

Risk Management Case Study

THE PROBLEM AND THE PLAN

Incidentals of Authorization and Submittal

This study of risk management recommendations of Turk Eximbank is submitted to Mr. H. Ahmet KILIÇOĞLU, General Manager of Turk Eximbank, on April 30, 2001. As authorized on February 20, 2001, the investigation was conducted under the direction of Barış Samana and Gürkan Kocgar.

Objective of Risk Management Recommendations

The objective of the study was to define why risk management was needed in Turk Eximbank and how to adjust the risk management system at the bank. The plan for achieving this objective involved first determining the techniques used for risk measurements. This information will then be used for Turk Eximbank's risk evaluation process.

Use of Techniques for Risk Measurement

The methodology used in this investigation was an observational study of defining the risk measurement techniques and then applying them to Turk Eximbank's risk evaluation process, if necessary.

Investigations have been made at the Bilkent University Library and Internet, also we have interviewed with the risk analysts of Turk Eximbank.

INTRODUCTION

In recent years, a number of programs aimed at enhancing the effectiveness of supervisory process for banks. Although effective risk management has always been central to safe and sound banking activities, it has become even more important as new technologies, product innovation, and the size and speed of financial transactions have changed the nature of banking markets. In response to these changing market realities, certain supervisory risk management processes have been refined, while others - in particular, those that have proven most successful in supervising banks under a variety of economic circumstances and industry conditions - have been retained. The objective of a risk-focused examination is to effectively evaluate the safety and soundness of the bank, including the assessment of its risk management systems, financial condition, and compliance with applicable laws and regulations, while focusing resources on the bank's highest risks. The exercise of examiner judgment to determine the scope of the examination during the planning process is crucial to the implementation of the risk-focused supervision framework, which provides obvious benefits such as higher quality examinations, increased efficiency, and reduced on-site examiner time.

UNDERSTANDING THE BANK

The risk-focused supervision process for banks involves a continuous assessment of the bank. The understanding of the bank developed through this assessment enables examiners to tailor the examination of the bank to its risk profile. Understanding the bank begins with a review of available information on the bank. In addition to examination reports and correspondence files, each bank maintains various surveillance reports that identify outliers when a bank is compared to its peer group. The review of this information assists examiners in identifying both the strengths and vulnerabilities of the bank and provides a foundation from which to determine the examination activities to be conducted.

Contact with the organization is encouraged to improve the understanding of the institution and the market in which it operates. A pre-examination interview or visit should be conducted as a part of each examination. Such a meeting gives examiners the opportunity to learn about any changes to bank management, bank policies, strategic direction, management information systems, and other activities. Particular emphasis should be placed on learning about new products or markets into which the bank has entered. The interview or visit also provides examiner's with management's view of local economic conditions, an understanding of the bank's regulatory compliance practices, its management information systems, and its internal/external audit function. In addition, banks should contact the state-banking regulator to determine whether they have any special areas of concern that should be focused on during the examination.

RELIANCE ON INTERNAL RISK ASSESSMENTS

Internal audit, loan review, and compliance functions are integral to a bank's own assessment of its risk profile. If applicable, it may be beneficial to discuss with the bank's external auditor the results of the most recent audit it has completed for the bank. Such a discussion gives the examiner the opportunity to review the external auditor's frequency, scope and reliance on internal audit findings. Examiners should consider the adequacy of these functions in determining the risk profile of the bank and the opportunities to reduce regulatory burden by testing rather than duplicating the work of these audit functions. Transaction testing remains a reliable and essential examination technique for use in the assessment of an institution's condition. The amount of transaction testing necessary to evaluate particular activities generally depends on the quality of the bank's process to identify, measure, monitor, and control the activity's risk. Once the integrity of the management system is verified through testing, conclusions on the extent of risks within

the activity can be based on internal management assessments of the risks rather than on the results of more extensive transaction testing by examiners. If, however, initial inquiries into the risk management system, or efforts to verify the integrity of the system, raise material doubts as to the system's effectiveness, then no significant reliance should be placed on the system and a more extensive series of tests should be undertaken to ensure that the bank's exposure to risk from a particular activity can be accurately evaluated.

SCOPE MEMORANDUM

The scope memorandum is an integral product in the risk-focused methodology as the memorandum identifies the central objectives of the on-site examination. The scope memorandum also ensures that the examination strategy is communicated to appropriate examination staff. A sample scope memorandum is presented in Appendix - A. This document is of key importance, as the scope will likely vary from examination to examination. Examination procedures should be tailored to the characteristics of each bank, keeping in mind its size, complexity, and risk profile. Procedures should be completed to the degree necessary to determine whether the bank's management understands and adequately controls the levels and types of risk that are assumed. In addition, the memorandum should address the banking environment, economic conditions, and any changes that bank management fore sees that could affect the bank's condition. A preliminary estimate of staffing required to perform the examination should also be prepared as part of the scope memorandum.

The key factors that should be addressed in the scope memorandum include:

Preliminary Risk Assessment

The risks associated with the bank's activities should be summarized and based on a review of all available sources of information on the bank, including but not limited to, prior examination reports, surveillance reports, correspondence files, and audit reports. The scope memorandum should include a preliminary assessment of the bank's condition and major risk areas that will be evaluated through the examination process.

