Operational and Market Risk Disclosure by Banks
A Comparison of Developed and Emerging Economies

by

Abhinav Kant Goyal
B.E. Computer Science, M.D.U. (India), 2006

Jiajing (Shirley) Wu
B.B.A., S.U.E.S. (China), 2005

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APPROVAL

Name: **Abhinav Kant Goyal**

             Jiajing (Shirley) Wu

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Supervisory Committee:

_____

Dr. Daniel Smith

Senior Supervisor
Associate Professor, Faculty of Business Administration

_____

Dr. Christopher Perignon

Second Reader
Associate Professor, Faculty of Business Administration

Date Approved: _____August 7, 2007_____

ABSTRACT

In this paper we study the level of the Operational Risk and the Market Risk Management disclosure for a sample of ninety-one commercial banks across the globe and have divided them into developed and emerging economies. To measure the level of Risk Management disclosures for Operational Risk we modified an existing disclosure index and for Market Risk we used an existing VaR disclosure index, both on a scale of fifteen and competent enough to capture different facets of risk disclosure; using data from the Annual Report for Bank Financial Year ending sometime in 2005/2006. We find a very large variance in the level of either risk disclosure among the commercial banks irrespective of the market of their operation. We observe that banks are more interested to disclose about their Market Risk Management compared to the Operational Risk but banks in emerging economies lag behind their counterpart in either risk disclosure.

Keywords: Operational Risk, Operational Risk Disclosure Index (ORDI), Market Risk, Value-at-Risk (VaR), Value-at-Risk Disclosure Index (VaRDI), Risk Management, Basel II.

Dedicated to my Mumma & Papa

and to my sweet little Sister

w/o whom I would have never been able to make to this point.

-- Abhinav Kant Goyal

Dedicated to my Dear Parents
and to all my Friends

-- Shirley Wu

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We pay our sincere regards to our parents and to our siblings who made us what we are today and their blessings and affections enabled us to complete this work. We are thankful to them for their invaluable support in every aspect of our work.

In the end we would like to quote some lines by *Albert Schweitzer*

"At times our own light goes out and is rekindled by a spark

from another person.

Each of us has cause to think with deep gratitude of those

who have lighted the flame within us."

And finally, we remember the Almighty that has given us enough skills, resources and energy to carry out this task and has shown us the path at every step and every turn in our life.

Dated: July 25, 2007   Abhinav Kant Goyal

Shirley Wu

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION

Risk Management has been gaining momentum in all industries throughout the globe for the past decade. Fraudulent trading around the world, rapidly increasing in pace and ultimately resulting in losses of billions of dollars clearly shows the need for risk management and heightened regulatory efforts in the subject. Risk management has attracted the attention of the top tier executives of financial institutions, who regularly face threats to their business in one form or another regarding their operational or model failure. With new and advanced mechanisms to manage all kinds of risks such as actuarial risk, credit risk and enterprise-wide risk, all the organizations are now using consolidated approach that includes both operational and market risk management as well. The fundamental question surrounding the implementation of either operational or market risk management is whether the benefits of implementation can outweigh the costs.

Enhanced accounting disclosure leads to better transparency and stronger market discipline in the banking sector. The third pillar of Basel II, Basel Core Principles No.21, and recently the Policy Brief released by the OECD i.e. the "Corporate Governance of Banks" Task Force, have explicitly asked for better disclosures by banks to allow the market to have a better picture of the overall risk position of the banks and to allow the counterparties of the banks to price and deal appropriately. More disclosures help in reducing the information

asymmetry between the investors with privileged information and those with very small investment in the organization. Besides this it also facilitates more efficient monitoring, as sufficient information is necessary for market participants to exert effective disciplinary roles.[1] According to a Mc Kinsey "Global Investor and Emerging Market Policymaker Opinion Survey on Corporate Governance", 'accounting disclosure' was listed as the most important factor considered by 71% of investors surveyed, and "enhanced disclosure" was the number one key progress area by 44% of policymakers.

Some of the key factors considered vital to have high risk disclosures by financial institutes in their annual reports globally are:

- Accounting disclosure is considered to be a data of a particularly high level of importance for banking organizations compared to non-financial firms because banks are inherently more opaque in their course of action. For eg. recently when BMO lost about CD$ 600 M, they have yet to confirm if it was due to Model Failure, Risk Management Failure (either operational or market) or due to more of speculative approach as a trading strategy.

- Transparency and disclosure is an important ingredient of banking sector stability as we have seen that undisclosed data can result in banking disasters like Barring Bank in 1995 and BCCI in 1991.

74

[1] As proposed by Andrew Crocket (BIS), four pre-conditions have to be met in order for market discipline to work effectively. They are: (1) Market participants need to have sufficient information to reach informed judgments. (2) They need to have the ability to process it correctly. (3) They need to have the right incentives. (4) They need to have the right mechanisms to exercise discipline.

- Enhanced accounting disclosures should be required for not only publicly traded banks but also for privately held (eg. BCCI Bank disaster (1991) in London) and state owned banks (eg. SberBank disaster (1991) in Russia) because of the systematic importance of banks in national economy, their deposit-taking from the general public and the safety net extended to them financed by taxpayers.

- Transparency & disclosure are some of the core components emphasized in many Banking operations in financial sector, e.g. FSAP, ROSC and IFC's Corporate Governance Assessment.

- A simplified, relevant and standardized checklist of core disclosure items for market, operational and credit risk management needs to be developed both for developed and emerging economies.

For market discipline to be effective, market participants must have sufficient information to assess the current condition and future prospects of banking organizations. This realization has prompted a range of proposals for enhanced public disclosure by banks like the Value at Risk (Market Risk) or Basel II (Operational Risk). These proposals may be focused on disclosure of forward-looking risk information like Value at Risk (VaR) for trading portfolios or for operational and structural management of the financial institute like Basel II. In the words of a major international supervisory group, disclosure of forward-looking risk measures is a means of providing; "a more meaningful picture of the

extent and nature of the financial risks a firm incurs and of the efficacy of the firm's risk management practices".[2]

For our project we have focused particularly on disclosures made in the bank's annual report about operational risk in their structural organization and market risk in their trading activities. Following previous work on disclosure (Pérignon and Smith 2006, Roberts, Goyal, Yeung, Jin and Yang, 2007), we construct an operational and market risk disclosure index (abbreviated as ORDI (Operational Risk Disclosure Index) and VaRDI (Value at Risk Disclosure Index)) and try to tabulate and compute the risk disclosure done by Banks in established and emerging economies.

74————————————————————
[2] Multidisciplinary Working Group on Enhanced Disclosure in 2001.

CHAPTER 2: COMPARISON OF DISCLOSURE LEVELS BETWEEN MARKET RISK AND OPERATIONAL RISK

Currently, banks in developed economies like Canada, United States and developed markets of Western Europe do not have to disclose information relating to operational risk. However with major operations failure globally in the recent past the regulatory bodies in almost all the countries (whether developed or emerging economies) requires the Financial Institutions to comply with Basel II beginning in near future. Now it is only a matter of coming up with a fixed date for the implementation of Basel II. Like the Office of the Superintendent of Financial Institutions (OSFI) requires Canadian banks to comply with Basel II beginning November 2007 (OSFI, 2007) and contrary to this various regulators of the United States have not yet agreed on a date for the implementation of Basel II (Federal Reserve System, 2007). But in some emerging markets like South Africa Jan.01, 2008 has been fixed as the adoption date for Basel II and in U.A.E. it is currently under the process of implementation. As required by Pillar 3 under Basel II, banks will have to disclose information relating to operational risk management such as:

- Strategies and processes for operational risk management,

- The structure of the risk management department,

- Information regarding the risk measurement system

- Procedures on how to mitigate risks and

- Systems on how to monitor the effectiveness of the risk management system (Alexander, 2003).

