish banks capital adequacy ratios analysed.

CONTEXT TABLE

PAGE

ACKNOWLEDGEMENTS	ii
ABSTRACT	iii

SECTION 1. INTRODUCTION

1.1 Aim of the study1
1.2 Importance of the study1
1.3 Broad problem Area1
1.4 Problem Definition1
1.5 Methodology2
1.6 Limitations2
1.7 Structure of study2
SECTION 2. THEORETICAL FRAMEWORK OF BANKING SECTOR
2.1 THE IMPORTANCE OF BANKING SECTOR IN THE ECONOMY
2.1.1 General background of banking sector
2.1.2 Types of Bank
2.1.2.1 Types of retail banks4
2.1.2.2 Types of investment banks
2.1.3 The importance of commercial banks in the Economy
2.1.3.1 Function of financial intermediaries7
2.1.3.2 The important role Banks in the Economy9
2.1.4 Banking Crises10

PAGE

2.2 FINANCIAL RISK MANAGEMENT IN BANKING

2.2.1 General Background of risk management	11
2.2.2 Risks in Banking Factor	12
2.2.3 Financial Risk Management	17
2.2.4 Risk Management in Banking	18
2.2.4.1 Credit Risk Management Procedures	20
2.2.4.2 Interest Rate Management Procedures	21
2.2.4.3 Foreign Exchange Risk Management Procedures	22
2.2.4.4 Liquidity Risk Management Procedures	23
2.2.5 Risk Aggregation and the Knowledge of Total Exposure	25

2.3 BASEL APPLICATIONS IN THE BANKING SECTORS

2.3.1 General information about Basel Application	26
2.3.2 Supervision and Regulation	27
2.3.3 The Establishment of the BIS	28
2.3.3.1 The Changing Role of the BIS	29
2.3.4 Basel Committee on Banking Supervision	30
2.3.4.1 Credit Risk of Basel	38
2.3.4.2 Market Risk of Basel	42
2.3.4.3 Operational Risk of Basel	.43
2.3.5 Capital Adequacy and Calculation of Risk Weighted Capital	.45

SECTION 3

Bank Capital Adequacy under Basel I: An Appl	ication
On Three Turkish Banks	49
SECTION 4	
CONCLUSION	65

LIST OF TABLE

Table 1.Primary Assets and Liabilities of Financial Intermediaries
Table 2. The Many Different Role Banks Play in the Economy
Table 2.3.1.1 Standard and Poor's Credit Ratings40
Table 3.1.1 Cyprus Vakiflar (2004) Bank Capital Adequacy
Standard ratio, list of risk weighted assets
Table 3.1.2.Cyprus Vakiflar (2004) Details of capitaland reserves (shareholders' Fund)
Table 3.1.3.Cyprus Vakiflar (2005) Bank Capital AdequacyStandard ratio, list of risk weighted assets
Table 3.1.4.Cyprus Vakiflar (2005) Details ofcapital and reserves (shareholders' Fund)
Table 3.1.5.Capital Adequacy ratio under Basel I standards
Table 3.2.1 TURKISH BANK (2004) Bank CapitalAdequacy Standard ratio, list of risk weighted assets
Table 3.2.2. TURKISH BANK (2004) Details of capital andreserves (shareholders' Fund)
Table 3.2.3. TURKISH BANK (2005) Bank Capital AdequacyStandard ratio, list of risk weighted assets
Table 3.2.4. TURKISH BANK (2005) Details of capitaland reserves (shareholders' Fund)
Table 3.2.5.Capital Adequacy ratio under Basel I standards
Table 3.3.1. Cyprus Turkish Co-OperativeCentral Bank Ltd,Risk Weighted Assets (2003)
Table 3.3.2. Cyprus Turkish Co-OperativeCentral Bank Ltd Risk Weighted Assets (2004)
Table 3.3.3. Cyprus Turkish Co-OperativeCentral Bank Ltd Capital Adequacy ratio under Basel I standards

SECTION 1

1.1 Aim of the Study

The aim of these studies is to define the concepts of risk management in banking sectors which is the most important issue banks in these days, and measure the Basel I application in three bank in Turkish Republic of Northern Cyprus (TRNC).

1.2 Importance of the study

The importance of this study is to understand Basel applications in the manner of risk management in the banking sector, and application Basel I capital adequacy ratio to three Turkish banks in TRNC.

1.3 Broad problem Area

Broad problem area in this study is risk management in banking sector. After 2001 banking crises the importance of risk management in banking sector increased therefore, understanding the concept of risk management is the major subject in this study. What are the functions of risk management in banking sector? And what's the importance of Basel applications in risk management? Answering these questions overall risk management concept defined in the study.

1.4 Problem Definition

After banking crises, banks realize that some of the important risks such as credit, liquidity, interest rate and exchange rate risk must be manage properly in the manner of risk management. That's why; first of all risk management fundamentals explained in this study and then Basel applications importance and calculations also defied for estimate banks capital adequacy ratios.

1.5 Methodology

In this study to calculate Banks Capital adequacy ratio, Basel I methodology will be used. This regulation defines the procedure for the calculation of risk weighted capital and identifies the potential need for additional capital to cover the risks that have been taken by the banks as reflected in their portfolio of assets. The regulation states that the risk weighted capital ratio should exceed 8%. The amount of "defined" capital Divided by The total of "risk weighted assets" Must be 8% or over.

1.6 Limitations

The first aim of this study is investigate Basel II application TRNC banking sector with questioners but Basel II application is complications in banking sector, this create a problem to make a questioner to understand the common Basel applications in the banking sector.

1.7 Structure of study

In the first section shows the study aim, problem statement and methodology. In the second section states the importance of banking sector in economy and fundamentals of risk management in banking sector. In section three, Basel applications defined and three Turkish banks capital adequacy ratios analysed. Last section is conclusions.

SECTION 2

2.1 THE IMPORTANCE OF BANKING SECTOR IN THE ECONOMY

2.1.1 General background of banking sector

Banking sector distinguished between another sectors of the economy with the risk subject. In the banking sectors risk are managed jointly in the operators. Thus banking business is a risk business. Also banking sector is an essential industry, when we seeking a loan to purchase a new house, commerce school, financial advice on how to invest our savings, credit to begin a new business, a safe deposit box to safeguard our valuable documents, or even more commonly, a checking account or credit card to keep track of when and where we spend our money. Banks stand ready to provide liquidity on demand to depositors through the checking account and to extend credit as well as liquidity to their borrowers through line of credit (Kashyap, Rajan, and stein, 1999). Because of these fundamental roles, bank held always been concerned with both solvency and liquidly. This sector, composed of thousands of firms worldwide, complete affects the prosperity of every other industry and the economy as whole (Wharton, Philip, E.Strahan, 2003). Banks are financial institution carry out three basic functions;

- a) Collect deposit from saver
- b) Makes loan to borrowers
- c) Help money to transferred from a bank account to another

Actually banks are private business firms that have other people's money to make profit. They make profit by changing funds from lenders to borrowers. Banks can be identified by the roles which they carry out in the economy. There functions that carrying out by banks important, but in the financial market banks are not only important institution. There are several another financial institution and they provides important functions as well, may be this institution creates problem for banks. The problem is that not only are the functions of banks changing but the functions of their principal competitors are changing as well and many financial institutions including leading security dealers, brokerage firms, mutual fund and insurance companies are trying to be as similar as possible to banks in the service they offer (S.Rose, 2002). Therefore, bank offer the broad range of financial services particularly credit, payments, savings service and perform, and they provides widest range of financial functions of any business firm in the economy.

2.1.2 Types of Bank

Banks can be characterized as *retail banking*, conduct control with individuals and small businesses and *investment banking* connection to actives on the financial market. Many banks are profit making special enterprise. But, some are owned by government or are non profit making. For example, Central banks are non commercial bodies or government agencies tasked with responsibility for controlling interest rate and money supply across the whole economy. They move as lender of last resort in event of crisis. Consequently central banks conduct monetary policies in the economy.

2.1.2.1 Types of retail banks

There are several types of banks in the retail banking sector. These banks are as follows;

- <u>Commercial bank</u>: Commercial bank is the term used for a normal bank to distinguish it from an investment bank. Banks offer a of innovative credit, cash management and investment service that were, until recently, unavailable to commercial customers (E. Ruth,2003).
- <u>Community development bank</u>: These banks are regulated banks that provide financial service and credit to the market or populations
- <u>Private banks</u>: It manages the assets of high net worth individuals.
- .<u>Offshore banks:</u> These are banks located in jurisdictions with low taxation and regulation. Many offshore banks are essentially private banks.
- <u>Savings banks: traditionally accepted savings deposits and issued mortgages.</u>
- Building societies and Landes banks both conduct retail banking.

2.1.2.2 Types of investment banks

Investment banks are expert in issuing or selling new securities. They provide these essential functions to their clients seeking to raise long-term funds: a) the advisory function, b) the underwriting (purchasing) functions, c) the selling function, d) the protective function (Civelek, Mehmet A., Durukan, M.Banu 1998). There are several types of investment banks.

- <u>Investment banks underwrite</u>; it give you guarantee the sale of, stock and bond issues and advise on mergers.
- <u>Merchant banks</u>; were traditionally banks which engaged in trade financing.
 Refers to banks which provide capital to firms in the form of share rather then loans.

2.1.3 The importance of commercial banks in the Economy

Commercial banks are private firms which they accept deposits and give credit. These banks are financial intuitions (financial intermediaries) Commercial banks, raise funds primarily by issuing checkable deposit (deposit on which checks can be written), saving deposits (deposits that are payable on demand but do not allow their owner to write checks) and time deposit (deposit with fixed terms to maturity) (S. Mishkin 2004). Commercial banks play an important role in the financial system and the economy. As a key component of the financial system, banks allocate funds from savers to borrowers in an efficient manner. They provide specialized financial services, which reduce the cost of obtaining information about both savings and borrowing opportunities. These financial services help to make the overall economy more efficient (John, 2001).. Commercial banks change greatly in size from the "money centre" banks located in the nation's financial centres that offer a broad array of traditional and non-traditional banking services, including international lending, to the smaller regional and local community banks engaged in more typical banking activities, such as consumer and business lending. Commercial banks receive revenue from many sources including check writing, account and transaction fees, investments, loans and mortgages. A growing number of banks also receive revenue from consumer use of Internet banking services (John, 2001). The following table provides a guide to the discussion of the financial intermediaries that fit into these three categories by describing their primary liabilities (sources of funds) and assets (uses of funds) (S. Mishkin 2004).

TABLE 1.Primary Assets and Liabilities of Financial Intermediaries.		
Type of intermediary	Primary Liabilities (Sources of Funds)	Primary Assets (uses of Funds)
Deposit institutions (banks)		
Commercial banks	Deposit	Business and consumer loans, mortgages, U.S. government security and municipal bond
Saving and loans associations	Deposit	Mortgages
Mutual saving banks	Deposit	Mortgages
Credit unions	Deposit	Consumer loans
Contractual saving		
institutions	Premium from policies	Corporate bonds and mortgagees
Fire and casualty insurance companies	Premium from policies	Municipal bonds, corporate bond and stock, U.S. government securities
Pension funds, government retirement funds	Employer and employee contributions	Corporate bonds and stock
Investment intermediaries		Concumer and husiness loans
Financial companies	Commercial paper, stocks bonds	
Mutual funds	Shares	bonds and stock
Money market mutual funds	Shares	money market instrument

(Source: Frederic S.Mishkin the Economies of money, Banking and Finance Markets seven Editions 2004, pag.34)

2.1.3.1 Function of financial intermediaries

Financial intermediaries have important role in the economy. Financial intermediaries(FI)

does this by borrowing funds from the lender savers and then using these funds to make

loans to borrower spender, for example a bank might acquire funds by issuing a liability to public(an asset for the public) in the from of saving deposits (S. Mishkin 2004). The following function of financial intermediaries.