Summary of the Pre-Examination Meeting

The results of the pre-examination meeting should be summarized with particular emphasis on the meeting results that affect examination coverage.

Summary of Audit and Internal Control Environment

A summary of the scope and adequacy of the audit environment should be prepared which may result in a modification of examination procedures initially expected to be performed. Activities that receive sufficient coverage by the bank's audit system can be tested through the examination process. Sufficient audit coverage could result in the elimination of certain procedures if the audit and internal control areas are deemed satisfactory.

Summary of Examination Procedures

Examination modules have been developed related to the significant areas reviewed during an examination. The modules are categorized as being primary or supplemental. The primary modules must be included in each examination. However, procedures within the primary modules can be eliminated or enhanced based on the risk assessment or the adequacy of the audit and internal control environment. The scope memorandum should specifically detail the areas within each module to be emphasized during the examination process. In addition, the use of any supplemental modules should be discussed.

Summary of Loan Review

Based on the preliminary risk assessment, the anticipated loan coverage should be detailed in the scope memorandum. In addition to stating the percent of commercial and commercial real estate loans to be reviewed, the scope memorandum should also identify which speciality loan references to the general loan module are to be completed. The memorandum should specify activities within the general loan module to be reviewed, as well as the depth of any speciality reviews.

Job Staffing

The staffing for the examination should be detailed. Particular emphasis should be placed on ensuring appropriate personnel are assigned to the high risk areas identified in the bank's risk assessment.

USE OF THE EXAMINATION MODULES

The state-banking regulator has jointly developed bank examination modules. This automated format was designed to define common objectives for the review of important activities within the bank and to assist in the documentation of examination work. It is expected that full-scope examinations will include examiners' evaluation of six critical areas that are necessary to determine the bank's CAMELS rating. To evaluate these areas, examiners must perform procedures tailored to fit the risk profile of the bank. The seven primary examination modules are:

- Capital Adequacy
- Earnings Analysis
- Loan Portfolio Management
- Liquidity Analysis
- Management and Internal Control Evaluation
- Securities Analysis
- Other Assets and Liabilities

There are six supplemental modules that are available for use if any of these activities present significant risk to the bank. The supplemental modules are:

- Electronic Funds Transfer Risk Assessment
- International Banking
- Credit Card Merchant Processing
- Mortgage Banking
- Electronic Banking
- Related Organizations

In addition, there are ten Loan References (for specialized lending areas) included in the general Loan Portfolio Management module. The loan reference modules are:

- Construction and Land Development
- Commercial and Industrial Real Estate
- Residential Real Estate Lending
- Commercial and Industrial Loans
- Agricultural Lending
- Direct Lease Financing
- Floor Plan Loans
- Troubled Debt Restructuring
- Consumer and Check Credit
- Credit Card Activities

The modules establish a three-tiered approach for the review of a bank's activities. The first tier is the core analysis, the second tier is the expanded review, and the final tier is the impact analysis. The core analysis includes a number of decision factors, which should be considered collectively, as well as individually when evaluating the potential risk to the bank. To assist the examiner in determining whether risks are adequately managed, the core analysis section contains a list of procedures that may be considered for implementation. Once the relevant procedures are performed, the examiner should document conclusions in the core analysis decision factors. Where significant deficiencies or weaknesses are noted in the core analysis review, the examiner is required to complete the expanded analysis for those decision factors that present the greatest degree of risk to the bank. On the other hand, if the risks are properly managed, the examiner can conclude the review and carry any comments to the report of examination.

The expanded analysis provides guidance to the examiner in determining if weaknesses are material to the bank's condition and if they are adequately managed. If the risks are material or inadequately managed, the examiner is directed to perform an impact analysis to assess the financial impact to the bank and assess whether any enforcement action is necessary.

The use of modules should be tailored to the characteristics of each bank based on its size, complexity, and risk profile. As a result, the extent to which each module should be completed will vary from bank to bank. One of the features included in the automated format for the modules allows examiners to select the appropriate procedures in the modules that address the area(s) of concern while eliminating unnecessary procedures. The degree of expected completion of the modules should be documented in the scope memorandum.

The individual procedures presented for each level are meant only to serve as a guide for answering the decision factors. Each procedure does not require an individual response and each procedure may not be applicable at every community bank. Examiners should continue to exercise discretion in deciding to exclude any items as unnecessary in the evaluation of the decision factors. Moreover, the listed procedures do not represent every possible factor to be considered during an examination. Examiners should reference supervisory and administrative letters for additional guidance.

CREDIT RISK

Banks should have methodologies that enable them to assess the credit risk involved in exposures to individual borrowers or counter parties as well as at the portfolio level. For more sophisticated banks, the credit review assessment of capital adequacy, at a minimum, should cover four areas: risk rating systems, portfolio analysis/aggregation, securitisation / complex credit derivatives, and large exposures and risk concentrations.