Since there are no regulations currently forcing banks to disclose information, most banks in almost all the economies are very reluctant in releasing more than broad stroke information about operational risk. Contrary to this financial institutions are relatively willing to disclose market risk information; e.g. Value-at-Risk (VaR) related information. A detailed investigation into the annual report of the banks of both developed and emerging markets clearly show this big void in the amount of risk disclosure which is also supported by Pérignon and Smith (2006). A majority of these banks tend to release very detailed information about VaR for market risk. They disclose how they calculated VaR as well as the results of VaR, such as characteristics and statistics like the holding period, confidence level, and VaR of different investments. Graphs containing historical VaR figures and trading revenues are also presented. Finally, these banks even backtest their VaR figures to determine the number of exceptions in their models. However, the most striking feature of this disclosure pattern is the high variance in the disclosure by banks (irrespective of the market they may be trading in), which may be primarily based on firm size, earnings volatility growth and capitalization rates. Overall in reference to global arena, the difference in terms of the amount of information being disclosed between market risk management and operational risk management is not too wide. The reasons why there is a difference in risk management disclosure by banks globally will be investigated in this paper. However, to give a brief idea on why banks may be

more willing to disclose market risk information (mainly in developed markets), market risk has a popular model called VaR, which is quantifiable. This model tells the public the maximum amount of loss the banks can incur within a certain degree of confidence level. As a result, for public with little or even no knowledge in financial risk management, the VaR figures can provide some understandable information, but for a developing economies like China, India, Indonesia, Egypt, Thailand etc. implementation of a VaR model is quite far from reality. With market risk relatively more developed than operational risk; along with stiff competition in market among the banks so as to have a bigger and a loyal customer base to indirectly increase their net assets is driving them to disclose more and more market risk information.

CHAPTER 3: BANKS ABILITY TO UNDERTAKE THE RISK AND TO COME UP WITH AN EFFECTIVE DISCLOSURE

We investigate the level of disclosure about bank's current condition by taking into consideration both market and operational risk management aspects of the bank and then trying to find a relation between the risk disclosure and the value of the current assets of the bank with the aid of the annual reports of the bank. It should always be kept in mind that market discipline has two distinct components:

- Investors and creditors ability to monitor and assess changes in bank condition

- Their ability to influence management behaviour.

Both the factors are affected by the amount and quality of information disclosed. In theory, greater disclosure provides more information on which investors and creditors can make their assessments regarding the financial institute, which consequently makes a significant market reaction in case of an adverse change in condition and subsequently brings about an effective management response immediately. Therefore this greater information disclosure indirectly reduces the likelihood that the organization will face an excessive or an undeserved risk premium or that market prices will over-react to news about the firm due to uncertainty about its true condition and prospects and

therefore violate the efficient market hypothesis even in developed economies like those of North America, Western Europe, Australia and Japan. Besides this, the policy of greater risk disclosure (as we saw above) can even help emerging markets like South Asia, China, Far East, Middle East, Africa and Eastern Europe to improve their economies and accelerate the development of on going process. So it is very difficult to rule out the merits of greater risk disclosure, irrespective of the market in which it is operational.

CHAPTER 4: DATA

For the project; the data was extracted from the annual reports of the banks worldwide. The broad criterion for the data selection was the demarcation of the developed and emerging markets across the globe. For both the markets, the source of data about the economies and banks to be incorporated in the study for disclosure index is extracted from http://www.bankersalmanac.com. Two basic criterions used while coming up with a bank for any particular country were:

- The bank should have the maximum or should be one with very high assets for the country / economy and

- The bank should be traded publicly in the stock exchange of the country being studied for the disclosure index.

The selection of individual economies was basically from two different markets. For the developed markets, we chose fifteen countries (U.S.A., U.K., Canada, Australia, Japan, France, Germany, The Netherlands, Denmark, Switzerland, Spain, Singapore, Hong Kong, Sweden and Italy) where the financial markets are considered fairly stable with a long history of operation with annual volatility within a range of 15% to 20%. Next we picked up two to four banks for each country from the above website based on two broad criteria. Besides this group, there is another pool of fourteen countries (China, India, Saudi Arabia, U.A.E., South Africa, Russia, Brazil, Poland, Czech Republic,

Egypt, Pakistan, Israel, Thailand and Indonesia) where the capital markets are relatively new i.e. only a couple of decades old and so we can say that they are rather in their emerging state with high annual volatility of 30% to 40%. Similarly as developed markets, here too we picked up two to four banks from the above website based on the criteria discussed earlier for developed economies. For all the countries mentioned above, the sample size of banks was from two to four banks per country to have a good distribution of the disclosure index totalling to ninety-one banks in all for the study. In order to study the risk disclosure after dividing the capital markets in two sets of economies i.e. developed and emerging markets. We further categorized them into small subsets like North America, Western Europe, Eastern Europe, South Asia, Middle East and Africa, China and Far East Asia[3], Australasia and Latin America[4]. Initially we have started with forty countries globally but unfortunately some of them were scrapped down the Annual Reports for these countries were not available in English, rather it was available in the native language of these countries. Therefore, in end we were able to include only twenty-nine countries in our study. One of the striking feature observed during the data selection was that all the banks in developed economies had there Annual Report available online in

74———————————————

3 We tried to study the risk disclosure for South Korea, as it appears to be one of the most promising markets in near future but interestingly the banks here have their annual reports in Korean.

[4] One of the biggest hurdles for the research of this kind was to find an annual report in English for the Latin American banks. After looking for a wide array of countries like Columbia, Peru, Mexico, Argentina, Chile and Brazil, we were able to find Brazil as the only economy for which the banks annual report available electronically was in English so we included it.

English but for some banks and in some cases for a country as whole[5], the Annual Report was not available in English online.

Another important criteria for selection of any bank in a country was the value of its total assets (in millions of US$), and as a benchmark they were required to be at least US$10 trillion (with only three exceptions) as per the closing date of the financial year for that bank. Therefore from our research we were able to find banks with assets as high as US$ 11,500 trillion (Deutsche Bank AG, Germany) to as low as US$ 8.50 trillion (Muslim Commercial Bank, Pakistan) to have a high variability of results. Therefore we ended up selecting the banks with maximum assets for the country being studied. Last but most important, it was taken into consideration that the latest available annual report (for financial year ending sometime in 2006) was referred to for the study.

74——————————————————
[5] Like all the Latin American (except Brazil), South Korea, some East European and some Middle East countries.

CHAPTER 5: SCORECARDS

To study and review the operational and market risk disclosure we used the scorecard approach based on the checkpoint basis. There is a set of pre-defined fields in scorecard and they are referred to as the checklist to find the amount of data disclosed regarding the operational and market risk management by the banks in their latest available annual report.

Operational Risk Disclosure Index (ORDI)

Before embarking on a prescriptive discussion related to operational risk management disclosure undertaken by banks, it would be both prudent and interesting to gauge the actual level of public disclosure related to operational risk undertaken by banks in their annual reports. We have used the modified version of the Operational Risk Disclosure Index (ORDI) that identifies and awards points for specific aspects of operational risk disclosure in annual reports. The index is an attempt to quantify the level and quality of operational risk disclosure for the ninety-one banks globally for the financial year ending sometime in 2006. The ORDI combines five facets of operational risk disclosure into a single number between 0-15. The ORDI is constructed has been referred to in Table 7: Operational Risk Disclosure Index (ORDI) for ninety-one banks Globally to fill out the scorecard for the Banks. It is as follows:

1. Recognition and Definition of Operational Risk

- Score of 1 for Recognition and Definition of Operational Risk as Risk Exposure to the bank.

- Score of 1 for Recognition and Definition of Reputational Risk as Risk Exposure to the bank.

- Score of 1 for Recognition and Definition of Legal Risk as Risk Exposure to the bank.

2. Operational Risk Capital

- Score of 1 for Operational Risk Portion of Risk Capital in percentage terms, or score of 2 if in domestic currency terms of the country of operation.

- Score of 1 for Intended Calculation Method of Operational Risk Capital Charge under Basel II.

3. Intertemporal Comparison

- Score of 1 for Operational Risk Portion of Risk Capital in Previous Year (either in domestic currency or in percentage).

4. Governance

- Score of 1 for Operational Risk Responsibility within Risk Governance Structure adopted by the bank.

- Score of 1 for Reputational Risk Responsibility within Risk Governance Structure adopted by the bank.

- Score of 1 for Legal Risk Responsibility within Risk Governance Structure adopted by the bank.

5. Measurement/Assessment and Control

- Score of 1 for General Operational Risk Measurement or Assessment and Control Methods undertaken by the bank.

- Score of 1 for Reputational Risk Measurement or Assessment and Control Methods undertaken by the bank.