1- Transactions Costs

a- Financial intermediaries make profits by reducing transactions costs

b- Reduce transactions costs by developing expertise and taking advantage of economies of scale

2- Another benefit made possible by the FI's low transaction costs is that they can help reduce the exposure of investors to risk, through a process known as **risk sharing**

a- FIs create and sell assets with lesser risk to one party in order to buy assets with greater risk from another party

b-This process is referred to as **asset transformation**, because in a sense risky assets are turned into safer assets for investors

3- Asymmetric Information: When one party to a transaction has more info than the other. Causes Adverse Selection and Moral Hazard Problems Adverse Selection, and Moral Hazard.

a. Adverse selection is the problem created by asymmetric information before transaction occurs. Potential borrowers who are most likely to default seek loans and be selected.

b. Moral hazard is the problem created by asymmetric information after transaction occurs. Hazard that borrower engage in undesirable activities, making it more likely to default

2.1.3.2 The important Role Banks in the Economy

Banks are among the most important financial institutions in the economy and they are

the principal source of credit (loan able funds) for millions of individuals and families

and for many units of government (school districts, cities, counties, etc) (S. Rose, 2002).

Therefore banks play an important role in the economy.

Table 2. The Many Different Role Banks Play in the Economy

While many people believe that banks play only narrow role in the economy-taking deposits and making loan the modern bank had to adopt new role to remain competitive and responsive to public needs. Baking's principal role today are as follows;

The intermediation role;	Transforming saving received primarily from households into credit(loans) for business firms and others in order to make
	investments in new buildings, equipment and other goods.
The payments role;	Carrying out payment for good and services on behalf of their customers (such as by issuing and clearing checks, wiring funds, providing a conduit for electronic payments and dispensing currency and coin).
The guarantor role;	Standing behalf their customers to pay off customer debts when those customers are unable to pay (such as by issuing letter of credit).
The risk management role;	Assisting customer in preparing financially for the risk of loss to property and persons.
The savings/investment advisor role;	Aiding customer in fulfilling their long-range goals for a better life by building, managing and protecting savings.
The safekeeping/certification of value role;	Safeguarding a customer's valuables and appraising and certifying their true market value.
The agency role;	Acting on behalf of customers to manage and protect their property or issue and redeem their securities (usually provided through the bank's trust department).
The policy role;	Serving as a conduit for government policy in attempting to regulate the growth of the economy and pursue social goals.)

(Source: ROSE, Peter S., Commercial Bank Management, Fifth Edition, McGraw-Hill Irwin, 2002, pg3.

2.1.4 Banking Crises

Banks are susceptible to many forms of risk which have triggered occasional systemic crises. Risks include *liquidity risk* (the risk that many depositors will request withdrawals beyond available funds), credit risk (the risk that those that owe money to the bank will not repay), and *interest rate risk* (the risk that the bank will become unprofitable if rising interest rates force it to pay relatively more on its deposits than it receives on its loans), among others.

Banking crises have developed many times throughout history when one or more risks materialize for a banking sector as a whole, prominent example include the U.S. savings and loan crises in 1980s and early 1990s, the Japanese banking crises during the 1990s and the bank run that occurred during the Great depression and the recent liquidation by the central bank of Nigeria, where about 25 banks were liquidated (http://en.wikipedia.org/wiki/Risk_management).

While each banking crisis has its own dynamics, most of the main ingredients are always present. Based on their most common causes, banking crises can be classified into one of two categories: microeconomic (or bad banking), and macroeconomic (or bad operating environment). Let me mention each of them briefly:

Banking crises often have their roots in poor bank operations: poor lending practices, excessive risk taking, poor governance, lack of internal controls, focus on market share rather than profitability, and currency and maturity mismatches in the banks themselves

or among their borrowers. These conditions are aggravated if bank owners have little at stake in the banks. That is, do not have enough capital invested in the banks and if bank managers carry little personal responsibility for the risks they take.

Crises can arise from macroeconomic causes that are external to the banking system. Even well-run banking systems operating in a strong legal and regulatory framework can be overwhelmed by the effects of a poor macroeconomic environment or inadequate policies. Macroeconomic difficulties may arise from lending booms, possibly stoked by excessive capital inflows or changes in tax rules; real estate and/or equity price bubbles that inflate and burst; slowdown in growth and/or exports, or the loss of export markets; growing excess capacity/falling profitability in real sector; lower overall investment; rising fiscal and/or current account deficits; weakened public debt sustainability; sharp changes in exchange rates and real interest rates; and so on. Not all these developments are under authorities' control, but governments must be ready to adapt macro policies that take the conditions of a systemically distressed banking system into account.

2.2 FINANCIAL RISK MANAGEMENT IN BANKING

2.2.1 General Background of risk management

These sections explain what the risks, types of risks and how to risk effect the financial management in banking. Business firms and banks are facing a number of financial risks in their operations. Financial risk management refers to the identification, analysis and treatment of regulative financial risks (George E, 2004).

2.2.2 Risks in Banking Factor:

• Definition of Risk

Risk has two components: Uncertainty, and exposure. If either is not present, there is no risk. Suppose a man jumps out of an airplane with a parachute on his back. He may be uncertain as to whether or not the chute will open. He is taking risk because he is exposed to that uncertainty. If the chute fails to open, he will suffer personally. Now suppose the man jumps out of the plane without a parachute on his back. If he is certain to die, he faces no risk. Risk requires exposure and uncertainty. A synonym for uncertainty is ignorance. We face risk because we are ignorant about the future. After all, if we were omniscient, there would be no risk. Because ignorance is a personal experience, risk is necessarily subjective. Consider another example: A man is heading to the airport to catch a flight. The weather is threatening, and it is possible the flight has been cancelled. He is uncertain as to the status of the flight and faces exposure to that uncertainty. His travel plans will be disrupted if the flight is cancelled. Accordingly, he faces risk.

Suppose a woman is also heading to the airport to catch the same flight. She has called ahead and confirmed that the flight is not cancelled. She has less uncertainty and faces lower risk. In this example, there are two individuals exposed to the same event. Because they have different levels of uncertainty, they face different levels of risk. Risk is subjective. Risk is a personal experience, not only because it is subjective, but because it is individuals who suffer the consequences of risk. Although we may speak of companies taking risk, in actuality, companies are merely conduits for risk. Ultimately, all risks which flow through an organization accrue to individual's stockholders, creditors, employees, customers, board members, etc.

Bank Capital and Risk

Bank capital and risk are intimately related to each other. Capital itself is mainly the funds contributed by the owners of bank that have been placed there at the owners risk, the risk that the bank will earn a less-than-satisfactory return on the owners funds or may even fail, with the stockholders recovering little or nothing, and the risk facing the owners of a bank are substantial (S. Rose,2002). *Bank business is risk business*. Taking risks can almost be said to be the business of bank management. Financial institutions that are run on the principal of avoiding all risks will be stagnant and will not adequately service the legitimate credit needs of the community. On the other hand, a bank that takes excessive risks is likely to run into difficulty. Banking risks can be defined and classification in many ways and it is possible to draw up a long list of the types of risks to which banks are exposed. So bank face risk in their operations, such as;

- a) Credit risk
- b) Liquidity risk
- c) Interest rate risk
- d) Market risk
- e) Exchange risk
- f) Solvency risk

Credit Risk:

The first risk which banks face their operations is credit risk. Banks make loans and take on securities that are nothing more than promises to pay. The probability that some of bank's asset, especially its loans will decline in value and perhaps become worthless is known as credit risk. The potential financial loss results from the failure of credit customers. When borrower customer fail to make some or all promised interest and principal payments, these defaulted loans and securities result in losses that can eventually erode the banks capital, because owners capital is usually no more than 10 percent of the volume of bank loans and risky securities (and often much less than that),it doesn't take too many defaults on loans and securities before bank capital simply becomes inadequate to absorb further losses (S. Rose ,2002). So bank fails and close unless the regulatory effective elect to protect it until a buyer can be found.

Liquidity Risk:

Banking also entails substantial liquidity risk, this risk is danger that a bank will experience a cash shortage or have to borrow at high cost to meet its obligations to pay. Bankers are also very concerned about the danger of not having sufficient cash and borrowing capacity to meet deposits withdrawals, net loans demand and other cash needs. Face with liquidity risk, a bank may be forced to borrow emergency funds at excessive cost to cover its immediate cash needs, this reducing its earnings.

Interest Rate Risk:

Interest rate risk relates to the exposure of banks profits to interest rate changes which affect assets and liabilities in different ways. Banks are exposed to interest rate risk because they operate with unmatched balance sheet. If bankers believe strongly that interest rates are going to move in a certain direction in the future, they have a strong incentive to position the bank accordingly, when an interest rate rise is expected, they will make assets more interest sensitive relative to liabilities, and do the opposite when a fall is expected.

The possibility of a reduction in the value of a security especially a bond, resulting from a rise in interest rates. This risk can be reduced by diversifying the durations of the fixed-income investments that are held at a given time (www.investorwords.com). This risk has danger that the volatility of interest rate will reduce bank earnings, raise costs or reduce value. Act in the market interest rates can also have effects on bank's margin of revenues over operating cost. For example, increasing interest rate can lower a bank's margin of profit if the structure of the institution's assets and liabilities is such that interest revenues on loans and security investment. The impact of changing interest rates on a bank's margin of profit is usually called interest rate risk.

Market Risk or Systematic Risk:

Systematic risk is the risk of asset value change associated with systematic factor. It is some time referred to as market risk which is in fact a some what imprecise term. By its nature, this risk can be hedge, but cannot be diversified completely way. Also we can description market risk, Interest rates recession and wars all represent sources of systematic risk because they will affect the entire market and cannot be avoided through diversification. Whereas this type of risk affects a broad range of securities, unsystematic risk affects a very specific group of securities or an individual security. Systematic risk can be mitigated only by being hedged (financial-dictionary).

Exchange rate Risk:

Big bank countenance exchange risk from their dealings in foreign currency. The world's most tradable currencies float with changing market conditions today, it's trading in these currencies for themselves and their customer continually run the risk of adverse price movements on both the buying and selling sides of this market (S.Rose,2002). The risk that a business' operations or an investment's value will be affected by changes in exchange rates. For example, if money must be converted into a different currency to make a certain investment, changes in the value of the currency relative to the American dollar will affect the total loss or gain on the investment when the money is converted back. This risk usually affects businesses, but it can also affect individual investors who make international investments.

Solvency or Default Risk:

Bankers must be directly concerned about risks to their institutions` long-run survival, usually called solvency risk. If the bank takes on excessive number of bad loans or if a larger portion of its security portfolio declines in market value, generating serious capital losses when sold, then its capital account, which designed to absorb such losses, may be overwhelmed. If investors and depositors became aware of the problem and begin to withdraw their funds, the regulators may have no choice but to declare the bank insolvent and close its doors.