Internal risk ratings are an important tool in monitoring credit risk. Internal risk ratings should be adequate to support the identification and measurement of risk from all credit exposures, and should be integrated into an institution's overall analysis of credit risk and capital adequacy. The ratings system should provide detailed ratings for all assets, not only for criticized or problem assets. Loan loss reserves should be included in the credit risk assessment for capital adequacy.

The analysis of credit risk should adequately identify any weaknesses at the portfolio level, including any concentrations of risk. It should also adequately take into consideration the risks involved in managing credit concentrations and other portfolio issues through such mechanisms as securitisation programs and complex credit derivatives. Further, the analysis of counter party credit risk should include consideration of public evaluation of the supervisor's compliance with the Core Principles of Effective Banking Supervision. (Refer to "*Principles for the Management of Credit Risk*", September 2000). (Basel Committee on Banking Supervision)

Credit risk defined as the chance that a debtor will not be able to pay interest or repay the principal according to the terms specified in a credit agreement is an inherent part of banking. Credit risk means that payments may be delayed or ultimately not paid at all, which can in turn cause cash flow problems and affect a bank's liquidity. Despite

innovation in the financial services sector, credit risk is still the major single cause of bank failures. The reason is that more than 80 percent of a bank's balance sheet generally relates to this aspect of risk management. The three main types of credit risk are as follows:

- Personal or consumer risk
- Corporate or company risk
- Sovereign or country risk

Because of the potentially terrible effects of credit risk, it is important to perform a comprehensive evaluation of a bank's capacity to assess, administer, supervise, control, enforce and recover loans, advances, guarantees, and other credit instruments. An overall credit risk management will include an evaluation of the credit risk management policies and practices of a bank. This evaluation should also determine the adequacy of financial information received from a borrower, which has been used by banks as the basis for the extension of credit and the periodic assessment of inherently changing risk.

The review of a credit risk management function is discussed under the following themes:

- Credit portfolio management
- Lending function and operations
- Credit portfolio management
- Nonperforming loan portfolio
- Credit risk management policies
- Policies to limit or reduce credit risk
- Asset classification
- Loan loss provisioning policy

LIQUIDITY RISK

Liquidity is crucial to the ongoing viability of any banking organization. Banks' capital positions can have an effect on their ability to obtain liquidity, especially in a crisis. Each bank must have adequate systems for measuring, monitoring and controlling liquidity risk. Banks should evaluate the adequacy of capital given their own liquidity profile and the liquidity of the markets in which they operate. (Refer to "*Sound Practices for Managing Liquidity in Banking Organizations*", February 2000). (Basel Committee on Banking Supervision)

Liquidity risk defined as bank transforms the term of their liabilities to have different maturities on the asset side of the balance sheet. At the same time, banks must be able to meet their commitments (such as deposits) at the point at which they come due. The contractual inflow and outflow of funds will not necessarily be reflected in actual plans and may vary at different times. A bank may therefore experience liquidity mismatches, making its liquidity policies and liquidity risk management key factors in its business strategy.

Liquidity risk means that a bank has insufficient funds on hand to meet its obligations. Net funding includes maturing assets, existing liabilities, and standby facilities with other institutions. Liquidity risks are normally managed by a bank's asset and liability committee, and approach that requires understanding of the interrelationship between liquidity risk management and interest rate management, as well as of the impact that repricing and credit risk have on liquidity or cash flow risk, and vice versa.

Liquidity is necessary for banks to compensate for expected and unexpected balance sheet fluctuations and to provide funds for growth. It represents a bank's ability to efficiently accommodate decreases in deposits and/or runoff of abilities, as well as fund increases in a loan portfolio. A bank has adequate liquidity potential when it can obtain sufficient funds (either by increasing liabilities or converting assets) promptly and at a reasonable cost. The price of liquidity is a function of market conditions and the degree to which risk, including interest rate and credit risk, is reflected in the bank's balance sheet.

MARKET RISK

This assessment is based largely on the bank's own measure of value-at-risk. Emphasis should also be on the institution performing stress testing in evaluating the adequacy of capital to support the trading function. (Refer to Part B of the "*Amendment to the Capital Accord to Incorporate Market Risks*", January 1996). (Basel Committee on Banking Supervision)

In contrast to traditional credit risk, the market risk that banks face does not necessarily result from the nonperformance of the issuer or seller of instruments or asset. Market or position risk is a risk that a bank may experience a loss in on –and off-balance-sheet positions arising from unfavorable movements in market prices. It belongs to the category of speculative risk, wherein price movements can result in a profit or loss. The risk arises not only because market change, but because of the actions taken by traders, who can take on get rid of those risks. The increasing exposure of banks to market risk is due to the trend of business diversification from the traditional intermediary function toward trading and investment in financial products that provide better potential for capital gain, but which expose banks to significantly higher risks.

Market risk results from changes in price of equity instruments, commodities, money, and currencies. Its major components are therefore equity position risk, interest rate risk, and currency risk. Each component of risk includes a general market risk aspect and specific risk aspect, which originates in the specific portfolio structure of bank. In addition to standard instruments, such as options, equity derivatives, or currency and interest rate derivatives.