- Score of 1 for Legal Risk Measurement or Assessment and Control Methods undertaken by the bank

- Score of 1 for Operational Loss Data Collection Process

- Score of 1 for Operational Risk Internal Reporting Procedures

Throughout the scorecard, we have chosen to award disclosure points based on three fundamental subject areas: operational risk management in general, reputational risk management and legal risk management. While on the surface it may appear that the inclusion of reputational and legal risk constitutes a somewhat arbitrary taxonomy and are the part of the same group especially since Basel II does not include reputational risk under operational risk, we assume and strongly argue that these two branches i.e. the legal risk management and reputational risk management of operational risk are the most relevant and well-known in the banking world. In the developed economies where financial institutions are often considered homogeneous monoliths offering largely undifferentiated products and services or we can say that their working

style is synonymous to each other irrespective of the country of their operation, the effect of a reputational demise can be devastating like the case of Barrings Bank in London which ultimately brought its doom. Hence, it has become not only prudent for banks to assess and mitigate reputational risk, but also to publicly disclose their actions too. Indeed, the increase in disclosure in this area has become so marked that a lack of disclosure related to the management of this risk may be considered a reputational risk in itself. Nevertheless legal risk is now so widely acknowledged as a major branch of operational risk that the Basel II Accord explicitly categorizes and recognizes it in its entirety. Furthermore, one operational risk textbook (Alexander, 2003) devotes an entire chapter to legal risk, the only branch of operational risk to receive such treatment. Unequivocally, a failure to incorporate a discussion of legal risk management in an annual report warrants penalization in the ORDI.

Item 1 in the ORDI constitutes an essential bare minimum for operational risk disclosure; indeed, this item should be *easy points* for most banks. Moreover, it is unlikely that a bank would receive points for Items 2-5 if no points were received for Item 1. The reason for our insistence on including the definitions for operational, reputational, and legal risk is straightforward. Since the definitions of these risks differ widely across countries, institutions, and people, it is necessary for each bank to provide their own definition in order for stakeholders to assess exactly what risks the bank claims to be managing. It certainly would be perplexing if a bank were to identify operational risk

assessment and control methods without first recognizing and defining operational risk in the first place.

Item 2 rewards those banks that quantify their operational risk capital and release these figures to the public. These figures allow stakeholders to gauge the relative importance of operational risk in comparison to market, credit, and other risks. In addition, the ORDI recognizes those banks that disclose their intended calculation measure of the operational risk capital charge under Basel II. The disclosure of this matter is important for two reasons. Firstly, it might reveal to stakeholders that the bank is forward looking. Secondly, it provides insight into the competency of the bank's operational risk team. For example, the revelation that the bank intends to implement the Advanced Measurement Approach (AMA) under Basel II indicates that the bank is serious about quantifying its operational risk and employing well-educated persons to do so. We also reward those banks that provide the previous year's operational risk capital charge (Item 3) because it allows stakeholders to assess the importance of operational risk over time.

Item 4 is included because the responsibility for operational risk within the corporate governance structure is yet one more indicator of the emphasis placed on operational risk in a bank. Clearly, a bank that discloses the position of operational risk within its governance structure permits stakeholders to evaluate the organizational mechanisms through which operational risk is managed. Stakeholders, and in particular those who are intimately familiar with the corporate governance structure such as major shareholders, can therefore better gauge the priority placed on operational risk management by senior executive.

Finally the most important, Item 5 awards points to banks that disclose their operational risk measurement or assessment and control methods. Such disclosure allows stakeholders to assess both the quantity and quality of mitigation strategies. Unfortunately, this item is hampered by a tendency on the part of most banks to make vague and overarching statements of operational risk management practices without revealing any specifics. Indeed, this is perhaps the most severe limitation of the ORDI.[6] Most important aspect about this disclosure index is that even a perfect score of 15 on the ORDI does not mean that a bank discloses everything that stakeholders might possibly want to know.

Value at Risk Disclosure Index (VaRDI)

In almost all the capital markets especially for the developed economies like North America and Western Europe and many other countries, commercial banks are required to provide quantitative information about their trading risks and day-to-day exposure. Therefore we undertook an empirical analysis of the actual public disclosure about Value at Risk i.e. VaR made by banks to its investors, creditors and counterparties by going through their annual report or financial statement (for some Middle East countries like U.A.E. and Saudi Arabia where online display of bank's Annual Report is not a common feature).

To facilitate the empirical analysis we make use of the disclosure index, the VaRDI developed and used by Pérignon and Smith in 2006 for their paper

74—————————————————————

[6] We originally attempted to create granularity in the scoring for this item by awarding more or less points based on, for example, the depth of discussion for assessment/control methods and the number of specific control methods disclosed. We found it impossible, however, to award such points in an objective manner.

'The Level and Quality of Value at Risk Disclosure by Commercial Banks'. This disclosure scorecard approach aggregates six strikingly distinct yet vital of VaR disclosure into a single number between 0 and 15. It has been used in Table 8: Value at Risk Disclosure Index (VaRDI) for ninety-one banks Globally to fill out the scorecard for the Banks. The six index components are: VaR characteristics, summary of VaR statistics, intertemporal comparison, daily VaR figures, trading revenues and backtesting. A maximum of 15 points are allocated if the financial institute being surveyed, in its annual report publicly discloses all of the above set of information.

1. VaR Characteristics

- Score of 1 if Holding Period (e.g. 1 day, 1 month) is mentioned.

- Score of 1 if Confidence Level (e.g. 99%, 95%) is mentioned.

2. Summary VaR Statistics

- Score of 1 if High, Low or Average VaR is disclosed.

- Score of 1 if Year-End VaR is disclosed.

- Score of 1 if VaR by Risk Category (e.g. Currency, Fixed Income, Equity) is disclosed.

- Score of 1 if Diversification Effect is accounted for in the report.

3. Intertemporal Comparison

- Score of 1 if Summary Information about the Previous Year VaR is disclosed.

19

4. Daily VaR Figures

- Score of 1 if Histogram of Daily VaR or score of 2 if Plot of Daily VaR is given in the report.

5. Trading Revenues

- Score of 1 if Hypothetical Revenues are mentioned.

- Score of 1 if Revenues without Trading Fees are given.

- Score of 1 if Histogram of Daily Revenues or score of 2 if Plot of Daily Revenues is given.

6. Backtesting

- Score of 1 if Number of Exceptions is mentioned for the trading year or score of 2 if Zero Exceptions in that trading year.

- Score of 1 if Explanation of Exceptions as mentioned above is discussed in the report.

Besides the basic VaR characteristics (items 1a and 1b), VaRDI rewards the disclosure of both year-end and average values. Although year-end statistics are the most up-to-date information, but they are prone to manipulation, i.e. "window dressing" because they show the figures for just the last trading day, which can obviously be made to look fancy to impress the reviewers and supervisors. A bank breaking down its overall VaR across risk categories is awarded one point (item 2c). Furthermore, an explicit treatment of the diversification or correlation effect is also valued in the index (item 2d). The third

component entering into VaRDI aims to signal any change in the level of the exposure to market risk or any meaningful alteration in market risk management (item 3a). As for daily VaR, VaRDI favours time series of actual daily VaR (item 4b) over histograms or distributions of daily VaR (item 4a).[7] The reason is that histograms remain silent about the dynamics of daily VaR and do not permit to assess the persistence or the presence of clusters in VaR figures. Contrary to this, a perusal of daily VaR allows us to immediately assess its level and time-series properties. Moreover, if plots of daily VaR and trading revenues are superimposed, one can easily detect any exceptions or bunches of exceptions.

Information on trading revenues is also central to the construction of the index. Indeed, VaR measures the maximum trading loss that can be faced over a certain time horizon and with a given confidence level or probability, should the trading positions of the bank have remained constant over the investment horizon used to compute the VaR. As a result, in order not to distort the backtesting procedure, one would require hypothetical trading revenues to be disclosed (item 5a), and not actual trading revenues that are affected by intraday adjustments in the bank's positions. Also, to be consistent with the definition of VaR, disclosed trading revenues should not be inflated by any fee income and other revenues not attributable to position taking. Consistent with the treatment of daily VaR, the informational content of a plot of daily trading revenues (and the number of points allocated) is greater than the one of an histogram of trading revenues (item 5c). The last part of VaRDI concerns the information related to

74———————————————
[7] Note that if both a histogram and a plot of daily VaR are disclosed at the same time, two points are granted. A similar rule applies to trading revenues (item 5c).

the backtesting procedure. VaRDI confers one point if the number of exceptions is publicly disclosed (item 6a) and another point one if the bank explains the reasons that triggered the exceptions (item 6b). Finally, in order to not penalize a bank that did not experience any exception over the reported period, we allocate two points when the number of disclosed exceptions is zero (item 5a) so as to bring it at par with the former. It is important to make a clear distinction between the disclosure index used here and disclosure requirements. US FRR 48 requires all SEC registrants following the VaR disclosing method to publicly report 1a, 1b, 2a or distribution of VaR and 3a, which corresponds to a VaRDI of four points. VaRDI also goes beyond the Basel II requirements on market risk disclosure (Basel Committee on Banking Supervision (BCBS), 2006), which requires 1a, 1b, 2a, 2b, 6a, and 6b. An extra piece of information mentioned in FRR 48 and Basel II is the type of VaR model. While it is recognized to be useful to know which VaR proprietary methodology is implemented, but it has not been explicitly included as an index component. The reason is that, unlike all the other items in VaRDI, a model description is not a precise item and that banks often make a crude description of their internal VaR estimation engines.