2.2.3 Financial Risk Management

Risk management can be defined as the logical development and execution of a plan to deal with potential losses. The focus of a risk management program is to manage an organization's exposure to losses or risk and to protect its assets. Also Risk Management is the process of measuring, or assessing risk and then developing strategies to manage the risk. In general, the strategies employed include transferring the risk to another party, avoiding the risk, reducing the negative effect of the risk, and accepting some or all of the consequences of a particular risk (http://en.wikipedia.org/wiki/Risk_management). Risk management offers comprehensive coverage of the design and operation of a risk management system its technical modelling and its interplay with the external regulations by which such a system is governed, specifically it provides a framework for viewing the policies, methodologies, data collection, and technical infrastructure used to support risk management. Investment, hedging, and management strategies are discussed. Attention is given to the measurement of market, credit, and operational risks as integrated in a multiperiod market model as well as to liquidity risk and other long-term, horizon-risk management policies (Crouhy, Galai and Robert, 2001).

Financial risk management, on the other hand, focuses on risks that can be managed using traded financial instruments. Intangible risk management focuses on the risks associated with human capital, such as knowledge risk, relationship risk, and engagement-process risk. Regardless of the type of risk management, all large corporations have risk management teams and small groups and corporations practice informal, if not formal, risk management. In addition to all the pure risks a business encounters, some business firms especially financial firms such as banks, face a whole set of probabilities we call financial risks.

Financial risk management has been defined by Basel Committee as a sequence of four processes:

- 1. The identification of events into one or more broad categories of markets credit operational and other risks and into specific sub-categories,
- 2. The assessment of risks using data and risk model,
- 3. The monitoring and reporting of risk assessment on a timely basis,
- 4. Control of these risks by senior management.

As a result the supervision and regulation of banks and other financial firms has increased. In particular, capital adequacy requirements have been extended to cover more types of risks. The first Basel Accord in 1988 covered only credit risks in banking book; the Basel 1 Amendment in 1996 extended this to market risk in the trading book; and now the new Basel 2 Accord that will be adopted by all G10 and many other counties in 2007 refines credit risk assessment to become more risk sensitive and extends the calculation of risk capital to include operational risks Also Basel 2, minimum solvency ratios will now be applied to asset management and brokerage subsidiaries, and well as to traditional banking operations (Alexander, Corol, 2003).

2.2.4 Risk Management in Banking

The Asian financial crisis is yet to run its full course, but is already one of the largest crises in the post war era.it severely affected the performance of the region and created an

economic downturn that impacted on financial institutions worldwide. At the same time, the failure of Russia to deal with its deteriorating conditions led some hedge funds and leading international banks to announce substantial losses. Moreover, these events occurred at a time when financial markets were still trying to cope with the contagion the economies Latin America effects shook of that (http://www.apra.gov.au/risk_management_banking.pdf). Because of all banks must have risk management systems? This systems can definition as; The banking industry has long viewed the problem of risk management as the need to control four of the above risks which make up most, if not all, of their risk exposure, viz., credit, interest rate, foreign exchange and liquidity risk. While they recognize legal risks, they view them as less central to their concerns. Where counterparty risk is significant, it is evaluated using standard credit risk procedures, and often within the credit department itself. In the same way, most bankers would view legal risks as arising from their credit decisions or, more likely, proper process not employed in financial contracting. Therefore, the study of bank risk management processes is essentially an investigation of how they manage these four risks. In each case, the procedure outlined above is adapted to the risk considered so as to standardize, measure, constrain and manage each of these risks. To illustrate how this is achieved, this review of firm-level risk management begins with a discussion of risk management controls in each area. The four procedures represents as follows

A. Credit Risk Management Procedures

- B. Interest Rate Management Procedures
- C. Foreign Exchange Risk Management Procedures
- D. Liquidity Risk Management Procedures.

19

2.2.4.1 Credit Risk Management Procedures

This procedures approach employed to manage credit risk and this procedures refer to four step process outlined above, drawing different pieces from different organizations. The institutions are not named, but are selected because of the representative nature of their documentation of the process. First step is beginning with standards and reports. Each bank must apply a consistent evaluation and rating scheme to all its investment opportunities in order for credit decisions to be made in a consistent manner and for the resultant aggregate reporting of credit risk exposure to be meaningful. To facilitate this, a substantial degree of standardization of process and documentation is required. This has lead to standardized ratings across borrowers and a credit portfolio report that presents meaningful information on the overall quality of the credit portfolio (Anthony M, 2003). Second step of credit risk management procedures is the form reported here is a single rating system where a single value is given to each loan, which relates to the borrower's

underlying credit quality. At some institutions, a dual system is in place where both the borrower and the credit facility are rated. In the latter, attention canters on collateral and covenants, while in the former; the general credit worthiness of the borrower is measured. Some banks prefer such a dual system, while others argue that it obscures the issue of recovery to separate the facility from the borrower in such a manner (Anthony M, 2003). Third step for this type of credit quality report to be meaningful, all credits must be monitored, and reviewed periodically. It is, in fact, standard for all credits above some dollar volume to be reviewed on a quarterly or annual basis to ensure the accuracy of the rating associated with the lending facility

Most organizations also will report concentration by individual counterparty. To be meaningful, however, this exposure must be bank wide and include all related affiliates. Both of these requirements are not easily satisfied. For large institutions, a key relationship manager must be appointed to assure that overall bank exposure to a particular client is captured and monitored. This level of data accumulation is never easy, particularly across time zones. Nonetheless, such a relationship report is required to capture the disparate activity from many parts of the bank. Transaction with affiliated firms needs to be aggregated and maintained in close to real time

2.2.4.2 Interest Rate Management Procedures

The area of interest rate risk is the second area of major concern and on-going risk monitoring and management. The tradition has been for the banking industry to diverge somewhat from other parts of the financial sector in their treatment of interest rate risk. Most commercial banks make a clear distinction between their trading activity and their balance sheet interest rate exposure.

Investment banks generally have viewed interest rate risk as a classic part of market risk, and have developed elaborate trading risk management systems to measure and monitor exposure. For large commercial banks and European-type universal banks that have an active trading business, such systems have become a required part of the infrastructure. But, in fact, these trading risk management systems vary substantially from bank to bank and generally are less real than imagined. In many firms, fancy value-at-risk models, now known by the acronym VaR, are up and running. But, in many more cases, they are still in the implementation stage. In the interim, simple ad hoc limits and close monitoring substitute for elaborate real time systems. For institutions that do have active trading businesses, value-at-risk has become the standard approach. Suffice it to say that the daily, weekly, or monthly volatility of the market value of fixed-rate assets are incorporated into a measure of total portfolio risk analysis along with equity's market risk, and that of foreign-denominated assets.

Commercial banks tend not to use market value reports, guidelines or limits. Rather, their approach relies on cash flow and book values, at the expense of market values (Anthony M, 2003). This system has been traditionally a "gap reporting system", as the asymmetry of the reprising of assets and liabilities results in a gap. This has classically been measured in ratio or percentage mismatch terms over a standardized interval such as a 30-day or one-year period. Most banks, have attempted to move beyond this gap methodology. They recognize that the gap and duration reports are static, and do not fit well with the dynamic nature of the banking market, where assets and liabilities change over time and spreads fluctuate. In fact, the variability of spreads is largely responsible for the highly profitable performance of the industry over the last two years.

2.2.4.3 Foreign Exchange Risk Management Procedures

Most banking institutions view activity in the foreign exchange market beyond their franchise, while others are active participants. The former will take virtually no principal risk, no forward open positions, and have no expectations of trading volume.

The most active banks in this area have large trading accounts and multiple trading locations. And, for these, reporting is rather straightforward. Currencies are kept in real time, with spot and forward positions marked-to-market. As is well known, however, reporting positions is easier than measuring and limiting risk. Here, the latter is more common than the former. Limits are set by desk and by individual trader, with monitoring occurring in real time by some banks, and daily closing at other institutions (Anthony M, 2003). Limits are the key elements of the risk management systems in foreign exchange trading as they are for all trading businesses.

Foreign exchange traders are another area of significant differences between the average commercial bank and its investment banking counterpart. While, in the investment banking community trader performance is directly linked to compensation, this is less true in the banking industry. While some admit to significant correlation between trader income and trading profits, many argue that there is absolutely none. This latter group tends to see such linkages leading to excess risk taking by traders who gain from successes but do not suffer from losses. Accordingly, to their way of thinking, risk is reduced by separating foreign exchange profitability and trader compensation.

2.2.4.4 Liquidity Risk Management Procedures

Each bank should have a strategy for the day-to-day management of liquidity. This strategy should be communicated throughout the bank. A bank's board of directors should approve the strategy and significant policies related to the management of liquidity. The board should also ensure that senior management takes the steps necessary to monitor and control liquidity risk. The board should be informed regularly of the

liquidity situation of the bank and immediately if there are any material changes in the bank's current or prospective liquidity position.

Each bank should have a management structure in place to execute effectively the liquidity strategy. This structure should include the ongoing involvement of members of senior management. Senior management must ensure that liquidity is effectively managed, and that appropriate policies and procedures are established to control and limit liquidity risk. Banks should set and regularly review limits on the size of their liquidity positions at least on an annual basis.

A bank's liquidity strategy should set out the general approach the bank has to liquidity. This strategy should address the bank's goal of protecting financial strength and the ability to withstand stressful events in the marketplace.

A bank's liquidity strategy should enunciate specific policies on particular aspects of liquidity management, such as the composition of assets and liabilities, the approach to managing liquidity in different currencies and from one country to another, the relative reliance on the use of certain financial instruments, and the liquidity and marketability of assets. There should also be an agreed strategy for dealing with the potential for both temporary and long-term liquidity disruptions. The strategy for managing liquidity risk should be communicated throughout the organisation. All business units within the bank that conduct activities having an impact on liquidity should be fully aware of the liquidity

strategy and operate under the approved policies, procedures and limits (http://www.cimoney.com./SOGLiquidityRiskManagement.pdf).

2.2.5 Risk Aggregation and the Knowledge of Total Exposure

Techniques used to measure, report, limit, and manage the risks of various types have been presented. The credit risk process is a qualitative review of the performance potential of different borrowers. It results in a rating, periodic re-evaluation at reasonable intervals through time, and on-going monitoring of various types or measures of exposure. Interest rate risk is measured, usually weekly, using on- and off-balance sheet exposure. The position is reported in repricing terms, using gap, as well as effective duration, but the real analysis is conducted with the benefit of simulation techniques. Limits are established and synthetic hedges are taken on the basis of these cash flow earnings forecasts. Foreign exchange or general trading risk is monitored in real time with strict limits and accountability. Here again, the effects of adverse rate movements are analyzed by simulation using ad hoc exchange rate variations, and/or distributions constructed from historical outcomes. Liquidity risk, on the other hand, more often than not, is dealt with as a planning exercise, although some reasonable work is done to analyze the funding effect of adverse news (Anthony M, 2003).