The price volatility of most assets held in investment and trading portfolios is often significant. Volatility prevails even in mature markets, though it is much higher in new or illiquid markets. The presence of large institutional investors, such as pension funds, insurance companies, or investment funds has also had an impact on the structure of markets and on market risk. Institutional investors adjust their large-scale investment and trading portfolios through large-scale trades, and in markets with rising prices, large-scale purchases tend to push prices up. Conversely, markets with downwards trends become

more skittish when large, institutional-size blocks are sold. Ultimately, this leads to a widening of the amplitude of price variances and therefore to increases market risk.

By its very nature, market risk requires constant management attention adequate analysis. Prudent managers should aware of exactly how a bank's market risk exposure relates to its capital. In recognition of the increasing exposure of banks to market risk, and to benefit from the discipline that capital requirements normally impose, the Basel Committee amended the 1988 Capital Accord in January 1996 by adding specific capital charges for market risk. The capital standards for market risk were to have been implemented in G-10 countries by end-1997 at the latest. Part of the 1996 amendment is a set of strict qualitative standards to risk management process that apply to bank basing their capital requirements on the results of internal models.

Bank organization of investment, trading, and risk management function follows a fairly standard format. The necessary projections and quantitative and qualitative analysis of the economy, including all economic sectors of interest to a bank, and of securities and money markets are performed internally by economists and financial analysts and externally by market and industry experts. This information is communicated through briefing and reports to traders/security analysts, who are responsible for government securities or a group of securities in one or more economic sectors. If a bank has large trading and/or investment portfolios, traders/analysts of groups of securities may report to a portfolio manager who is responsible for certain types of securities. The operational responsibility for a bank's trading or investment portfolio management is typically assigned to the investment committee or the treasury team.

INTEREST RATE RISK

The measurement process should include all material interest rate positions of the bank and consider all relevant repricing and maturity data. Such information will generally include: current balance and contractual rate of interest associated with the instruments and portfolios, principal payments, interest reset dates, maturities, and the rate index used for repricing and contractual interest rate ceilings or floors for adjustable-rate items. The system should also have well-documented assumptions and techniques.

Regardless of the type and level of complexity of the measurement system used, bank management should ensure the adequacy and completeness of the system. Because the quality and reliability of the measurement system is largely dependent on the quality of the data and various assumptions used in the model, management should give particular attention to these items. (Refer to “*Principles for the Management and Supervision of Interest Rate Risk*”, January 2001 for consultation). (Basel Committee on Banking Supervision)

Central Bank and the state-banking regulator have issued a policy on Interest Rate Risk (Policy Statement). The Policy Statement provides guidance to bankers on sound interest rate risk management practices. The procedure follows a multi-level framework that incorporates the Policy Statement's guidelines and efficiently allocates examination resources. Examination scope will vary depending upon each bank's interest rate risk management and exposure. The procedures guide examiners towards a qualitative interest rate risk assessment, rather than a uniform supervisory measurement.

Interest Rate Risk Concepts

Interest rate risk is the exposure of a bank's current or future earnings and capital to interest rate changes. Interest rate fluctuations affect earnings by changing net interest income and other interest-sensitive income and expense levels. Interest rate changes affect capital by altering banks' economic value of equity. Economic value of equity represents the net present value of all asset, liability, and off-balance sheet cash flows. Interest rate movements change the present values of those cash flows. Economic value of equity estimates the long-term, expected change to earnings and capital that will result from an interest rate movement. As financial intermediaries, banks cannot completely avoid interest rate risk. However, excessive interest rate risk can threaten banks' earnings, capital, liquidity, and solvency. IRR has many components, including repricing risk, basis risk, yield curve risk, option risk, and price risk.

Repricing Risk results from timing differences between coupon changes or cash flows from assets, liabilities, and off-balance sheet instruments. For example, long-term fixed rate securities funded by short-term rate deposits may create repricing risk. If interest rates change, then deposit-funding costs will change more quickly than the securities' yield.

Basis Risk results from weak correlation between coupon rate changes for assets, liabilities, and off-balance sheet instruments. For example, LIBOR-based deposit rates may change by 50 basis points, while Prime-based loan rates may only change by 25 basis points during the same period.

Yield Curve Risk results from changing rate relationships between different maturities of the same index. For example, a 30-year Treasury bond's yield may change by 200 basis points, but a three-year Treasury note's yield may change by only 50 basis points during the same time period.

Option Risk results when a financial instrument's cash flow timing or amount can change as a result of market interest rate changes. This can adversely affect earnings or economic value of equity by reducing asset yields, increasing funding costs, or reducing the net present value of expected cash flows. For example, assume that a bank purchased a callable bond, issued when market interest rates were 10 percent, which pays a 10 percent coupon and matures in 30 years. If market rates decline to eight percent, the bond's issuer will call the bond (new debt will be less costly).

The issuer effectively repurchases the bond from the bank. As a result, the bank will not receive the cash flows that it originally expected (10 percent for 30 years). Instead, the bank must invest that principal at the new, lower market rate.

In addition, many loan and deposit products contain option risk. For example, many borrowers can prepay part or their entire loan principal at any time. Also, savings account depositors may withdraw their funds at any time.