CHAPTER 6: EMPIRICAL RESULTS

Based on Graphs

Operational Risk Disclosure Index

Figures 1, 3 and 5 provide a graphic summary of the ORDI scores. A number of interesting observations can be made upon examination of the figures. Figure 1: Average Operational Risk Disclosure Index (ORDI) for the countries with Established Markets, plots the ORDI scores of banks in developed markets, reveals that results of Operational Risk disclosure are generally correlated with the results from market risk disclosure. The overall average ORDI value for developed markets is higher at 6.662 than the score for emerging markets at 3.357. To formally compare these levels we compute a two-sample t-test (assuming equal variances)[8]. The value of the test statistics is -3.064, which is significant at the 99% confidence level. From above value we can easily say that there is some significance between emerging market ORDI and developed

74——————————————————

[8] For equal variance the formula for two-sample t-test is: $T = \dfrac{\overline{Y_1} - \overline{Y_2}}{s_p \sqrt{1/N_1 + 1/N_2}}$

Where: N_1 and N_2 are the sample sizes, $\overline{Y_1}$ and $\overline{Y_2}$ a re the sample means and the sample variance is given as: $s_p^2 = \dfrac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}$

market ORDI. The result tells us that we can, at 99% significance, reject the null hypothesis, and therefore confirm the significance between emerging market ORDI score and developed market ORDI score. The difference of the variance between two sets of economies is significant i.e. 4.755 and 11.829 for emerging and established economies respectively. Amalgamating this observation with the findings from the graphs, we can say that the overall level of operational risk disclosures for established market is superior to those for emerging market.

We can observe that the emerging markets have comparative-advantage in the level of Operational Risk disclosure. There is a peculiar trend here; according to which on an average, banks in developed markets disclose more about their VaR and Market Risk mitigation strategy as compared to the data on their operational failure or Operational Risk Management tactics. While totally opposite to this banks in emerging markets are more willing to discuss there Operational Risk Management strategy rather than the numbers and details related to their Market Risk side. The possible explanation to this trend may be that banks in developed countries have substantial and strong financial resources so that they can come up with the robust models like VaR for their trading strategies. Besides this they have enough resources and capital to adopt models like Advanced Measurement Approach (AMA) for Operational Risk Management but it may be the case that they are unwilling to share their model (which may be unique to their bank) with public in general and or it may even expose them to highly sophisticated frauds. Contrary to this, banks in emerging markets compared to developed economies go by the basic VaR model or

undertake more risky trading strategy (like speculation etc.) as discussed latter and so are reluctant to share their information with their shareholder. While as for Operational Risk side, it is considered something general in this part of the globe and so they disclose a bit more on this front, but sometimes the extra details disclosed does not make much relevance.

We can therefore say that this observation is a reflection of the greater resources available to developed markets for advanced risk management methods (whether operational risk or market risk) and the resultant disclosure of these methods. Furthermore, one could argue that the developed markets stand to lose the most from any kind of risk failure and therefore; should allocate more resources and capital towards their risk management activities.

Value at Risk Disclosure Index

Figure 2 and 4 present the average VaRDI across the countries in developed markets and emerging markets separately, and figure 6 the country-specific statistics for both the markets together.

First and foremost, we found that VaRDI in emerging markets is generally lower; at an average disclosure of 2.905 against the developed economies where the banks disclose more on Market Risk side with an average disclosure (as per the index used) of 8.669 i.e. about three times better disclosure in developed markets. For example, none of the four Chinese commercial banks in the list released any VaR related information in 2006. Only the Polish Banks undertook steps for significant disclosure of about 7.33 followed by South Africa of 6.00.

Like ORDI, to formally compare these levels we compute a two-sample t-test (assuming equal variances)[9]. The value of the test statistics is −5.811, which is significant at the 99% confidence level. From above value we can easily say that there is some significance between emerging market VaRDI and developed market VaRDI. The result tells us that we can, at 99% significance, reject the null hypothesis and therefore confirm the significance between emerging market VaRDI score and developed market VaRDI score. The variance for the two groups is quite close, 7.250 and 7.005 for emerging and established economies respectively. First and foremost we find that although the internal difference or say volatility regarding the level of market risk disclosures by banks in each group are almost the same, the difference of the level of market risk disclosures between these two groups is relatively huge. Secondly, we also find that there are some drastic differences in market disclosures across countries in each group.

The level of disclosure about trading activities and the associated VaR varies greatly across countries in each group from an overall satisfactory disclosure in Poland to absolutely no market disclosure in China. There may be a couple of reasons behind this limited disclosure, like emerging economies usually

74————————————————————

[9] For equal variance the formula for two-sample t-test is: $T = \dfrac{\overline{Y_1} - \overline{Y_2}}{s_p \sqrt{1/N_1 + 1/N_2}}$

Where: N_1 and N_2 are the sample sizes, $\overline{Y_1}$ and $\overline{Y_2}$ are the sample means and the sample variance is given as: $s_p^2 = \dfrac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}$

face a myriad of problems such as underdeveloped and illiquid stock markets, economic uncertainties, weak legal control and investor protection and frequent government intervention. To some extent, the stock market in these countries does not comply with the Free Market Hypothesis (proposed by Fredrick August von Hayek) and certainly not with the Efficient Market Hypothesis. Consequently this leads to a number of banks to speculate on market return and movement for huge gains, but as per the human nature, no investor will like his money to be used for speculation so alternately banks disclose less in there Financial Statement and Annual Report in these countries to abide by the investor or shareholder mentality. These structural characteristics (Rabelo and Vasconcelos, 2002), coupled with poor economic performance, and controlling ownership (Ahunwan, 2002), demand effective market disclosure in these countries. Until relatively some time back, however; this issue has received minimal attention in the developing world. The increasing globalization of the world economy and the adoption of IMF/World Bank-led economic reforms, coupled with recent financial scandals in about last two decades in the established and well developed markets like the incidents of BCCI (1991, London), Barrings Bank (1995, London), LTCM (1998, New York), Enron (2001, U.S.) etc. are now driving the surging interest in market disclosure practices in several developing countries (Rabelo and Vasconcelos, 2002; Ahunwan, 2002; Reed, 2002; Gugler et al., 2003) with more stringent and strict rules from the side of regulators like OSFI in Canada, Federal Reserve System in U.S., SEBI in India and Bank of England in England, etc.

Furthermore, it appears that Sweden, Spain and Canada are the top three countries in the world regarding the details related to their VaR disclosure. But unfortunately it is difficult to comment firmly anything about the VaRDI disclosure by Spanish or Swedish Banks as the sample size of study for the former is only two banks and for the latter i.e. Sweden is only one bank. So we can say that the results for these two countries could be facing the selection bias as we choose the most of the banks for developed market directly from the list of the banks with the maximum assets for their financial year ending sometime in 2006 (except for some countries like Canada, Australia, Singapore and Hong Kong). If we take sample size into consideration, then we clearly observe that some countries like Singapore (average disclosure of 10.0 for three banks), France (average disclosure of 9.50 for four banks), Germany (average disclosure of 8.60 for five banks) and United Kingdom (average disclosure of 8.50 for four banks) disclose lot of information regarding there market risk mitigation and VaR strategy to their shareholders through their Annual Reports. Contrary to this, some of their next-door neighbours like Hong Kong (average disclosure of 4.667 for three banks) and Italy (average disclosure of 4.00 for two banks) disclose way less information than they should be disclosing. The possible reason behind this limited disclosure strategy maybe that now politically Hong Kong is a part of the Republic of China, though it comes under developed markets but since Chinese banks are disclosing nothing (average disclosure of 0.00 for four banks) so gradually banks in Hong Kong are adopting this strategy. It may have been possible that when Hong Kong was a part of United Kingdom, banks here

disclosed way more than they are doing nowadays. Besides this as for Italy, it may be the case that the sample size is small.