2.3 BASEL APPLICATIONS IN THE BANKING SECTORS

2.3.1 General Information about Basel Application

1988 Basel I agreement first set the risk weighted capital standards for banks operating internationally. Overtime, Basel I has been accepted as a world banking standard and then largely applied to all local and international banks. Nevertheless, the agreement has recently deeply criticized for its deficiencies in short sight ness and insensitivity in risk measurement. After words, the Basel Committee proposed a new capital adequacy standard for banks (named Basel II) in 1999. The new proposal first time included identification and measurement of operational risk, and redefined the measurements of credit risk and market risk for the computation of bank capital adequacy. Since then the proposal revised a number of times and expected to be in force only for international banks located in developed countries ending year 2007. However, it is expected that the Basel II firstly becomes a new world banking standard. The overview of Basel II indicates that it is much more than a simple set of calculations of some numerical amounts for predefined risks and then holding sufficient amount of capital for these computed figures. The Basel II uncourageous all banks to define measure and manage their financial risk compositions as a whole under the supervision of regulatory authorities and market discipline. Therefore, the application of Basel II is expected to have a strong pressure on capability of borrowing and cost of debt of nations, banks and corporations. Accordingly, it is expected that the Basel II is to rearrange the rules, policies and regulations in financial and non-financial sectors worldwide. This study examines Basel I standards measuring banks' capital adequacy requirement in TRNC Banking sectors, there are no available information or data to calculate Basel 2.

2.3.2 SUPERVISION AND REGULATION

The supervision and regulation of banks involved in international activities is an important element of a functioning global economy. Without proper bank supervision, problems can arise that undermine the ability of banks to act as the main facilitators of credit and managers of national payment systems (Hughes, Macdonald, 2002). Problems that have cross- border implications for other banking systems may include:

- Self- lending through conglomerates and holding company structures
- Contagion from other finanacial markets
- Poor credit policy guidelines
- Bad managment

A large body of research suggests that banks matter for human welfare. Most noticeably, banks matter when they fail. Indeed, the fiscal costs of banking crises in developing countries since 1980 have exceeded \$1 trillion, and some estimates put the cost of Japan's banking problems alone over this threshold (http://www.worldbank.org/research/interest/prr_stuff/bank_regulation_database.htm)

Recent research also finds that banks matter for economic growth. Banks that mobilize and allocate savings efficiently, allocate capital to endeavours with the highest expected social returns, and exert sound governance over funded firms foster innovation and growth. Banks that instead funnel credit to connected parties and the politically powerful discourage entrepreneurship and impede economic development. Recent work further shows that banks matter for poverty and income distribution. Well-functioning banks that extend credit to those with the best projects, rather than

27

to the wealthy or to those with familial, political, or corrupt connections, exert an equalizing affect on the distribution of income and a disproportionately positive impact on the poor by de-linking good ideas and ability from past accumulation of wealth and associations (http://www.banque-france.fr/gb/supervi/supervi.htm).

The important relationship between banks and economic welfare has led researchers and international institutions to develop policy recommendations concerning bank regulation and supervision (http://www.nber.org/papers/w9323).The International Monetary Fund, World Bank, and other international agencies have developed extensive checklists of "best practice" recommendations that they urge all countries to adopt. Most influentially, the Basel Committee on Bank Supervision recently revised and extended the 1988 Basel Capital Accord. The first pillar of these new recommendations develops more extensive procedures for computing minimum bank capital requirements. The second pillar focuses on enhancing official supervisory practices and ensuring that supervisory agencies have the power to scrutinize and discipline banks. The third pillar envisions greater market discipline of banks through policies that force banks to disclose accurate, transparent information. Although considerable debate surrounds the validity of these pillars, over 100 countries have already will eventually II. stated that they adopt Basel (http://www.worldbank.org/research/interest/prr_stuff/bank_regulation_database.htm)

2.3.3 The Establishment of the BIS

The Bank for International Settlements was established in 1930. It is the world's oldest international financial institution and remains the principal centre for international central bank cooperation.

28
The BIS was established in the context of the Young Plan (1930), which dealt with the issue of the reparation payments imposed on Germany by the Treaty of Versailles following the First World War. The new bank was to take over the functions previously performed by the Agent General for Reparations in Berlin collection, administration and distribution of the annuities payable as reparations. The Bank's name is derived from this original role. The BIS was also created to act as a trustee for the Dawes and Young Loans (international loans issued to finance reparations) and to promote central bank cooperation in general (http://www.bis.org/about/index.htm). The reparations issue quickly faded, focusing the Bank's activities entirely on cooperation among central banks and, increasingly, other agencies in pursuit of monetary and financial stability.

2.3.3.1The Changing Role of the BIS

Since 1930, central bank cooperation at the BIS has taken place through the regular meetings in Basel of central bank Governors and experts from central banks and other agencies. In support of this cooperation, the Bank has developed its own research in financial and monetary economics and makes an important contribution to the collection, compilation and dissemination of economic and financial statistics.

In the monetary policy field, cooperation at the BIS in the immediate aftermath of the Second World War and until the early 1970s focused on implementing and defending the Bretton Woods system. In the 1970s and 1980s, the focus was on managing cross-border capital flows following the oil crises and the international debt crisis. The 1970s crisis also brought the issue of regulatory supervision of internationally active banks to the fore, resulting in the 1988 Basel Capital Accord and its "Basel II"

revision of 2001-06. More recently, the issue of financial stability in the wake of economic integration and globalisation, as highlighted by the 1997 Asian crisis, has received a lot of attention (http://www.bis.org/about/index.htm).

Apart from fostering monetary policy cooperation, the BIS has always performed "traditional" banking functions for the central bank community (eg gold and foreign exchange transactions), as well as trustee and agency functions. The BIS was the agent for the European Payments Union (EPU, 1950-58), helping the European currencies restore convertibility after the Second World War. Similarly, the BIS have acted as the agent for various European exchange rate arrangements, including the European Monetary System (EMS, 1979-94) which preceded the move to a single currency (http://www.bis.org/about/index.htm).

Finally, the BIS has also provided or organised emergency financing to support the international monetary system when needed. During the 1931-33 financial crises, the BIS organised support credits for both the Austrian and German central banks. In the 1960s, the BIS arranged special support credits for the French franc (1968), and two so-called Group Arrangements (1966 and 1968) to support sterling. More recently, the BIS has provided finance in the context of IMF-led stabilisation programmes (e.g. for Mexico in 1982 and Brazil in 1998)

2.3.4 Basel Committee on Banking Supervision

The Basel Committee has played a leading role in standardizing bank regulations across jurisdictions. Its origins can be traced to 1974.

On June 26, 1974, German regulators forced the troubled Bank Herstatt into liquidation. That day, a number of banks had released payment of DEM to Herstatt in Frankfurt in exchange for USD that was to be delivered in New York. Because of time-zone differences, Herstatt ceased operations between the times of the respective payments (http://www.bis.org/about/index.htm).

The counterparty banks did not receive their USD payments. Responding to the crossjurisdictional implications of the Herstatt debacle, the G-10 countries (the G-10 is actually eleven countries: Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States) and Luxembourg formed a standing committee under the auspices of the Bank for International Settlements (BIS). Called the Basel Committee on Banking Supervision, the committee comprises representatives from central banks and regulatory authorities (http://www.bis.org/publ/bcbs118.htm).

Over time, the focus of the committee has evolved, embracing initiatives designed to: define roles of regulators in cross-jurisdictional situations; ensure that international banks or bank holding companies do not escape comprehensive supervision by a "home" regulatory authority; promote uniform capital requirements so banks from different countries may compete with one another on a "level playing field." The Basel Committee's does not have legislative authority, but participant countries are implicitly bound to implement its recommendations. Usually, the committee has allowed for some flexibility in how local authorities implement recommendations, so national laws vary (http://www.bitpipe.com/tlist/Basel-II.html). In 1988, the Basel Committee proposed a set of minimal capital requirements for banks. These became law in G-10 countries in 1992, with Japanese banks permitted an extended transition period. The requirements have come to be known as the 1988 Basel Accord (http://www.bis.org/about/index.htm). To understand the scope of the 1988 accord, we need to clarify what we mean by "bank." Some jurisdictions distinguish between banks and securities firms, and the Basel accord applied only to the former.

Under its Glass-Steagall Act, the United States had long distinguished between commercial banks and securities firms (investment banks or broker-dealers). Following World War II, Japan adopted a similar legal distinction. The United Kingdom also distinguished between banks and securities firms, although this was more a matter of custom than law. By comparison, Germany and other European countries had a tradition of universal banking, which made no distinction between banks and securities firms (http://www.bis.org/about/index.htm).

The 1988 Basel Accord primarily addressed banking in the sense of deposit taking and lending (commercial banking under US law), so its focus was credit risk. Banks were subject to an 8% capital requirement. Specifically, they would calculate metrics for capital, and credit risk with a requirement that:

capital >8% credit risk.

A bank's capital was defined as comprising two tiers. Tier 1 ("core") capital included the book value of common stock, non-cumulative perpetual preferred stock and

published reserves from post-tax retained earnings. Tier 2 ("supplementary") capital was deemed of lower quality. It included, subject to various conditions, general loan loss reserves, long-term subordinated debt and cumulative and/or redeemable preferred stock. A maximum of 50% of a bank's capital could comprise tier 2 capital (www.bitpipe.com/tlist/Basel-II.html).

Credit risk was calculated as the sum of risk-weighted asset values. Generally, G-10 government debt was weighted 0%, G-10 bank debt was weighted 20%, and other debt, including corporate debt and the debt of non-G-10 governments, was weighted 100%. Additional rules applied to mortgages, local government debt in G-10 countries, and contingent obligations, such as letters of credit or derivatives.

In the early 1990s, the Basel Committee decided to update the 1988 accord to include bank capital requirements for market risk. This would have implications for non-bank securities firms. Any capital requirements the Basel Committee adopted for banks' market risk would be incorporated into future updates of Europe's Capital Adequacy Directive (CAD) and thereby apply to Britain's non-bank securities firms. If the same framework were extended to non-bank securities firms outside Europe, then market risk capital requirements for banks and securities firms could be harmonized globally. In 1991, the Basel Committee entered discussions with the International Organization of Securities Commissions (IOSCO) to jointly develop such a framework. IOSCO is the primary international organization representing securities regulators. The two organizations formed a technical committee, and work commenced in January 1992. Because of the fundamental differences between banks and securities firms (see this glossary's article regulatory capital), the initiative soon ran into trouble. Europe's draft

CAD regulations already applied uniform capital standards to banks and securities firms. They had to because Europe's universal banks were both banks and securities firms. Many European regulators wanted the Basel-IOSCO initiative to adopt rules similar to the draft CAD. This would have required that the SEC abandon its own long-established Uniform Net Capital Rule (UNCR) for securities firms in favor of the weaker European rules. Richard Breeden was chairman of the SEC and chairman of the Basel-IOSCO technical committee. Ultimately, he balked at discarding the SEC's rules. An analysis by the SEC indicated that the European approach might reduce capital requirements for US securities firms by 70% or more. Permitting such a reduction, simply to harmonize banking and securities regulations, seemed imprudent. The Basel-IOSCO initiative had failed. In the United States, banking and securities capital requirements were to remain distinct. In April 1993, following the failure of the Basel-IOSCO initiative, the Basel Committee released a package of proposed amendments to the 1988 accord. Primarily, these proposed minimum capital requirements for banks' market risk. The proposal generally conformed to Europe's CAD. Banks would be required to identify a trading book and hold capital for trading book market risks and organization-wide foreign exchange exposures. Capital charges for the trading book would be based upon a crude value-at-risk (VaR) measure loosely consistent with a 10-day 95% VaR metric. Similar to a "building block" VaR measure used by Europe's CAD, these partially recognized hedging effects but ignored diversification effects. (http://www.bis.org/about/index.htm). In addition to capital for credit risk, banks would now be required to hold capital equal to the calculated VaR. If we define market risk as VaR 8%, the proposed amendment required that banks hold capital such that:

capital $- \ge 8\%$ credit risk + market risk

The proposal also liberalized the definition of capital by adding a third tier. Tier 3 capital comprised short-term subordinated debt, but it could only be used to cover market risk. The committee received numerous comments on this proposal. Commentators perceived the crude VaR measure as a step backwards. Many banks were already using proprietary VaR measures. Most of these modeled diversification effects, and some recognized portfolio non-linearities. Commentators wondered if, by embracing a crude VaR measure, regulators might stifle innovation in risk measurement technology.