Price Risk results from changes in the value of marked-to-market financial instruments that occur when interest rates change. For example, trading portfolios, held-for-sale loan portfolios, and mortgage servicing assets contain price risk. When interest rates decrease, mortgage servicing asset values generally decrease. Since those assets are marked-to-market, any value loss must be reflected in current earnings.

PROFITABILITY

Profitability is an indicator of a bank's capacity to carry risk and / or to increase its capital. Supervisors should welcome profitable banks as contributors to stability of the banking system. Profitability ratios should be seen in context, and the cost of free capital should be deducted prior to drawing assumptions of profitability. Net interest income is not necessarily the greatest source of banking income and often does not cover the cost of running a bank. Management should understand on which assets they are spending their energy, and how this relates to sources of income.

A sound banking system is built on profitable and adequately capitalized banks. Profitability is a revealing indicator of a bank's competitive position in banking markets and of the quality of its management. It allows a bank to maintain a certain risk profile and provides a cushion against short-term problems. Profitability, in the form of retained earnings, is typically one of the key sources of capital generation.

The income statement, a key source of information on a bank's profitability, reveals the sources of a bank's earnings and their quantity and quality, as well as the quality of the bank's loan portfolio and the targets of its expenditures. Income statement structure also indicates a bank's business orientation. Traditionally, the major source of bank income

has been interest, but the increasing orientation toward nontraditional business is also reflected in income statements. For example, income from trading operations, investments, and fee-based income accounts for an increasingly high percentage of earnings in banks. This trend implies higher volatility of earnings and profitability.

Changes in the structure and stability of bank's profits have sometime been motivated by statutory capital requirements and monetary policy measures, such as obligatory reserves. In order to maintain confidence in the banking system, banks are subject to minimum capital requirements. The restrictive nature of this statutory minimum capital may cause banks to change their business mix in favor of activities and assets that entail a lower capital requirement. However, although such assets carry less risk, they may earn lower returns.

Taxation is another major factor that influences a bank's profitability, as well as its business and policy choices, because it affects the competitiveness of various instruments and different segments of the financial markets.

A thorough understanding of profit sources and changes in the income profit structure of both an individual bank and the banking system as a whole is important to all key players in the risk management process. Supervisory authorities should, for example, view bank profitability as an indicator of stability and as a factor that contributes to depositor confidence. Maximum sustainable profitability should therefore be encouraged, since healthy competition for profits is an indicator of an efficient and dynamic financial system.

Ratios must be used with judgment and caution, since they alone do not provide complete answers about the bottom line performance of the banks. In the short run, many tricks can be used to make bank ratios look good in relation to industry standards. An assessment of the operations and management should therefore be performed to provide a check on profitability ratios.

Asset / liability management has become an almost universally accepted approach to risk management. Since capital and profitability are intimately linked, the key objective of asset / liability management is to ensure sustained profitability so that a bank can maintain and augment its capital resources.

An analysis of the interest margin of a bank can highlight the effect of current interest rate patterns, while a trend analysis over a longer period of time can show the effect of monetary policy on the profitability of the banking system. It can also illustrate the extent to which banks are exposed to changes in interest rates.

CAPITAL ADEQUACY

Capital is required as a buffer against unforeseen losses. Capital cannot be a substitute for good management. A strong core of permanent capital is needed, supplemented by loans or other temporary forms of capital. The Basel Accord currently allows for three tiers of capital, the first two measuring credit risk related to on and off balance sheet activities and derivatives, and the third for overall assessment of market risk.

An 8 percent capital adequacy requirement must be seen as a minimum. However, a 15 percent risk weighted capital adequacy requirement is more appropriate in transitional or volatile environments.

The board of directors of the banks' has a responsibility to project capital requirements to determine if current growth and capital retention are sustainable.

Almost every aspect of banking is either directly or indirectly influenced by the availability and/or the cost of capital. Capital is one of the key factors to be considered when the safety and soundness of a bank is assessed. An adequate capital base serves as a safety net for a variety of risks to which an institution is exposed in the course of its business. Capital absorbs possible losses, and thus provides a basis for maintaining confidence in a bank. Capital is also the ultimate determinant of a bank's lending

capacity. A bank's balance sheet cannot be expanded beyond the level determined by its capital adequacy ratio. Consequently, the availability of capital determines the maximum level of assets.

The key purposes of capital are to provide stability and to absorb any losses, thereby providing a measure of protection to depositors and other creditors in the event of liquidation. As such, the capital of a bank should have three important characteristics:

- It must be permanent
- It must not impose mandatory fixed charges against earnings and
- It must allow for legal subordination to the rights of depositors and other creditors.

Capital Adequacy requirements:

The minimum risk-based standard for capital adequacy was set by the Basel Accord at 8 percent of risk-weighted assets, of which the core capital element should be at least 4 percent. If a bank is also exposed to market risk, the adjustment for the market risk is added by multiplying the measure of market risk by 12.5 and adding the resulting figure to the sum of risk-weighted assets compiled for the credit risk purposes. The capital ratio is then calculated in relation to the sum of the two, using as numerator only eligible capital. Tier 3 capital is eligible only if it is used to support the market risk.