Nevertheless, the standard deviation of VaRDI i.e. the fluctuation in average VaRDI values for the economies of emerging markets is significantly larger than the one observed for developed markets VaRDI. As it can be observed for the overall VaR disclosure of US commercial banks is not much different from what is currently done in Germany, United Kingdom, France, Japan, The Netherlands, Australia, Denmark, Singapore and Switzerland. So it can be clearly seen that banks in ten of fifteen (i.e. 67% countries) researched have their VaRDI in a range of 7 to 10 therefore deriving the VaRDI standard deviation quite low. However, it is interesting to see that US banks appear more reluctant to reveal the more sensitive and meaningful dimensions of VaR information: only 20% of our US sample banks plot the daily VaR and daily trading revenues and 40% disclose the actual number of exceptions. Contrary to this, if we turn towards the emerging markets, we observe a relative higher variance compared to what is discussed above in this paragraph. The only striking observation is that for banks in eight countries (India, China, Egypt, Brazil, Russia, Thailand, Indonesia and Saudi Arabia) of the total sample of fourteen countries (i.e. 57%) have their VaRDI value below 3.00. for the remaining countries, value is quite variable going as high as 7.33 for Poland, 6.33 for Pakistan and 6.00 for South Africa.

Correlation between ORDI and VaRDI

After considering the levels of disclosure of Operational Risk and VaR, we study the correlation between both the indices. It is potentially possible that the economies with strong regulatory frameworks will require high disclosure across all aspects of bank risk. Somewhat surprisingly when we calculate the correlation (as summarized in the table below) we observe some very low levels of correlation between the disclosure indices.

Table 1: Correlation between ORDI and VaRDI

Criteria for Correlation between ORDI and VaRDI	Correlation
Average Disclosure Index for twenty-nine Economies	59.00%
Disclosure Index for ninety-one Banks	61.67%
Disclosure Index for Banks in Emerging Economies	46.36%
Disclosure Index for Banks in Developed Economies	32.16%

From the above table it is quite explicit that the disclosure index used for this project does a good as a whole but not in isolation. When both the economies are dealt with together then the results of the indices appears to be co-related irrespective of the way we are using our data i.e. at an individual bank level or countrywide level. They show a correlation of about 60%. But as soon as we break our disclosure index to two different economies we can apparently observe a rapid decrease in the correlation between the indices, which drops down to as low as 32%. As for us the only possible explanation to this kind of trend may be that as we increase the number of Banks from different

backgrounds, there correlation tend to increase too. Therefore we can summarize this scenario as more the number of banks from two different types of markets, better the correlation between ORDI and VaRDI.

We have also tried to find the correlation between the disclosure indices used for this project with respect to the country specific bank disclosure index[10]. The results of this analysis are summarized in the table below:

Table 2: Correlation between ORDI and VaRDI with respect to Bank Disclosure Index

Market	Criteria for Correlation	Correlation
Both	ORDI and Bank Disclosure Index	22.13%
Both	VaRDI and Bank Disclosure Index	43.20%
Developed	ORDI and Bank Disclosure Index	39.51%
Developed	VaRDI and Bank Disclosure Index	21.82%
Emerging	ORDI and Bank Disclosure Index	42.61%
Emerging	VaRDI and Bank Disclosure Index	30.31%

As per the correlation values given in the Table 2 above we observe a big fluctuation in its value. We can clearly see some kind of correlation (about 43%) in the case of VaRDI (for both the markets) and ORDI (for emerging markets) with respect to Bank Disclosure Index individually. From the results summarized in Table 2, the level of correlation between the Bank Disclosure Index and either of the Disclosure Indices used by us in this project is very low i.e. in a range of 22% to 40% only. The possible reason behind this may be that the Bank

74——————————————————

[10] Data for the country specific bank disclosure index was extracted from the paper; 'Huang, Rocco. Sept. 2006. Bank Disclosure Index Global Assessment of Bank Disclosure Practices'.

Disclosure Index considers a lot many aspects of disclosures made by the banks in their Annual Report (like Market Risk, Operational Risk, Credit Risk, Hedging, Trading details, Mortgage details, various Accounting Measures, Management Disclosures, etc.) that the ORDI and VaRDI are able to cover only very little portion of the entire Bank Disclosure Index referred to in the analysis above. The Bank Disclosure Index has a general approach with a consideration to a wider perspective in term of Bank Disclosures in their Annual Reports.

Based on Regression

Following the 1996 Market Risk Amendment to the Basel Accord (Basel Committee on Banking Supervision, 1996), many international bank regulatory agencies have set capital requirements to include a market risk charge that reflects the risk of bank's trading activities. Therefore apart from using graphs and correlation, we also try to find an explanation to the Bank's ORDI and VaRDI score with respect to parameters like bank's total assets, bank disclosure index (using the country specific data) and gross domestic product (real growth rate). To do this we run a couple of regressions so as to figure out the exact relationship between bank's levels of disclosure with respect to an explanatory variable. Based on the R^2 and t-statistic, we decided to choose the Regression Model $Y = a + b*\ln(TA)$[11] as the best fit model for both the risk disclosure indices. The basic criteria for selecting a model as a best fit are:

• Model should have the highest R^2 value among all models being studied,

74————————————————————
[11] Refer to the Table 3 to 6 below.

- The absolute t-statistic value of all the parameters (co-efficient and the intercept) should be greater than 1.95 to comply with 99% confidence level.

We can see a positive linear relationship between Risk Disclosure Index (for both ORDI and VaRDI) value and natural logarithm of bank's assets. It can be also observed that for all the regressions done with reference to GDP irrespective of the model selection, the value of the co-efficient is a huge negative value. The possible explanation behind this behaviour may be an inverse relation between risk disclosure and GDP. We have observed that countries in developing economies have a higher GDP than those in established economies but lack an established market in terms of risk disclosure. Moreover from the regression tables below we can further verify a low correlation (as derived above) between risk disclosure and Bank Disclosure Index because the t-statistics in all the regressions for Bank Disclosure Index are insignificant. So it is easy to conclude that Bank Disclosure Index is not an appropriate explanatory variable. The value of the co-efficient for Total Assets is very low for all the regressions, possibly due to a very high value of the Bank Asset compared to the risk disclosure index value but t-statistics value is significant in almost all the cases signifying the explanatory power of the Total Assets for the bank's risk disclosure value. But whatsoever may be the model, the ln(TA) i.e. natural logarithm of the Bank's Total Assets is the best explanatory parameter for the risk disclosure index value as the t-statistics are significant for all the models and value of R^2 is also better compared to other models. Moreover it always shows a positive relation with the risk disclosure index value.

Besides running the normal regressions (as summarized in the Table 4 and Table 6), we also ran a parallel set of regressions for the same relations with Chinese and Indian parameters dropped out from the dataset. The primary reason for this special set of regressions is to identify the importance and level of risk disclosure of these two countries, as they are the fastest growing economies across the globe. They have the highest GDP rate for the financial year being studied with very low operational and market risk disclosure not only for our indices but also for the Bank Disclosure Index (59 for China and 63 for India). So basically they represent the extreme case with very high GDP and very low Bank Disclosure Index. But here too, we observe the similar pattern as discussed above with the best fit model being $Y = a + b*\ln(TA)$ in terms of R^2 value and significance of t-statistics value. The relation of the risk disclosure index value (for both ORDI and VaRDI) with respect to the outlier (Bank's Total Assets, GDP, Bank Disclosure Index, etc.) is almost the same as discussed above with a very slight variation in value of the co-efficient or the t-statistics value.