In April 1995, the Basel Committee released a revised proposal. This made a number of changes, including the extension of market risk capital requirements to cover organization-wide commodities exposures. An important provision allowed banks to use either a regulatory building-block VaR measure or their own proprietary VaR measure for computing capital requirements. Use of a proprietary measure required approval of regulators (http://fic.wharton.upenn.edu/fic/papers/05/p0516.html).

A bank would have to have an independent risk management function and satisfy regulators that it was following acceptable risk management practices. Regulators would also need to be satisfied that the proprietary VaR measure was sound. Proprietary measures would need to support a 10-day 99% VaR metric and be able to address the non-linear exposures of options. Diversification effects could be recognized within broad asset categories fixed income, equity, foreign exchange and

commodities but not across asset categories. Market risk capital requirements were set equal to the greater of: the previous day's VaR or the average VaR over the previous sixty business days, multiplied by a factor of at least 3. The original VaR measure which was now called the "standardized" measure was changed modestly from the 1993 proposal. It may reasonably be interpreted as still reflecting a 10-day 95% VaR metric. Extra capital charges were added in an attempt to recognize non-linear exposures. The Basel Committee's new proposal was adopted in 1996 as an amendment to the 1988 accord. It is known as the 1996 amendment. It went into effect in 1998.

By this time, shortcomings with the original accord's treatment of credit risk were becoming evident. The simple system of risk weightings provided an incentive for banks to hold the 0% risk-weighted debt of G-10 governments (a fact viewed with some cynicism, since those same governments were largely responsible for the original accord). However, such debt tended to be unprofitable. Far more profitable for banks was corporate debt, which was weighted 100%. With all corporate debt being weighted equally, it made sense for banks to hold the most risky corporate debt. Higher quality corporate debt incurred exactly the same capital charges but was less profitable. During this period, markets for credit derivatives and securitizations grew explosively. It was an open secret that banks were employing these to take advantage of shortcomings in the 1988 Accord's crude system of risk weights. This practice is called regulatory arbitrage. Another issue during this period was operational risk. Operational risk poses significant risk for banks. It includes a variety of contingencies including fraud and fraud is routinely a factor in bank failures. Neither the original Basel Accord nor the 1996 Amendment required capital for operational risk.

In January 1999, the Basel Committee proposed a new capital accord, which has come to be known as Basel II. There followed an extensive consultative period, with the committee releasing additional proposals for consultation in January 2001 and April 2003. Also, it conducting three quantitative impact studies to assess those proposals. The finalized Basel II Accord was released in June 2004. Basel II is based on three pillars: minimum capital requirements, supervisory review, and market discipline (http://en.wikipedia.org/wiki/Basel_II).

Generally, Basel II retains the definition of bank capital and the market risk provisions of the 1996 Amendment. It largely replaces the old treatment of credit risk, and it requires capital for operational risk. With some juggling, the basic capital requirement for banks can be expressed as:

capital	>8%
credit risk + market risk + operational ris	sk 2070

As with market risk under the 1996 Amendment, banks have options as to how they value their credit risk and market risk. For credit risk, they can choose from among: a Standardized Approach, a Foundation Internal Rating-Based (IRB) Approach, and an Advanced IRB Approach. For operational risk, their choices are: a Basic Indicator Approach, a Standardized Approach, and an Internal Measurement Approach. Basel II has an effective date of December 2006. It will not be as widely implemented as the earlier Accord. Basel II largely achieves European regulators' objectives of addressing shortcomings in the original accord's treatment of credit risk, incorporating operational risk and harmonizing capital requirements for banks and securities firms. Europe will apply Basel II to all its banks with CAD III. US regulators are less enthusiastic. While they share the goal of addressing shortcomings in the original

accord's treatment of credit risk, they feel that existing bank supervision in the United States already addresses operational risk. Also, harmonization has never been a priority for US regulators. They perceive Basel II as primarily relevant for internationally active banks. They intend to apply it to just ten of the largest US banks. Another ten will have the option to opt-in. Other US banks will remain subject to existing US regulations, including those adopted under the original Basel Accord. It remains unclear to what extent other countries will implement Basel II.

2.3.4.1 Credit Risk of Basel

The probability that some bank of a bank's assets, especially its loans, will decline in value and perhaps become worthless is known as credit risk. Because banks hold little owners' capital relative to the aggregate value of their assets, only a relatively small percentage of total loans need to turn bad to push any bank to the brink of failure (S.Rose, 2002).

Credit risk is risk due to uncertainty in a counterparty's (also called an obligor's or credit's) ability to meet its obligations. Because there are many types of counterparties from individuals to sovereign governments and many different types of obligations from auto loans to derivatives transactions credit risk takes many forms. Institutions manage it in different ways. When we speak of the credit quality of an obligation, this refers generally to the counterparty's ability to perform on that obligation. This encompasses both the obligation's default probability and anticipated recovery rate. To place credit exposure and credit quality in perspective, recall that every risk comprise two elements: exposure and uncertainty. For credit risk, credit exposure

represents the former, and credit quality represents the latter (Alexander, Corol, 2003).

For loans to individuals or small businesses, credit quality is typically assessed through a process of credit scoring. Prior to extending credit, a bank or other lender will obtain information about the party requesting a loan. In the case of a bank issuing credit cards, this might include the party's annual income, existing debts, whether they rent or own a home, etc. A standard formula is applied to the information to produce a number, which is called a credit score (Alexander, Corol, 2003). Based upon the credit score, the lending institution will decide whether or not to extend credit. The process is formulaic and highly standardized.

Many forms of credit risk especially those associated with larger institutional counterparties are complicated, unique or are of such a nature that that it is worth assessing them in a less formulaic manner. The term credit analysis is used to describe any process for assessing the credit quality of counterparty. While the term can encompass credit scoring, it is more commonly used to refer to processes that entail human judgment. One or more people, called credit analysts, will review information about the counterparty. This might include its balance sheet, income statement, recent trends in its industry, the current economic environment, etc. They may also assess the exact nature of an obligation. For example, secured debt generally has higher credit quality than does subordinated debt of the same issuer. Based upon this analysis, the credit analysts assign the counterparty (or the specific obligation) a credit rating, which can be used for making credit decisions.

Many banks, investment managers and insurance companies hire their own credit analysts who prepare credit ratings for internal use. Other firms including Standard and Poor's, Moody's and Fitch are in the business of developing credit ratings for use by investors or other third parties. Institutions that have publicly traded debt hire one or more of them to prepare credit ratings for their debt. Those credit ratings are then distributed for little or no charge to investors. Some regulators also develop credit ratings. In the United States, the National Association of Insurance Commissioners publishes credit ratings that are used for calculating capital charges for bond portfolios held by insurance companies (M.Rene, 2003). Exhibit indicates the system of credit ratings employed by Standard and Poor's. Other systems are similar.

Tabel.2	.3.1.1 Standard and Poor's Credit Ratings
AAA	Best credit quality Extremely reliable with regard to financial obligations.
AA	Very good credit quality Very reliable
А	More susceptible to economic conditions still good credit quality.
BBB	Lowest rating in investment grade.
BB	Caution is necessary Best sub-investment credit quality.
В	Vulnerable to changes in economic conditions Currently showing the ability
	to meet its financial obligations.
CCC	Currently vulnerable to non-payment Dependent on favourable economic
	conditions.
CC	Highly vulnerable to a payment default.
С	Close to or already bankrupt payment on the obligation currently continued.
D	Payment default on some financial obligation has actually occurred.

This is the system of credit ratings Standard and Poor's applies to bonds. Ratings can be modified with + or - signs, so a AA- is a higher rating than is an A+ rating. With such modifications, BBB- is the lowest investment grade rating. Other credit rating systems are similar. Source: Standard and Poor's.

Credit risk modelling is a concept that broadly encompasses any algorithm-based methods of assessing credit risk. The term encompasses credit scoring, but it is more frequently used to describe the use of asset value models and intensity models in several contexts. These include supplanting traditional credit analysis; being used by financial engineers to value credit derivatives; and being extended as portfolio credit risk measures used to analyze the credit risk of entire portfolios of obligations to support securitization, risk management or regulatory purposes(M.Rene,2003).

Derivative instruments represent contingent obligations, so they entail credit risk. While it is possible to measure the mark-to-market credit exposure of derivatives based upon their current market values, this metric provides an incomplete picture. For example, many derivatives, such as forwards or swaps, have a market value of zero when they are first entered into. Mark-to-market exposure which is based only on current market values does not capture the potential for market values to increase over time. For that purpose some probabilistic metric of potential credit exposure must be used.

There are many ways that credit risk can be managed or mitigated. The first line of defence is the use of credit scoring or credit analysis to avoid extending credit to parties that entail excessive credit risk. Credit risk limits are widely used. These generally specify the maximum exposure a firm is willing to take to a counterparty

(M.Rene, 2003). Industry limits or country limits may also be established to limit the sum credit exposure a firm is willing to take to counterparties in a particular industry or country. Calculation of exposure under such limits requires some form of credit risk modeling. Transactions may be structured to include collateralization or various credit enhancements. Credit risks can be hedged with credit derivatives. Finally, firms can hold capital against outstanding credit exposures

2.3.4.2 Market Risk of Basel

Market risk in market-oriented economies, where most of the world's banks offer their services today, the market values of banks assets, liabilities and net worth are constantly in a state of influx, creating market risk (S.Rose, 2002). Market risk is exposure to the uncertain market value of a portfolio. A trader holds a portfolio of commodity forwards. She knows what its market value is today, but she is uncertain as to its market value a week from today. She faces market risk. Business risk is exposure to uncertainty in economic value that cannot be marked-to-market. The distinction between market risk and business risk parallels the distinction between market-value accounting and book-value accounting. Suppose a New England electricity wholesaler is long a forward contract for on-peak electricity delivered over the next 3 months. There is an active forward market for such electricity, so the contract can be marked to market daily. Daily profits and losses on the contract reflect market risk. Suppose the firm also owns a power plant with an expected useful life of 30 years. Power plants change hands infrequently, and electricity forward curves don't exist out to 30 years. The plant cannot be marked to market on a regular basis. In the absence of market values, market risk is not a meaningful notion. Uncertainty in the economic value of the power plant represents business risk.

Market risk is managed with a short-term focus. Long-term losses are avoided by avoiding losses from one day to the next. On a tactical level, traders and portfolio managers employ a variety of risk metrics duration and convexity, the Greeks, beta, etc. to assess their exposures. These allow them to identify and reduce any exposures they might consider excessive. On a more strategic level, organizations manage market risk by applying risk limits to traders' or portfolio managers' activities. (http://www.erisk.com/ResourceCenter/Market/Listing.asp). Increasingly, value is being used to define and monitor these limits. Some organizations also apply stress testing to their portfolios.