The quality of a bank's assets must also be mentioned in the capital adequacy context. A bank's capital ratios can be rendered meaningless or highly misleading if asset quality is not taken into account.

BALANCE SHEET STRUCTURE

The composition of a bank's balance sheet assets and liabilities is one of the key factors that determine the risk level faced. Growth in the balance sheet and resulting changes in the relative proportion of assets or liabilities impact the risk management process. Monitoring key balance sheet components may alert the analyst to negative trends in relationship between asset growth and capital retention capability. Balance sheet structure lies at the heart of the asset / liability management process. Asset / liability management, comprises strategic planning and implementation and control process that affect the volume, mix, maturity, interest rate sensitivity, quality and liquidity of a bank's assets and liabilities.

CURRENCY RISK

Currency risk results from changes in exchange rates between a bank's domestic currency and other currencies. It is a risk of volatility due to a mismatch, and may cause a bank to experience losses as a result of adverse exchange rate movements during a period in which it has an open on-or off-balance-sheet position, either spot or forward, in an individual foreign currency. In recent years, a market environment with freely floating exchange rates has practically become the global norm. This has opened the doors for speculative trading opportunities and increased currency risk. The relaxation of exchange controls and the liberalization of cross-border capital movements have fueled a tremendous increase in international financial markets. The volume and growth of global foreign exchange trading has far exceeded the growth of international trade and capital flows, and has contributed to greater exchange rate volatility and therefore currency risk.

Currency risk arises from a mismatch between the value of assets and that of capital and liabilities denominated in foreign currency (or vice versa) or because of a mismatch

between foreign receivables and foreign payables that are expressed in domestic currency. Such mismatches may exist between both principal and interest due. Currency risk is of a speculative nature and can thereby result in a gain or a loss, depending on the direction of exchange rate shift and whether a bank is net long or net short in the foreign currency. For instance, in the case of a net long position in foreign currency, domestic currency depreciation will result in a net gain for a bank, while appreciation will produce a loss. Under a net short position, exchange rates movements will have the opposite effect.

In principle, the fluctuations in the value of domestic currency that create currency risk result from changes in foreign and domestic interest rates that are, in turn, brought about by differences in inflation. Fluctuations such as these are normally motivated by macroeconomic factors and are manifested over relatively long periods of time, although currency market sentiment can often accelerate recognition of the trend. Other macroeconomic aspects that affect the domestic currency value are the volume and direction of a country's trade and capital flows. Short-term factors, such as expected or unexpected political events, changed expectations on the part of market participants, or speculation-based currency trading, may also give rise to currency changes. All these factors can affect supply and demand for a currency and therefore the day-to-day movements of the exchange rate in currency markets. In practical terms, currency risk comprises the following:

Transaction risk, or the price based impact of exchange rate changes on foreign receivables and payables.

Economic or business risk related to the impact of exchange rate changes on a country's long term or company's competitive position. Such as, a depreciation of the local currency may cause a decline in imports and growth of exports.

Revaluation risk or translation risk arises when a bank's foreign currency positions are revalued in domestic currency, or when a parent institution conduct financial reporting or periodic consolidation of financial statements.

RISK MEASUREMENT METHOD

VaR (Value at Risk)

The general approaches to VaR computation have fallen into three classes called parametric, historical simulation, and Monte Carlo. Parametric VaR is most closely tied to MPT, as the VaR is expressed as a multiple of the standard deviation of the portfolio's return. Historical simulation expresses the distribution of portfolio returns as a bar chart or histogram of hypothetical returns. Each hypothetical return is calculated as that which would be earned on today's portfolio if a day in the history of market rates and prices were to repeat itself. The VaR then is read from this histogram. Monte Carlo also expresses returns as a histogram of hypothetical returns. In this case the hypothetical returns are obtained by choosing at random from a given distribution of price and rate changes estimated with historical data. Each of these approaches have strengths and weaknesses.

The parametric approach has as its principal virtue speed in computation. The quality of the VaR estimate degrades with portfolios of nonlinear instruments. Departures from normality in the portfolio return distribution also represent a problem for the parametric approach. Historical simulation (my personal favorite) is free from distributional assumptions, but requires the portfolio be revalued once for every day in the historical sample period. Because the histogram from which the VaR is estimated is calculated using actual historical market price changes, the range of portfolio value changes possible is limited. Monte Carlo VaR is not limited by price changes observed in the sample period, because revaluations are based on sampling from an estimated distribution of price changes. Monte Carlo usually involves many more repricings of the portfolio than historical simulation and is therefore the most expensive and time consuming approach

TURK EXIMBANK'S GUIDE TO RISK EVALUATION STUDY OF BANKS

Short Term Export Credits, one of the most important facilities of Turk Eximbank, are extended both directly by The Bank and indirectly using selected Turkish banks as intermediaries. For indirect lending, Turk Eximbank determines short term TL, FX and letter of guarantee limits for intermediary banks through a risk evaluation process of each bank. These banks are responsible for the default risk of the borrowers. Therefore, selected commercial banks must be financially sound and deemed to be active in the foreign trade business according to Turk Eximbank standards.