Table 3: Results of Regression for the Operational Risk Disclosure Index

Serial No.	Model	TA	TA^2	Ln(TA)	$Ln(TA)^2$	BDI	GDP	Intercept	R^2
1	a+b.TA	8.71E-07						4.903	7.79%
		(2.877)						(10.959)	
2	a+b.TA+c.TA²	3.74E-06	-2.86E-13					3.774	21.52%
		(4.744)	(-3.924)					(7.474)	
3	a+b.ln(TA)			1.135				-8.266	24.60%
				(5.388)				(-3.221)	
4	a+b.ln(TA)+c.ln(TA)²			1.156	-8.86E-15			-8.503	24.68%
				(5.210)	(-0.317)			(-3.167)	
5	a+b.TA+c.ln(TA)	-4.97E-08		1.157				-8.494	24.61%
		(-0.139)		(4.431)				(-2.785)	
6	a+b.GDP						-49.94	7.467	12.96%
							(2.005)	(5.606)	
7.	a+b.BDI					0.079		-0.849	4.90%
						(1.179)		(-0.168)	
8.	a+b.GDP+c.BDI					0.036	-44.726	4.550	13.81%
						(0.507)	(-1.640)	(0.770)	

Note:

TA: Total asset of the individual bank   GDP: Gross Domestic Product (real growth rate)   BDI: Bank Disclosure Index

Table 4: Results of Regression for the Operational Risk Disclosure Index without India and China

Serial No.	Model	TA	TA²	Ln(TA)	Ln(TA)²	BDI	GDP	Intercept	R²
1	a+b.TA	8.47E-07						5.099	7.59%
		(2.611)						(10.831)	
2	a+b.TA+c.TA²	3.87E-06	-2.70E-13					4.597	23.04%
		(4.443)	(-3.139)					(8.121)	
3	a+b.ln(TA)			1.183				-8.642	26.45%
				(5.549)				(-3.429)	
4	a+b.ln(TA)+c.ln(TA)²			1.173	-8.76E-15			-8.449	25.96%
				(5.437)	(-0.311)			(-3.098)	
5	a+b.TA+c.ln(TA)	-1.27E-07		1.237				-9.215	26.57%
		(-0.341)		(4.604)				(-2.937)	
6	a+b.GDP						-52.849	7.581	9.62%
							(-1.631)	(4.846)	
7.	a+b.BDI					0.722		-0.162	3.77%
						(0.989)		(-0.293)	
8.	a+b.GDP+c.BDI					0.042	-47.214	4.163	10.81%
						(0.565)	(-1.376)	(0.665)	

Note:

TA: Total asset of the individual bank GDP: Gross Domestic Product (real growth rate) BDI: Bank Disclosure Index

36

Table 5: Results of Regression for the Value at Risk Disclosure Index

Serial No.	Model	TA	TA²	Ln(TA)	Ln(TA)²	BDI	GDP	Intercept	R²
1	a+b.TA	1.22E-06						5.243	13.00%
		(3.500)						(10.632)	
2	a+b.TA+c.TA²	3.84E-06	-2.6E-13					4.214	21.07%
		(4.305)	(-3.163)					(7.372)	
3	a+b.ln(TA)			1.309				-9.817	25.69%
				(5.547)				(-3.414)	
4	a+b.ln(TA)+c.ln(TA)²			1.176	0.654			-10.216	22.69%
				(2.210)	(5.547)			(-3.714)	
5	a+b.TA+c.ln(TA)	2.77E-07		1.190				-8.549	26.10%
		(-2.508)		(0.697)				(4.083)	
6	a+b.GDP						-73.465	9.418	19.85%
							(-2.586)	(6.199)	
7.	a+b.BDI					0.185		-7.839	18.66%
						(2.489)		(-1.411)	
8.	a+b.GDP+c.BDI					0.132	-54.337	-1.279	27.98%
						(1.712)	(1.834)	(-0.1993)	

Note:

TA: Total asset of the individual bank

GDP: Gross Domestic Product (real growth rate)

BDI: Bank Disclosure Index

Table 6: Results of Regression for the Value at Risk Disclosure Index without India and China

Serial No.	Model	TA	TA²	Ln(TA)	Ln(TA)²	BDI	GDP	Intercept	R²
1	a+b.TA	1.18E-06						5.660	12.70%
		(3.475)						(11.457)	
2	a+b.TA+c.TA²	3.77E-06	-2.9E-13					3.941	21.88%
		(4.642)	(-3.783)					(7.461)	
3	a+b.ln(TA)			1.382				-10.305	31.09%
				(6.120)				(-3.701)	
4	a+b.ln(TA)+c.ln(TA)²			1.157	0.597			-10.243	26.91%
				(2.150)	(5.592)			(-3.734)	
5	a+b.TA+c.ln(TA)	1.49E-07		1.319				-9.607	31.22%
		(0.397)		(4.699)				(-2.931)	
6	a+b.GDP						-53.869	8.649	7.81%
							(-1.455)	(4.928)	
7.	a+b.BDI					0.160		-5.645	14.94%
						(2.095)		(-0.982)	
8.	a+b.GDP+c.BDI					0.137	-34.602	-2.475	18.01%
						(1.727)	(-0.924)	(-0.317)	

Note:

TA: Total asset of the individual bank

GDP: Gross Domestic Product (real growth rate)

BDI: Bank Disclosure Index

38

CHAPTER 7: CONCLUSION

Disclosure plays an important role in market discipline since market participants need to have meaningful information to base their judgment of risk and performance. Disclosure is particularly important in the banking industry, since banks are generally viewed as being opaque to outsiders. As a result, banking supervisors and other public sector officials have encouraged enhanced disclosure by banking companies, particularly for forward-looking estimates of risk. This paper tried to compare market risk and operational risk disclosures with reference to the emerging and established markets and then tried to establish a relationship between risk disclosure and value of the bank's current assets.

The key variable of examining disclosures is an index scorecard for both market risk and operational risk disclosure that capture the amount of risk information that financial institutes are willing to share with their common shareholders through their annual report. The index is constructed for a sample of ninety-one banks from twenty-nine economies across the globe with significant trading activities over the year 2006. Overall, the quality of both the disclosures is better for established market than for emerging market. However, it appears that the emerging market have a comparative-advantage regarding the level of Operational Risk Disclosure. First and foremost we clearly observe that the group score difference (Emerging and Established) for ORDI is smaller than for VaRDI, and most important we discover that for the index used there is no zero average

ORDI score in emerging market while we have one zero average for ORDI score in established market.

One possible explanation for this puzzling result may be that the sample banks may not be representative of all commercial banks for that particular country. It is conceivable that we simply selected the worst performing banks from country. Although we cannot definitively answer this concern, we do not think that it is very likely since the sample banks were selected because they are among the largest banks (with maximum assets) in each sample country and as a result, have more resource to devote to operational risk performance measurement than other average banks in the country.

It should always be kept in mind that market discipline has two distinct components:

- Investors and creditors ability to monitor and assess changes in bank's condition

- Their ability to influence management behaviour

Both of the factors are affected by the amount and quality of information disclosed. Through our research, improvement of risk disclosures is still needed for countries in both the groups, especially for countries with emerging markets. Without adequate disclosure information, investors and creditor's ability to monitor and assess bank's financial ability will be negatively affected consequently negatively affecting bank's management behaviour and even its future in long run.

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41

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APPENDIX

Graphs for the Risk Disclosure

Figure 1: Average Operational Risk Disclosure Index (ORDI) for the countries with Established Markets
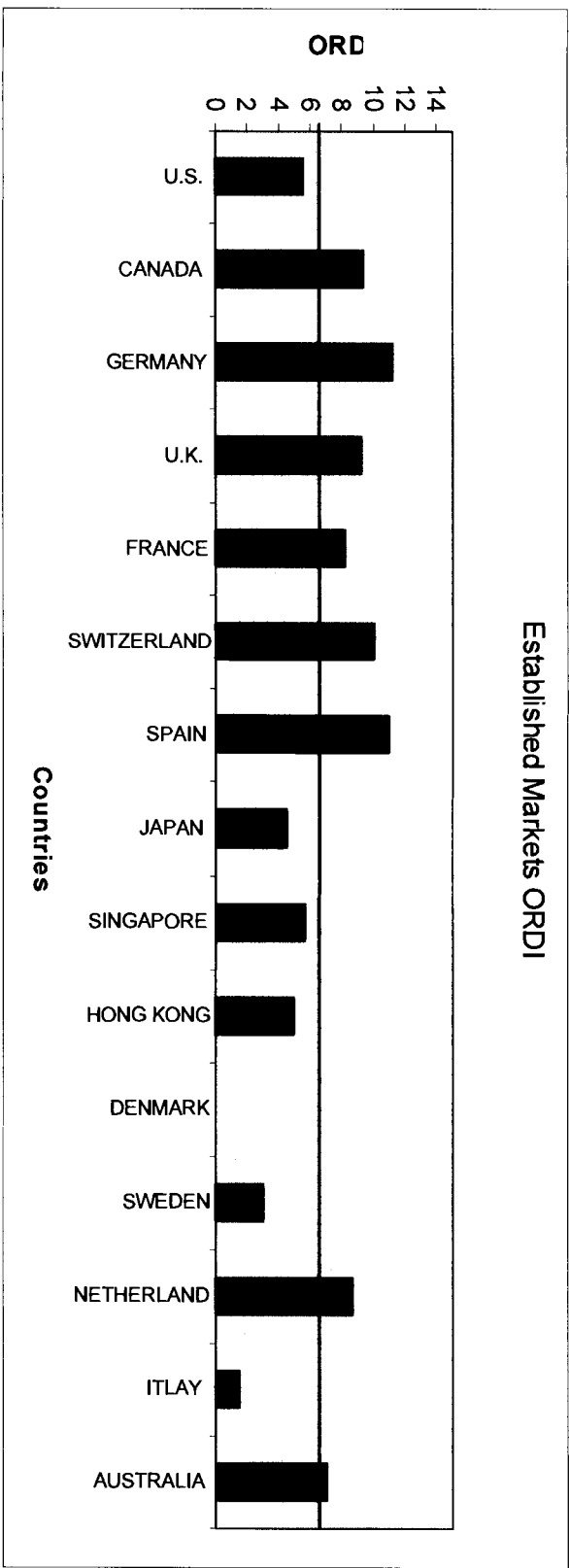
Above graph refers to the average ORDI for fifteen countries that form a part of the established markets with the aid of the ORDI Scorecard defined in the text