2.3.4.3 Operational Risk of Basel

The Basle Committee on banking supervision has recently initiated work related to operational risk. Managing such risk is becoming an important feature of sound risk management practice in modern financial markets. The most important types of operational risk involve breakdowns in internal controls and corporate governance. Such breakdowns can lead to financial losses through error, fraud, or failure to perform in a timely manner or cause the interests of the bank to be compromised in some other way, for example, by its dealers, lending officers or other staff exceeding their authority or conducting business in an unethical or risky manner. Other aspects of operational risk include major failure of information technology systems or events such as major fires other disasters or (http://en.wikipedia.org/wiki/Methods_of_Operational_Risk_Management). Α working group of the Basle Committee recently interviewed approximately thirty major banks from the different member countries on the management of operational risk. Several common themes emerged during these discussions.

The Basel Committee (2004) defines operational risk as the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events.

The committee indicates that this definition excludes systemic risk, legal risk and reputation risk. During the 1990s, financial firms and other corporations focused increasing attention on the emerging field of financial risk management. This was motivated by concerns about the risks posed by the rapidly growing OTC derivatives markets; publicized financial losses, including those of Barings Bank, Orange County and Metallgesellschaft; regulatory initiatives, especially the Basel Accords. During the early part of the decade, much of the focus was on techniques for measuring and managing market risk. As the decade progressed, this shifted to techniques of measuring and managing credit risk. By the end of the decade, firms and regulators were increasingly focusing on risks "other than market and credit risk." These came to be collectively called operational risks. This catch-all category of risks was understood to include, employee errors, systems failures, fire, floods or other losses to physical assets, fraud or other criminal activity (http://en.wikipedia.org/wiki/Methods_of_Operational_Risk_Management). Firms had always managed these risks. The new goal was to do so in a more systematic manner. The approach would parallel and be integrated with those that were proving effective with market risk and credit risks (Alexander, Corol, 2003).

Operational risk was anything but well defined. People disagreed about the specific contingencies that should be considered operational risks should legal risks, tax risks, management incompetence or reputation risks be included? The debate was more than academic. It would shape the scope of initiatives to manage operational risk.

Another problem was that operational contingencies don't always fall into neat categories. Losses can result from a complex confluence of events, which makes it difficult to predict or model contingencies. In 1996, the Credit Lyonnais trading floor was destroyed by fire. This might be categorized as a loss due to fire. It might also be categorized as a loss due to fraud investigators suspect employees deliberately set the fire in order to destroy evidence of fraud.

The Basel Committee outlined basic practices in a (February 2003) paper Sound Practices for the Management and Supervision of Operational Risk. That paper, together with efforts by researchers and risk managers at major banks has helped to shape emerging risk management practices for operational risk. Accordingly, operational risk management should combine both qualitative and quantitative techniques for assessing risks. For example, settlement errors in a trading operation's back office happen with sufficient regularity that they can be modelled statistically.(http://en.wikipedia.org/wiki/Methods_of_Operational_Risk_Managemen t). Basel II allows large banks to base operational risk capital requirements on their own internal models. This has spawned considerable independent research into methods for measuring operational risk. Techniques have been borrowed from fields such as actuarial science and engineering reliability analysis.

2.3.5Capital Adequacy and Calculation of Risk Weighted Capital

This is a basic principal for basel 2. Under these capital adequacy standarts, capital was divided into Tier 1 and Tier 2 capital to cover different types of exposure. The more important of the two is Tier 1 capital, which is primary capital defined as common equity, qualifying noncumulative perpetual preferred stock, and minority

interests less goodwill. Tier 2 is secondary capital defined as nonallcated loan-loss reserves, subsordinated debt, and all preferred stock that does not cournt as Tier 1 capital. (Hughes, Macdonald, 2002)

The 1988 capital adequacy agreement required banks to hold a capital cushion eguivatent to 8 percent of total asset, with half of this cushion in the from of Tier 1 capital. Assets are Weighted according to risk, with 100 percent Weighting for most loans but only 50 percent for residential mortgages, 20 percent for short term interbank credit, and zero for most government credits(Hughes, Macdonald, 2002) Internnational active banks were expected to maintain the reserves of 8 percent of total assets. If bank fell below that level, it was supposed to be subject to unspecified penalties to be implemented by local regulatory authorities.

The report showing the calculation of risk weighted capital is the most important indicator of the strength of banks finanacial position. Accordinly, for cental bank, it is the most important indicator of the health and soundness of individual banks and the sector as a whole. Therfore, in evaluating whether banks capital is "adequate" the assets have to be "weighted " by a factor that recognizes their relative risk. It is critical that bank managment be aware of their instituions "risk weighted capital ratio" as this indicator of finanacial health is monitored not only by thhe centeral bank but also the international banking community, which includes foreign correspondent banks, brokerage houses, and other stakeholders. For example, a deposit with the central bank has no risk of realization whereas a commercial loan has some "uncertainly" (risk) of collection.

The banking law requires banks to calculate a Risk Weighted Capital ratio. This regulation defines the procedure for the calculation of risk weighted capital and identifies the potential need for additional capital to cover the risks that have been taken by the banks as reflected in their portfolio of assets. The regulation states that the risk weighted capital ratio should exceed 8 percent. The ratio is calculated by determining two factors:

The amount of "defined" capital ------ = Must be 8% or over The total of "risk weighted assets"

The banks send their calculation of risk weighted capital to the central bank on a monthly basis. These calculations are verified both by the on side supervision department during regular examinations and by the off site supervision department based on the monthly reports. If risk weighted capital ratio fall below 8% ratio, the bank is required to increase its capital by the required amount within 6 months following the reported deficiency the increase in capital is normally required to be made in cash. The basic components in the calculation of the risk weighted capital ratio are as follows:

Adjusted Capital

Add:

- Paid up capital
- Capital reserves
- Subordinate debt
- Other defined adjustments

Minus:

- Prepaid Expenses
- Other defined adjustments

Risk Weigthed Assets:

Add:

- 0% risk category
- 20% risk category
- 50% risk category
- 100% risk category
- Foreign currency risk

The foreign currency risk has been recently inculuded in the ratio calculation by a new regulation. The amount to be inculded totals the bank's open foreign currency position.

SECTION 3 Bank Capital Adequacy under Basel I: An Application on Three Turkish Banks

3.1 INTRODUCTION

The Bank calculates the capital adequacy ratio based upon the regulations issued by the Central Bank of Turkish Republic of Northern Cyprus (TRNC). The ratio measures capital adequacy by comparing the Bank's eligible with its balance sheet asset and off-balance sheet commitments at weighted amount, to reflect their relative risk. To be "well capitalized" under these regulations a banking institution must have Tier 1 ratio of at least 8 percent. The following table's represent three Turkish banks risk weighted assets tables and capital and reserves tables. These banks are Turkish bank, Cyprus vakiflar banks, co-operative bank which are beigest banks in TRNC. These banks data taken from their published annual reports to calculate capital adequacy ratio for these banks. To calculate capital adequacy ratio for these banks which is the Basel application I, first of all we "zero" percent, 20 percent, 50 percent,100 percent risk weighed asset are calculated. Cash balance, Balance at central bank, interbank funds, banks balances, securities portfolio, reserve deposits at central bank reserve, reserve repo receivables, loans and advances, loans in arreas, prepayments and accrued income, participation and subsidiaries, long term investments, asset held for resale, fixed assets, other assets, These asset are classification zero percent, 20 percent, 50 percent, 100 percent. Then net capital which calculated by capital as determined by capital adequacy ratio regulation mines items to be deducted form capital. Consequently, we find net capital by risk weighted asset.

Table 3.1.1 Cyprus Vakiflar (2004) Bank Capital A	dequacy Star	ndard ratio, list	t of risk we	eighted
Risk weighted assets, commitments and contingent liabilities	0%	20%	50% p_	100%
Assets (Net)			TOSA	
Cash Balances	2,572	0	0	0
Balances at Central Bank	43,163	0	0	0
Interbank Funds	0	0	0	0
Banks Balances	0	15,076	0	0
Securities Portfolio	87,163	0	0	0
Reserve Deposits at Central Bank Reverse	22,103	0	0	0
Reserve Repo Receivables	0	0	0	0
Loans and Advances	25,992	0	31,747	17,968
Loans in Arrears	0	0	0	0
Prepayments and Accrued income	5,312	0	1,967	1,834
Participations and Subsidiaries	0	0	0	193
Long Term Investments	0	0	0	0
Assets Held for Resale	0	0	0	0
Fixed Assets	467	0	0	1,142
Other Assets	0	5,467	0	771
Contract Michaels	0	0	0	0
Off Balance Sheet Items	0	0	0	0
Guarantees	0	0	114	0
Documentary Credits	19,478	0	0	0
Other Liabilities and Commitments	0	0	0	8,657
Undertakings	0	0	14	0
Foreign Currency and Interest Rates	0	0	0	0
Other	0	0	0	0
Total Risk Weighted assets	206,250	20,543	33,842	30,565
Net Assets under Exchange Risk				2,329
Total	-	4,108	16,927	32,894

Source: Cyprus Vakiflar Bank, Annual report 2004

Table 3.1.1 show as Cyprus Vakiflar bank in 2004 Bank Capital Adequacy Standard ratio, list of risk weighted assets, these risk weighted assets, commitments and contingent liabilities classification zero percent, 20 percent, 50 percent, 100 percent.

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Table 3.1.2. Cyprus Vakiflar (2004) Details of capital and reserves (Shan	eholders' Fund)
	(2004)
1-TOTAL OF MAIN CAPITAL	20,702
a. Paid-up Capital	8,000
b. Statutory Reserves	665
c. General Reserves	285
d. Profit after Tax and Retained Earnings	11,752
e. Current and Previous year losses	
2-TOTAL OF ADDED CAPITAL	379
a. General Provision Loans Fixed Assets	379
b. Revaluation Fund	
c. Inflation Adjustment Reserve	
d. Participation and Subsidiaries Reserves	
e. Loan Capital	
f. Contingency Reserves	
g. Securities Valuation Fund	
3-TOTAL OF CAPITAL(1+2)	21,081
4-Capital as Determined by Capital Adequacy Ratio Regulation	21,081
5-Items to be Deducted from Capital	729
a. Investment in participation and subsidiaries	104
b. Intangible Assets	128
c. Formation Expenses	
d. Prepaid Expenses	497
e. The difference between market value and net book value of fixed asset	
where the market value is lower that net book value	
f. Loans Capital Given to Other Bank Operating in T.R.N.C	
g. Goodwill	
h. Capitalized Expenditure	
6-NET CAPITAL(4-5)	20,352

Source: Cyprus Vakiflar Bank, Annual report 2004

Table 3.1.2 show as Cyprus Vakiflar bank in 2004 Details of capital and reserves (shareholders' Fund) how we can find net capital? Firstly we are going to find Total of main capital plus total of added capital then we can find total of capital after that minus Items to be deducted from Capital so we can find Net capital.