The evaluation process named as risk evaluation study is explained in the following part of this guide.

This study covers analyzing the financial structures of banks divided into 6 categories;

1. Large-scale private banks
2. Middle / Small- scale private banks
3. Foreign banks

4. Investment banks
5. Development banks
6. State-owned banks

This categorization is done regarding ownership structure, scale, activities, and its growth in the sector.

This risk evaluation study is reviewed quarterly in a year. Besides this, extra reports are prepared according to the requests from the banks, executive committee and the important changes about the banks. The quarter analysis includes;

1. Basic Information Guideline (It should be updated when necessary)
2. Financial Sheet
3. Sum Table (covering the sector data)
4. Tiering (Risk Group Determination)
5. Executive Summary

1.BASIC INFORMATION GUIDELINE

Turk Eximbank requests the banks ready to work with itself to submit “the basic information guideline” which covers following information;

- General information about the bank
- Ownership structure
- Board of directors
- Directors / top executives
- The list of group companies, if the bank belongs to a group
- The list of subsidiaries, joint ventures and/or equity participation of the bank

This information guideline is updated with every changes.

(Enclosure 1.)

2. FINANCIAL SHEET

Banks are sending their balance sheets and income statements in every 3 months, in the same format as they prepare for Turkish Central Bank and Undersecretariat of Treasury. These data submitted with diskettes and written form are transferred to the standard format of Turk Eximbank in use of risk evaluation study. The financial sheet covers percentage changes in financial data of the bank and the financial ratios, which are calculated automatically according to a computer program developed by Turk Eximbank, about capital adequacy, asset quality, liquidity and profitability in addition to summarized balance sheet and income statement.

3. SUM TABLE

This is the table that gathers the processed financial data of all banks, which are subject of the risk evaluation study. These data are automatically taken from financial sheets of each bank. The table covers financial ratio values of each bank based on divided group and average, minimum and maximum values of each group, also the sector, in addition some basic financial highlights as total loans, total export credits, total deposits, paid-up capital etc. and their percentage changes for each bank. The table is used as a reference guide while conducting regular risk evaluation study.

4. TIERING (RISK GROUP DETERMINATION)

As noted earlier, the banks' risk profile is depicted quarterly through a detailed risk evaluation study of each bank. For each bank category 8 different financial ratio standards are determined compared with group and sector averages, minimum and maximum values placed on the sum table.

The financial ratios are divided into 4 categories;

1. Capital Adequacy
2. Asset Quality
3. Liquidity
4. Profitability

The standards of 8 ratios could be different for each bank category. For example, the ratio of share holders' equity / risk bearing asset was applied as minimum 10% for State-Owned Banks, while it was applied as minimum 15% for Large-Scale Private Banks in September 2000 period.

Banks are rated and ranged into one of four categories regarding to the criteria they are violating.

There are 4 financial analysis groups indicating the risk levels of the banks. 4th financial analysis risk group covers banks with maximum risk, whereas 1st risk group covers banks with minimum risk. The total number of violated criteria of each bank is important, since;

- If a bank violates maximum 2 criteria, it is placed in the 1st financial analysis risk group,
- If a bank violates maximum 3 criteria, it is placed in the 2nd financial analysis risk group,

- If a bank violates maximum 4 criteria, it is placed in the 3rd financial analysis risk group,
- If a bank violates more than 4 criteria, it is placed in the 4th financial analysis risk group.

After determining the financial analysis risk groups of each bank, the violation criteria's table is prepared showing violated criteria as minuses.

The second step of the study is that the banks are scrutinized according to the proportion of export credits financed through the bank's own sources and average rate of using Turk Eximbank's credit line as compared to the sector averages. In other words, effective use of Turk Eximbank limits by the bank is very important. The banks' risk groups are altered depending on these two rates and a new risk group is created called limit allocation group. (For example, the being above the average rate of export credits is considered a positive factor and upgrades that specific bank's ranking)

The third step of the study is that the banks are ranked for final risk group taking into considerations the following additional criteria;

1. Ownership structure
2. Management quality
3. Whether top management is frequently changed or not
4. Customer / market segmentation
5. Human resource quality
6. Reputation of the bank in the market place
7. Interest rate policies
8. FX short position and exchange rate exposure
9. Importance of export credit financing among its financing activities,
10. Giving emphasis to technology investments.

Notified credit line allocations do not create a binding obligation on Turk Eximbank. The bank can easily slow down or cease credit payments and partially or fully cancel credit limits, if necessary. When the financial strength of an intermediary bank becomes questionable, Turk Eximbank may require the bank to establish collateral with Turk Eximbank in the form of cash deposits and/or Treasury Bills and Government Bonds.

5. EXECUTIVE SUMMARY

Executive summary reports is prepared by analysts in every three months for each bank and covers a summation about changes in the bank's performance, it's risk group, and current position in the sector for the specified quarter.

In addition to that, extra reports are prepared in the case of demands of the banks regarding increase in their limits, extra-ordinary changes of status or ownership structure etc. and presented to the top management of Turk Eximbank.