Figure 2: Average Value at Risk Disclosure Index (VaRDI) for Countries with Established Markets

Established Markets VaRDI

Countries: U.S., CANADA, GERMANY, U.K., FRANCE, SWITZERLAND, SPAIN, JAPAN, SINGAPORE, HONG KONG, DENMARK, SWEDEN, NETHERLAND, ITLAY, AUSTRALIA

VaRD axis: 0, 2, 4, 6, 8, 10, 12, 14
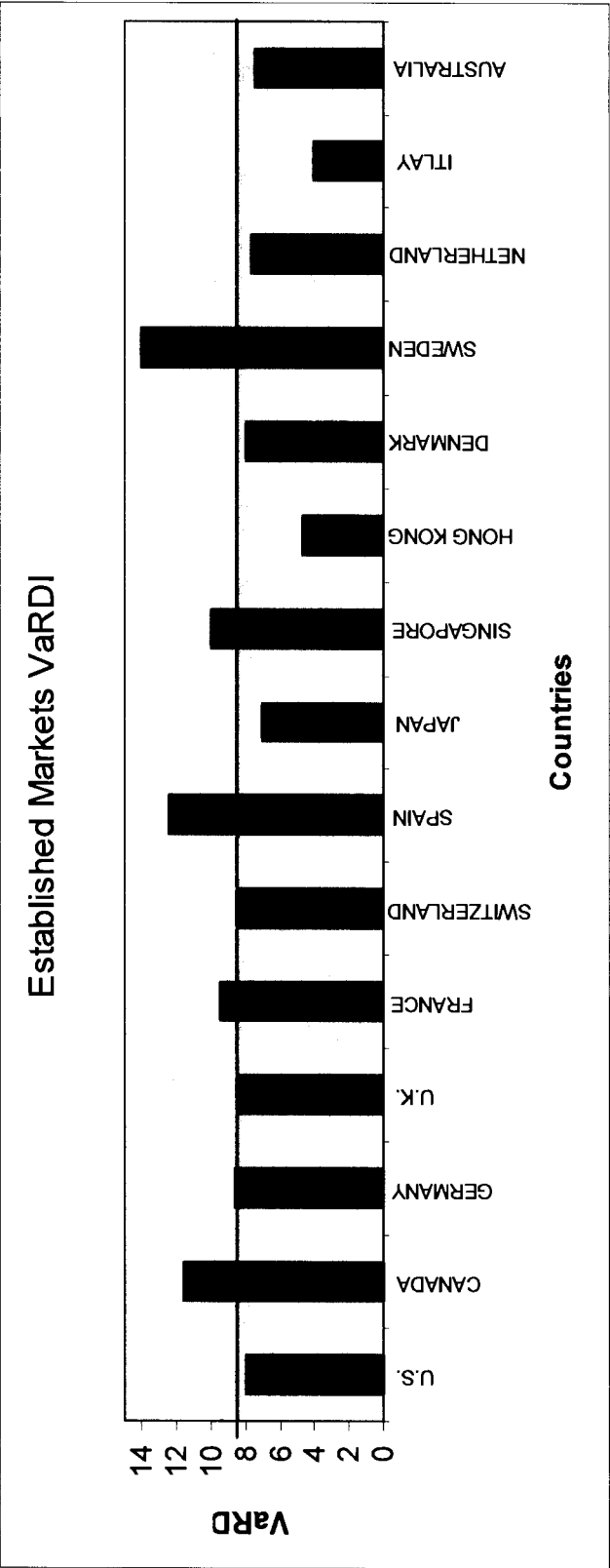
Above graph refers to the average VaRDI for fifteen countries that form a part of the established markets with the aid of the VaRDI Scorecard defined in the text

44

Figure 3: Average Operational Risk Disclosure Index (ORDI) for the countries with Emerging Markets

Emerging Market ORDI
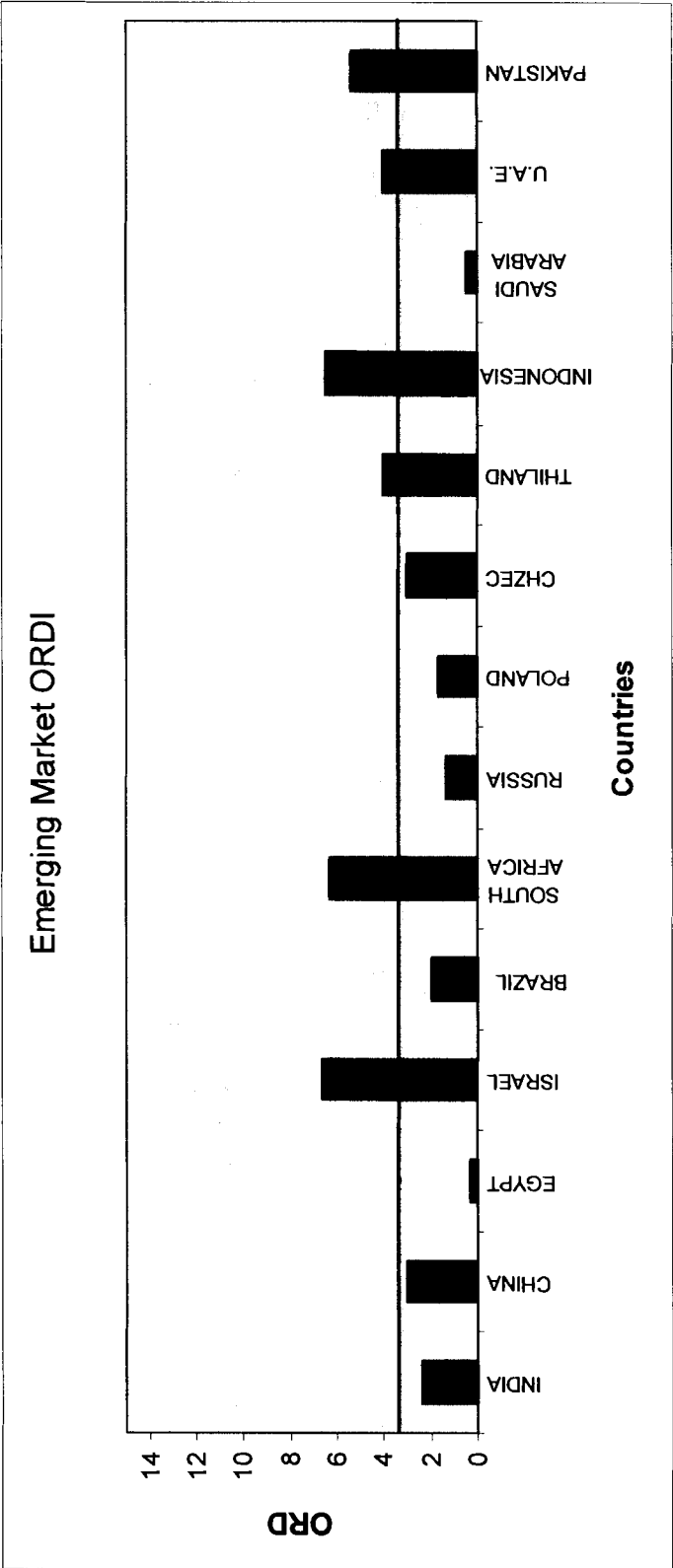
Above graph refers to the average ORDI for fourteen countries that form a part of the emerging markets with the aid of the ORDI Scorecard defined in the text