Table 3.1.3. Cyprus Vakiflar (2005) Bank Capital	Adequacy Sta	ndard ratio,	list of risk w	eighted
assets		2007	500	10007
Risk weighted assets, commitments and contingent	0%	20%	50%	100%
liabilities				
Assets (Net)	2.0.11			0
Cash Balances	3,041	0	0	0
Balances at Central Bank	52,103	0	0	0
Interbank Funds	0	0	0	0
Banks Balances	0	54,923	0	0
Securities Portfolio	62,493	0	0	0
Reserve Deposits at Central Bank Reverse	39,471	0	0	0
Reserve Repo Receivables	0	0	0	0
Loans and Advances	55,747	0	121,182	40,323
Loans in Arrears	0	0	0	4,779
Prepayments and Accrued income	5,852	0	463	154
Participations and Subsidiaries	0	0	0	193
Long Term Investments	0	0	0	0
Assets Held for Resale	0	0	0	0
Fixed Assets	1,817	0	0	1,545
Other Assets	0	10,048	0	945
	0	0	0	0
Off Balance Sheet Items	0	0	0	0
Guarantees	0	0	180	0
Documentary Credits	21,861	0	0	0
Other Liabilities and Commitments	0	0	0	17,361
Undertakings	0	0	22	0
Foreign Currency and Interest Rates	0	0	0	0
Other	0	0	0	0
Total Risk Weighted assets	242,385	64,971	121,847	65,300
Net Assets under Exchange Risk				38,244
Total	-	12,994	60,924	103,544

Source: Cyprus Vakiflar Bank, Annual report 2005

Table 3.1.3 show as Cyprus Vakiflar bank in 2005 Bank Capital Adequacy Standard ratio, list of risk weighted assets, these Risk weighted assets, commitments and contingent liabilities classification zero percent, 20 percent, 50 percent, 100 percent.

	(2005)
1-TOTAL OF MAIN CAPITAL	24,502
a. Paid-up Capital	17,000
b. Statutory Reserves	1,840
c. General Reserves	685
d. Profit after Tax and Retained Earnings	4,977
e. Current and Previous year losses	
2-TOTAL OF ADDED CAPITAL	1,121
a. General Provision Loans Fixed Assets	1,121
b. Revaluation Fund	
c. Inflation Adjustment Reserve	
d. Participation and Subsidiaries Reserves	
e. Loan Capital	
f. Contingency Reserves	
g. Securities Valuation Fund	
3-TOTAL OF CAPITAL(1+2)	25,623
4-Capital as Determined by Capital Adequacy Ratio Regulation	25,623
5-Items to be Deducted from Capital	921
a. Investment in participation and subsidiaries	226
b. Intangible Assets	265
c. Formation Expenses	
d. Prepaid Expenses	470
e. The difference between market value and net book value of fixed asset	
where the market value is lower that net book value	
f. Loans Capital Given to Other Bank Operating in T.R.N.C	
g. Goodwill	
h. Capitalized Expenditure	
6-NET CAPITAL(4-5)	24,662

Table 3.1.4. Cyprus Vakiflar (2005) Details of capital and reserves (shareholders' Fund)

Source: Cyprus Vakiflar Bank, Annual report 2005

Table 3.1.5.Capital Adequa	cy ratio under Basel	I standards
	2004	2005
Total capital	20,352Bin YTL	24,662Bin YTL
Risk Weight		
%0 risk weight	0	0
%20 risk weight	4,108	12,994
%50 risk weight	16,927	60,924
%100 risk weight	32,894	103,544
Total Risk Weight Asset	53,929	177,462
Total Capital / Total Risk Weight assets= CAR(%)	37,73%	%13,90

To estimated Vakif bank capital adequacy ratio 2004-2005 details will be used. Thus, if we look above table, total risk weighted asset are approximately 54 million YTL in 2004 and 178 million YTL in 2005.Net capital for 2004 and 2005 are 20 million YTL 25 million YTL respectively if we divide all these date, we can find 38% for 2004 and 14% for 2005.if we look table, we can show the capital adequacy ratio decrease in 2005 due to the huge increase in risk weighted asset.

Total	9.844	41.471	14,060	54,076
Net Assets under Exchange Risk	9,844			
Total Risk Weighted assets	91,510	207,355	28,119	54,076
Other	0	2,314	0	0
Foreign Currency and Interest Rates	0	725	0	0
Undertakings	0	0	0	0
Other Liabilities and Commitments	0	0	0	0
Documentary Credits	0	0	531	0
Guarantees	1,309	360	3,409	0
Off Balance Sheet Items				
Other Assets	84	0	0	150
Fixed Assets	/,1/3	0	0	150
Assets Held for Resale	0	0		0
Long Term Investments	0	0	0	0
Participations and Subsidiaries	0	0		0
Prepayments and Accrued income	180	/80	0	957
Loans in Arrears	0	0	0	0
Loans and Advances	4,565	0	24,179	43,780
Reserve Repo Receivables	0	0	0	12 790
Reserve Deposits at Central Bank Reverse	36,045	0	0	0
Securities Portfolio	10,969	26,075	0	6,049
Banks Balances	0	177,096	0	3,015
Interbank Funds	0	0	0	0
Balances at Central Bank	28,451	0	0	0
Cash Balances	2,734	0	0	0
Assets (Net)				
iabilities				
	1 0 10	1 2070	1 30%	10070

.

Source: Turkish Bank annual report 2004

Table 3.2.1 show as Turkish bank in 2004 Bank Capital Adequacy Standard ratio, list of risk weighted assets, these Risk weighted assets, commitments and contingent liabilities classification zero percent, 20 percent, 50 percent, 100 percent.

Table 3.2.2. TURKISH BANK (2004) Details of capital and reserves (shadow)	areholders' Fund)
	(2004)
1-TOTAL OF MAIN CAPITAL	55,141
a. Paid-up Capital	51,228
b. Statutory Reserves	585
c. General Reserves	
d. Profit after Tax and Retained Earnings	3,328
e. Current and Previous year losses	
2-TOTAL OF ADDED CAPITAL	760
a. General Provision Loans Fixed Assets	657
b. Revaluation Fund	
c. Inflation Adjustment Reserve	
d. Participation and Subsidiaries Reserves	103
e. Loan Capital	
f. Contingency Reserves	
g. Securities Valuation Fund	
3-TOTAL OF CAPITAL(1+2)	55,901
4-Capital as Determined by Capital Adequacy Ratio Regulation	55,901
5-Items to be Deducted from Capital	32,645
a. Investment in participation and subsidiaries	32,643
b. Intangible Assets	
c. Formation Expenses	
d. Prepaid Expenses	2
e. The difference between market value and net book value of fixed asset	
where the market value is lower that net book value	
f. Loans Capital Given to Other Bank Operating in T.R.N.C	
g. Goodwill	
h. Capitalized Expenditure	
6-NET CAPITAL(4-5)	23,256

Source: Turkish Bank annual report 2004

Table 3.2.2 show as Turkish bank in 2004 Details of capital and reserves (shareholders' Fund) how we can find net capital? Firstly we are going to find Total of main capital plus total of added capital then we can find total of capital after that minus Items to be deducted from Capital so we can find Net capital.

Table 3.2.3. TURKISH BANK (2005) Bank Capital	Adequacy	Standard ratio	o, list of risk	weighted
assets				
Risk weighted assets, commitments and contingent	0%	20%	50%	100%
liabilities				
Assets (Net)				
Cash Balances	3,726	0	0	0
Balances at Central Bank	30,945	0	0	0
Interbank Funds	0	0	0	0
Banks Balances	0	131,957	0	47,186
Securities Portfolio	5,188	15,022	0	0
Reserve Deposits at Central Bank Reverse	38,210	0	0	0
Reserve Repo Receivables	0	0	0	0
Loans and Advances	5,525	0	26,103	56,311
Loans in Arrears	0	0	0	0
Prepayments and Accrued income	83	533	0	1,385
Participations and Subsidiaries	0	0	0	0
Long Term Investments	4,788	15,385	0	5,741
Assets Held for Resale	0	0	0	0
Fixed Assets	7,014	0	0	0
Other Assets	85	0	0	418
Off Balance Sheet Items				
Guarantees	0	2,162	0	1,722
Documentary Credits	0	0	260	0
Other Liabilities and Commitments	0	0	0	0
Undertakings	0	0	0	0
Foreign Currency and Interest Rates	0	1,222	0	0
Other	0	3,101	0	0
Total Risk Weighted assets	95,564	169,382	26,363	112,763
Net Assets under Exchange Risk	5,976			
Total	5,976	33,876	13,182	112,763

Source: Turkish Bank annual report 2005

Table 3.2.4. TURKISH BANK (2005) Details of capital and reserves (sh	areholders' Fund)
-	(2005)
	(2003)
1-TOTAL OF MAIN CAPITAL	57,283
a. Paid-up Capital	51,229
b. Statutory Reserves	1,014
c. General Reserves	
d. Profit after Tax and Retained Earnings	5,040
e. Current and Previous year losses	
2-TOTAL OF ADDED CAPITAL	884
a. General Provision Loans Fixed Assets	781
b. Revaluation Fund	
c. Inflation Adjustment Reserve	
d. Participation and Subsidiaries Reserves	103
e. Loan Capital	
f. Contingency Reserves	
g. Securities Valuation Fund	
3-TOTAL OF CAPITAL(1+2)	58,167
4-Capital as Determined by Capital Adequacy Ratio Regulation	58,167
5-Items to be Deducted from Capital	32,751
a. Investment in participation and subsidiaries	32,733
b. Intangible Assets	
c. Formation Expenses	
d. Prepaid Expenses	18
e. The difference between market value and net book value of fixed asset	
where the market value is lower that net book value	
f. Loans Capital Given to Other Bank Operating in T.R.N.C	
g. Goodwill	
h. Capitalized Expenditure	
6-NET CAPITAL(4-5)	25,416

Source: Turkish Bank annual report 2005

TURKISH BANK				
Table 3.2.5.Capital Adequacy ratio under Basel I standards				
	2004	2005		
Total capital	23,256Bin YTL	25,416Bin YTL		
Risk Weight				
%0 risk weight	9,844	5,976		
%20 risk weight	41,471	33,876		
%50 risk weight	14,060	13,182		
%100 risk weight	54,076	112,763		
Total Risk Weight Asset	119,451	165,797		
Total Capital / Total Risk Weight assets= CAR(%)	%19	%15		
10				

Turkish bank capital adequacy ratio under Basel I standards, total capital divide total risk weight asset. As a result, capital adequacy ratio for 2004 is %19 and for 2005 is % 15. Capital adequacy ratio for Turkish bank decreases from %19 to %15 because in 2005 risk weighted asset increase.

CYPRUS TURKISH CO-OPERATIVE CENTRAL BANK LTD.

Table 3.3.1.Risk Weighted Assets (2003)

Balance sheet Assets	Balance sheet Nominal	Risk	Risk Weighted Amounted
	Amount(Minion 1L)	weights	(Minion 1L)
Due from other banks	128,020.927	%20	25,604.185
Loans to customers	10.017.528	%100	10.017.528
under follow-up(net or			
under tonow-up(net of			
provisions)			1.010
Investments other than	1,318	%100	1,318
financial institutions			
Other Assets	1.542.624	%20	316.925
Other Assets	3.360.586	%50	1.680.293
Other Assets	27,768.004	%100	27,768.004
Off Balance Sheet			
Positions			
Confirmed credit and	12,023.666	%20	2,404.733
Guarantees to			
customers			
Total Dick Weighted	182 776 653		67 702 086
i otal Kisk weighted	104,170.033		U1,174.70U
Assets			

Source: Cyprus Turkish co-operative central bank annual report 2003

CYPRUS TURKISH CO-OPERATIVE CENTRAL BANK LTD.