Also, analysts of Risk Assessment Division regularly visit the intermediary commercial banks' CEO's to get information on their future strategies and plans, new activities, loan and interest rate policies, customer portfolio and target customer segment, etc. After visiting, analysts prepare a meeting report and present to the top management of the Bank.

TURK EXIMBANK'S RISK MANAGEMENT DEPARTMENT'S DOSSIER HARMONY

1) BANK DOSSIERS

All of the information about the banks is collected in credit limit dossier separately and they include the information;

- Basic information guideline
- Financial sheet
- Executive summaries
- Corresponds with the bank
- Meeting reports and
- Press releases about the bank

2) GENERAL BANKING DOSSIER

All of the studies done with the banking sector, corresponds and documents are collected in these documents. They include;

- Risk group determination studies
- Limit allocation studies
- Management decisions
- Reports and other studies

DISCLOSURES ABOUT THE BANKS' RISK GROUP DETERMINATION RATIOS

Risk group determination studies of the banks' are made with the financial sheets and sum tables that are prepared quarterly in a year. By using these, banks' capital adequacy, asset quality, liquidity and profitability ratios are calculated. As regards with the told banks' groups ratios and banking sector averages are found in order to determine the risk groups.

Bank groups are state-owned banks, large-scale private banks, middle and small-scale private banks, foreign banks, investment banks and development banks. Ratios are determined according to the bank groups' specialties.

These ratios are used for all kinds of bank groups:

- Net asset / Risky assets
- Balance sheet excluded risks / Net assets
- Follow up debt receivables / Total credits
- Risky assets / Total assets
- Net profit / Net assets

Net asset / Risky assets ratios: In order to meet the banks' risky asset, indicates the competence of the net assets.

Balance sheet excluded risks / Net assets ratios: They are important for the control of non-cash credits and minimum ratios are valid in order to rival known level of assets.

Follow up debt receivables / Total credits ratios: One of the important problems of the banks' is the credits that cannot be collected back and when they rise by the ratios they can be risky for the financial situations of the banks. Follow up debt receivables / Total credit ratios are important indicators of the banks' asset qualities and if it is high, it is a negative development for the bank. Maximum borders are put, as it is wanted to be low as it can be.

Net profit / Net assets ratios: Indicates net asset profitability.

Bank groups main peculiarities and ratios that differ according to the groups are:

State-owned banks: in addition to the ratios that are used for all kinds of banks; **Cash values / Current liabilities and Cash values / Deposit ratios** are being used. These ratios indicate the banks' sufficiency to reinsure the deposits and short-term liabilities.

Large-scale private banks: Again for this group **Current liabilities / Cash values ratios** are important liquidity indicators. An upper limit is determined for the **Current deposits** not to exceed the **Total deposit ratio**. Another ratio that is used for all kinds of bank groups except the state-owned banks is **Net interest incomes ratio**. This ratio indicates the banks income assets profitability.

Middle / Small- scale private banks: **Cash values / Total asset ratio** that is used except for the large scale private banks and state-owned banks is also an indicator of how liquid are the banks' assets.

Foreign banks: As if their credit policies are the same with the small-scale private banks, the same ratios are also used for them.

Development banks: They are founded in order to finance the state investments and they don't have profit goals, Eximbank doesn't work with them.

Investment banks: As if they don't have a main goal of export financing, Eximbank doesn't work with them.

RECOMMENDATIONS FOR RISK MANAGEMENT

Banking supervision, which is based on an ongoing analytical review of banks, continues to be one of the key factors in maintaining stability and confidence in the financial system. The methodology used in an analytical review of banks that are in the process of off-site surveillance and on-site supervision is similar to that of private sector analysts (for example, external auditors or a bank's risk managers), except that the ultimate objective of the analysis is somewhat different.

To attain a meaningful assessment and interpretation of particular findings, estimates of future potential, a diagnosis of key issues, and formulation of effective and practical courses of action, a bank analyst must have extensive knowledge of the particular regulatory, market, and economic environment in which a bank operates. In short, to be able to do this job well, an analyst must have a holistic perspective on the financial system even when considering a specific bank.

The practices of bank supervisors and the appraisal methods practiced by financial analysts continue to evolve. This evolution is necessary in part to meet the challenges of innovation and new developments, and in part to accommodate the broader process of convergence of international supervisory standards and practices, which are themselves continually discussed by the Basel Committee on Banking Supervision.

Traditional banking analysis has been based on a range of quantitative supervisory tools to assess a bank's condition. Ratios normally relate to liquidity, the adequacy of capital, loan portfolio quality, insider and connected lending, large exposures and open foreign exchange positions. While these measurements are extremely useful, they are not in themselves an adequate indication of the risk profile of a bank, the stability of its financial condition or its prospects.

The central technique for analyzing financial risk is the detailed review of a bank. Risk based bank analysis includes important qualitative factors and places financial ratios within a broad framework of risk assessment and risk management and changes or trends in such risks, as well as underscoring the relevant institutional aspects. Such aspects include the quality and style of corporate governance and management; the adequacy, completeness and consistency of a bank's policies and procedures; the effectiveness and completeness of internal controls; and the timeliness and accuracy of management information systems and information support.