Table 3.3.2.Risk Weighted Assets (2004)

Balance sheet Assets	Balance sheet Nominal Amount(Million TL)	Risk Weights	Risk Weighted Amounted (Million TL)
Due from other banks	160,371.226	%20	32,074.245
Loans to customers under follow-up(net or provisions)	8,882.270	%100	8,882.270
Investments other than financial institutions	1,318	%100	1,318
Other Assets	8,933.593	%20	1,786.718
Other Assets	13,016.496	%50	6,508.248
Other Assets	64,396.836	%100	64,396.836
Off Balance Sheet Positions	l'otal		
Confirmed credit and Guarantees to customers	7,277.943	%20	1,455.589
Currency Risk			1,571.000
Total Risk Weighted Assets	182,776.653		67,792.986

Source: Cyprus Turkish co-operative central bank annual report 2004

CYPRUS TURKISH CO-OPERATIVE CENTRAL BANK LTD. Table 3.3.3.Capital Adequacy ratio under Basel I standards					
Total capital	23,571.873	42,399.748			
Risk Weight					
%0 risk weight	0	0			
%20 risk weight	28,325.843	35,316.552			
%50 risk weight	1,680.293	6,508.248			
%100 risk weight	37,785.530	74,850.104			
Total Risk Weight Asset	67,792,986	116,676.224			
Total Capital / Total Risk Weight assets= CAR (%)	%34,77	%36,34			
Ras Webb					

When we are going to look above table, we can show Cyprus Turkish Co-operative Central bank capital adequacy ratio under Basel I standards as a result, total risk weighted asset are approximately 68 million YTL in 2003 and 117 million YTL in 2004.Net capital for 2003, 25 million YTL and for 2004 are 42 million YTL respectively if we divide all these date, we can find 34.77% for 2003 and 36,34% for 2004.if we look table, we can show the capital adequacy ratio increases in 2004 because total capital increased.

able 3.4.Capital Requirements of Vakiflar Bank, Turkish Bank and Cyprus Turkish Co-operative Central Bank Under Basel 1 (Summary Table).

		Vakif Bar	ık	Turkish	Bank	Co-opera	ative Bank
		2004	2005	2004	2005	2003	2004
BASEL 1	Total Capital	20,352	24,662	23,256	25,416	23,571	42,399
	Total Risk weighed Assets(CR)	53,929	177,462	119,451	165,797	67,792	116,676
	Total Capital / Total Risk Weight assets=CAR (%)	%37,73	%13,90	%19	%15	%34.77	%36.34

T.R.N.C CENTRAL BANK BANKING SECTORS					
Table 3.5.Capital Adequacy ratio under Basel I standards					
	2003	2004			
Total capital	99,256	152,054			
Risk Weight	-				
%0 risk weight	0	0			
%20 risk weight	219,709	271,996			
%50 risk weight	73,744	116,213			
%100 risk weight	213,185	447,321			
Net Assets under Exchange Risk	-	129,129			
Total Risk Weight Asset	506,638	964,659			
Total Capital / Total Risk Weight assets= CAR (%)	%19,59	%15,76			
			A		

Table 3.4 represent three Turkish banks capital adequacy ratio calculation results. In this table we can saw that Vakiflar bank have the highest ratio in 2004 which is 37,73 percent. But in 2005 vakiflar bank ratio decreases to 13.90 percent if we make a

comparison between three banks and banking sector ratio which is represent in table 3.5, we can say that three bank higher ratios then sector averages. Banking sector averages or capital adequacy ratios are 19.59 percent in 2003 and 15,76 percent in 2004 . If we take 2004 base year, banking sector ratio is 15.76 percent and Vakiflar bank which has the highest ratio in 2004, is 37.73 percent. Vakiflar bank is a public bank. If risk weighted capital ratio fall below 8 percent ratio, the bank is required to increase its capital by the required amount within 6 months following the reported deficiency the increase in capital is normally required to be made in cash.
SECTION 4

Conclusion

In this section, I will interpret the overall findings and results, to have knowledge about risk management in banking and application of Basel I in TRNC banking sector. Banking sector distinguished between another sectors of the economy with the risk subject. In the banking sectors, risks are managed jointly in the operators. Thus banking business is a risk business. Also banking sector is an essential industry, when we seeking a loan to purchase a new house, commerce school, financial advice on how to invest our savings, credit to begin a new business, a safe deposit box to safeguard our valuable documents, or even more commonly, a checking account or credit card to keep track of when and where we spend our money. Banks stand ready to provide liquidity on demand to depositors through the checking account and to extend credit as well as liquidity to their borrowers through line of credit. Because of these fundamental roles, bank held always been concerned with both solvency and liquidly also commercial banks play an important role in the financial system and the economy. As a key component of the financial system, banks allocate funds from savers to borrowers in an efficient manner. They provide specialized financial services, which reduce the cost of obtaining information about both savings and borrowing opportunities. These financial services help to make the overall economy more efficient. Risk Management is the process of measuring, or assessing risk and then developing strategies to manage the risk. In general, the strategies employed include transferring the risk to another party, avoiding the risk, reducing the negative effect of the risk, and accepting some or all of the consequences of a particular risk management offers comprehensive coverage of the design and operation of a risk management system its technical modelling and its interplay with the external

65

regulations by which such a system is governed, specifically it provides a framework for viewing the policies, methodologies, data collection, and technical infrastructure used to support risk management. Financial risk management, on the other hand, focuses on risks that can be managed using traded financial instruments. Intangible risk management focuses on the risks associated with human capital, such as knowledge risk, relationship risk, and engagement-process risk. Regardless of the type of risk management, all large corporations have risk management teams and small groups and corporations practice informal, if not formal, risk management. In addition to all the pure risks a business encounters, some business firms especially financial firms such as banks, face a whole set of probabilities we call financial risks. First of all financial risk management has been defined by Basel Committee and the Basel Committee has played a leading role in standardizing bank regulations across jurisdictions. Its origins can be traced to 1974. In 1988, the Basel Committee proposed a set of minimal capital requirements for banks. Basel I issued in 1988 first set the capital standards for banks. Nevertheless, Basel I was deeply criticized because of its deficiencies in measurement of banking risk since the first day it issued. In order to cover these deficiencies in Basel standards, Basel Committee introduced a new proposal for bank capital standards and made it available for discussions in 1999. The proposal revised a number of times and finally issued of June 26, 2004.

This study examines the effect of capital adequacy ratio that an application of Basel I Standards on three Turkish banks by using a data set for the years 2003, 2004 and 2005. The empirical results point out that the application of Basel I standards in measurement of capital adequacy of the three Turkish banks comparison between TRNC banking sector ratio and this comparison in Table 3.4 represent this three

Turkish banks capital adequacy ratio calculation results. In this table we can saw that Vakiflar bank have the highest ratio in 2004 which is 37.73 percent. But in 2005 Vakiflar bank ratio decreases to 13.90 percent if we make a comparison between three banks and banking sector ratio which is represent in table 3.5, we can say that three bank have higher ratios then sector averages. Banking sector averages or capital adequacy ratios are 19.59 percent in 2003 and 15.76 percent in 2004. If we take 2004 as a base year, banking sector ratio is 15.76 percent and Vakiflar bank which has the highest ratio in 2004, is 37.73 percent. Consequently, when we compare the three biggest banks with sector, we can say that those banks ratio's higher than banking sector average and it is good indicator for those banks.

REFERENCES

ALEXANDER, Corol "The Present and Future of Financial Risk Management" ISMA centre discussion papers in finance 2003-12 first version

Accenture, Mercer Oliver Wyman, SAP "Reality Check on Basel II" The Banker July 2004

BRSA, "Comments on Third Consultative Paper" July 2003

CIVELEK, Mehmet A., DURUKAN, M.Banu, "Investment", Dokuz Eylul Yayinlari May (1998)

Caruana, J. "Consequences of Basel II for SMEs" Address to the European Parliament Workshop, BIS Review, Basel2003

Chiuri, M. C., Ferri G., Majnoni G. "The Macroeconomic Impact of bank capital Requirements in Emerging Economies: Past Evidence to Assess the Future" University of Bari – The World bank, August 2001

Dew, K. "Was Bank Risk Management Difficult in Turkey During the Banking Crisis There" May 2003

De Watcher, M. "Anything you wanted to know about Basel II: is there life after Basel II?" Presentation on 28.11.2003

Eurochambres "Review Of Capital Requirements For Banks And Investment Firms", October 2003

FREDERIC S. Meshing The Economics of Money, Banking and Financial Markets Seventh Edition, (2004) Pearson Addison Wesley

Financial Services Fact Book insurance information institute.

GERCORGE E. Ruth, "Commercial lending "Second Edition American Bankers Association (2003)

Griffith-Jones, S., Spratt S. "Submission to the Basel Committee on Banking Supervision: CP3 and the Developing World" Institute of Development Studies University of Sussex, July 2003

JANE E. Hughes, SCOTT B. Macdonald, International banking(text and cases) chapter10 (2002)

Jackson, Patricia "II Developments", Financial Stability Review, December 2002

Michel Crouhy, Dan Galai and Robert mark first printing 2001, New York, McGraw Hill

PETER.S.Rose Commercial bank management fifth edition,(2002) McGraw hill Irwin

REJDA, George E. "Principles of Risk Management and Insurance" Nine Edition, Addison Wesley,2004

SANTOMERO, Anthony M 'Commercial Bank Risk Management ' an analysis's of the process Financial Institution center(2003)

Segoviano, Miguel A., Lowe Philip "Internal Ratings, the Business Cycle and capital Requirements: Some Evidence from an Emerging Market Economy", BIS Working Paper, September 2002

STULZ M.Rene, Risk Management and Derivatives, Thomson south-western(2003),

TIGAN John (2001) Federal Reserve Bank of San Francisco, educational resources

WHARTON Financial Institution Center Risk Management, Capital Structure and Lending at Banks by A.sinan cebenoyan Philip E.Strahan(2003)

SOURCES FROM INTERNET:

http://www.apra.gov.au/RePEc/RePEcDocs/Archive/conference_papers1/risk_manag ement_banking.pd

http://www.bis.org/about/index.htm

http://www.banque-france.fr/gb/supervi/supervi.htm

www.bitpipe.com/tlist/Basel-II.html

http://www.cimoney.com.ky/uploadedFiles/Regulatory_Framework/Policy_and_Deve lopment/Rules,_Statements_of_Guidance_and_Principles/Banking/SOGLiquidityRisk Management.pdf

http://www.erisk.com/ResourceCenter/Market/Listing.asp

www.financial-dictionary.thefreedictionary.com

http://www.occ.treas.gov/FTP/Release/2003-53c.pdf#search='operational%20risk'

http://www.nber.org/papers/w9323

www.investor words.com The Biggest Best Investing Glossary on The Web

http://www.worldbank.org/research/interest/prr_stuff/bank_regulation_database.htm

http://fic.wharton.upenn.edu/fic/papers/05/p0516.html

http://en.wikipedia.org/wiki/Basel_II

http://en.wikipedia.org/wiki/Risk_management

http://www.worldbank.org/research/interest/prr_stuff/bank_regulation_database.htm