45

Figure 4: Average Value at Risk Disclosure Index (VaRDI) for Countries of Emerging Markets

Emerging Markets VaRDI
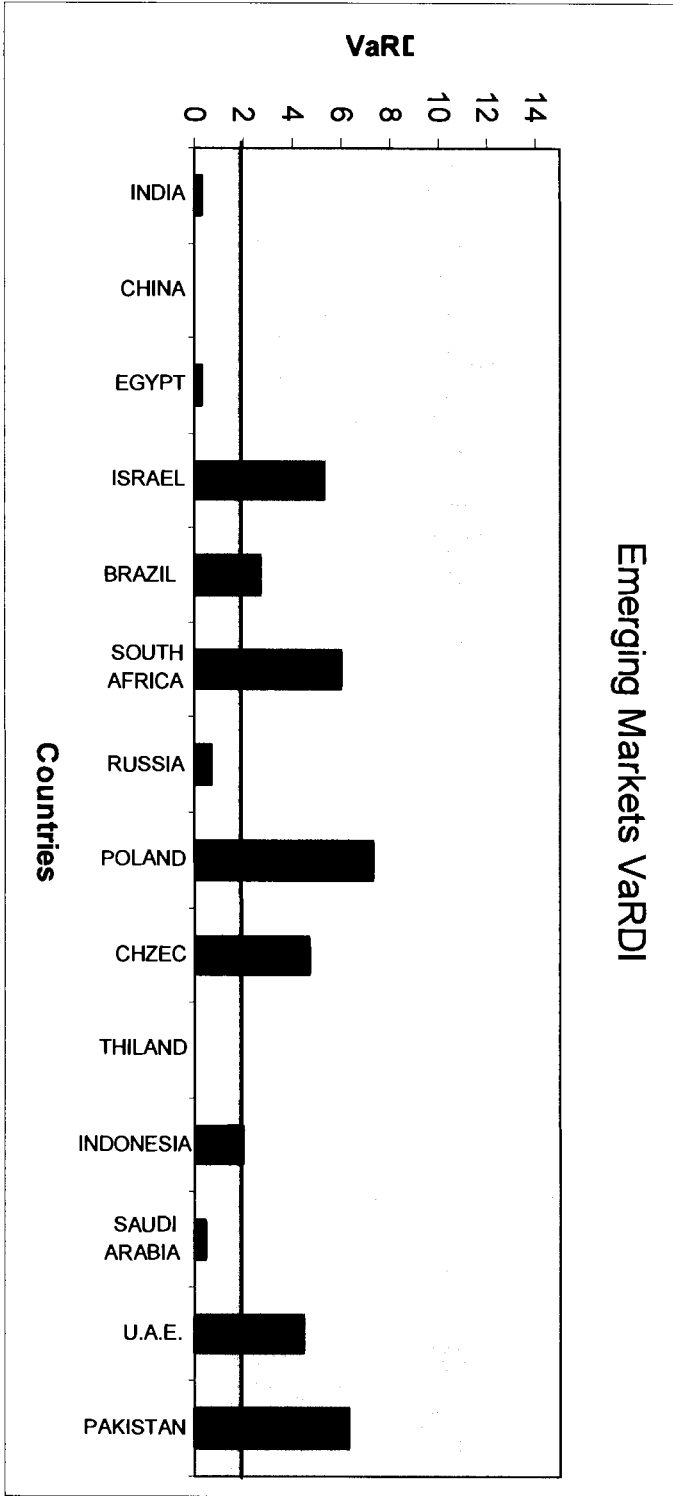
Above graph refers to the average VaRDI for fourteen countries that form a part of the emerging markets with the aid of the VaRDI Scorecard defined in the text

46

Figure 5: Average Operational Risk Disclosure Index (ORDI) for Countries of both Markets

ORDI for both Economies
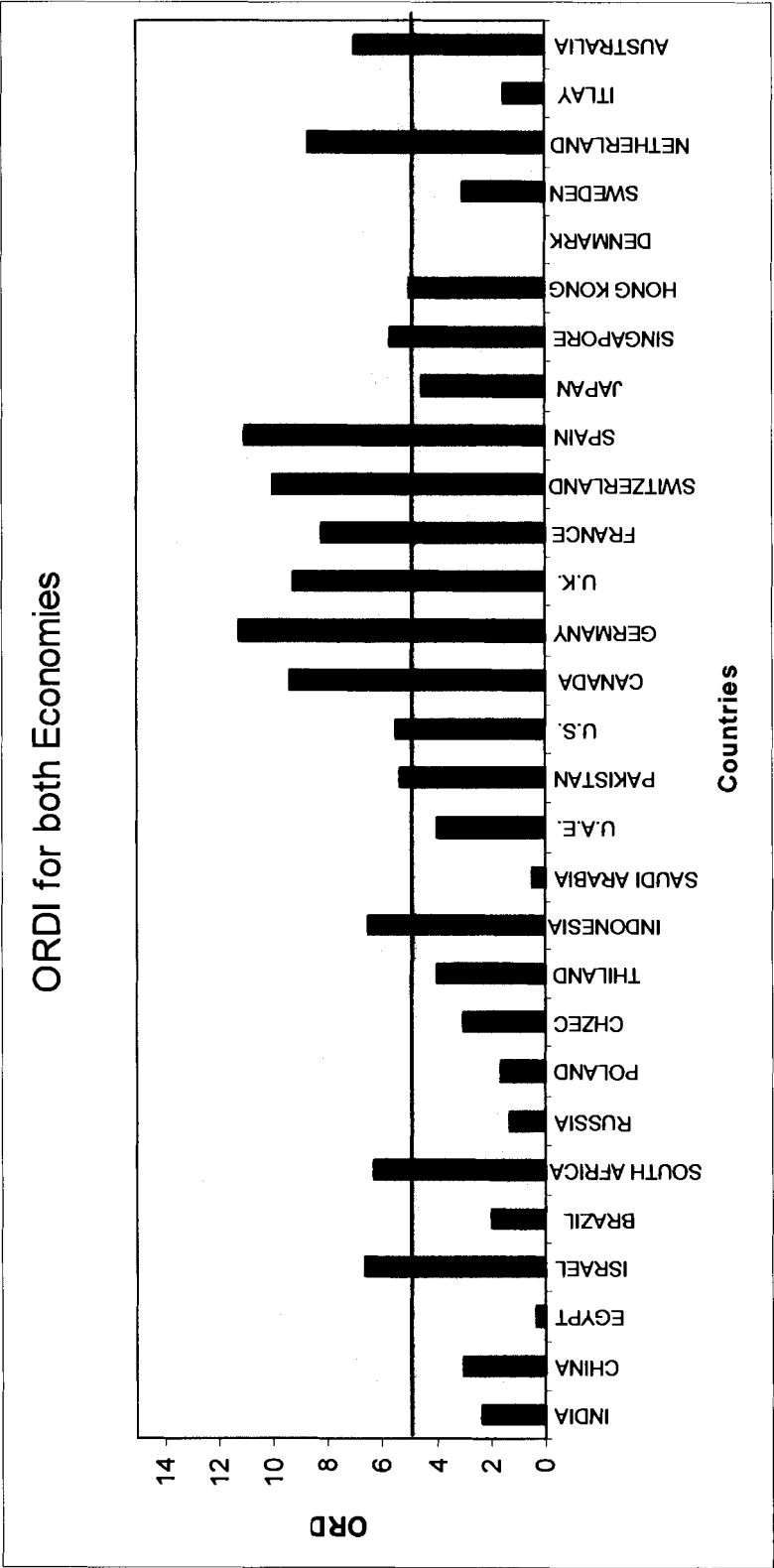
Above graph refers to the average ORDI for all the twenty nine countries studied for both the markets with the aid of the ORDI Scorecard defined in the text

Figure 6: Average Value at Risk Disclosure Index (VaRDI) for Countries of Both Markets
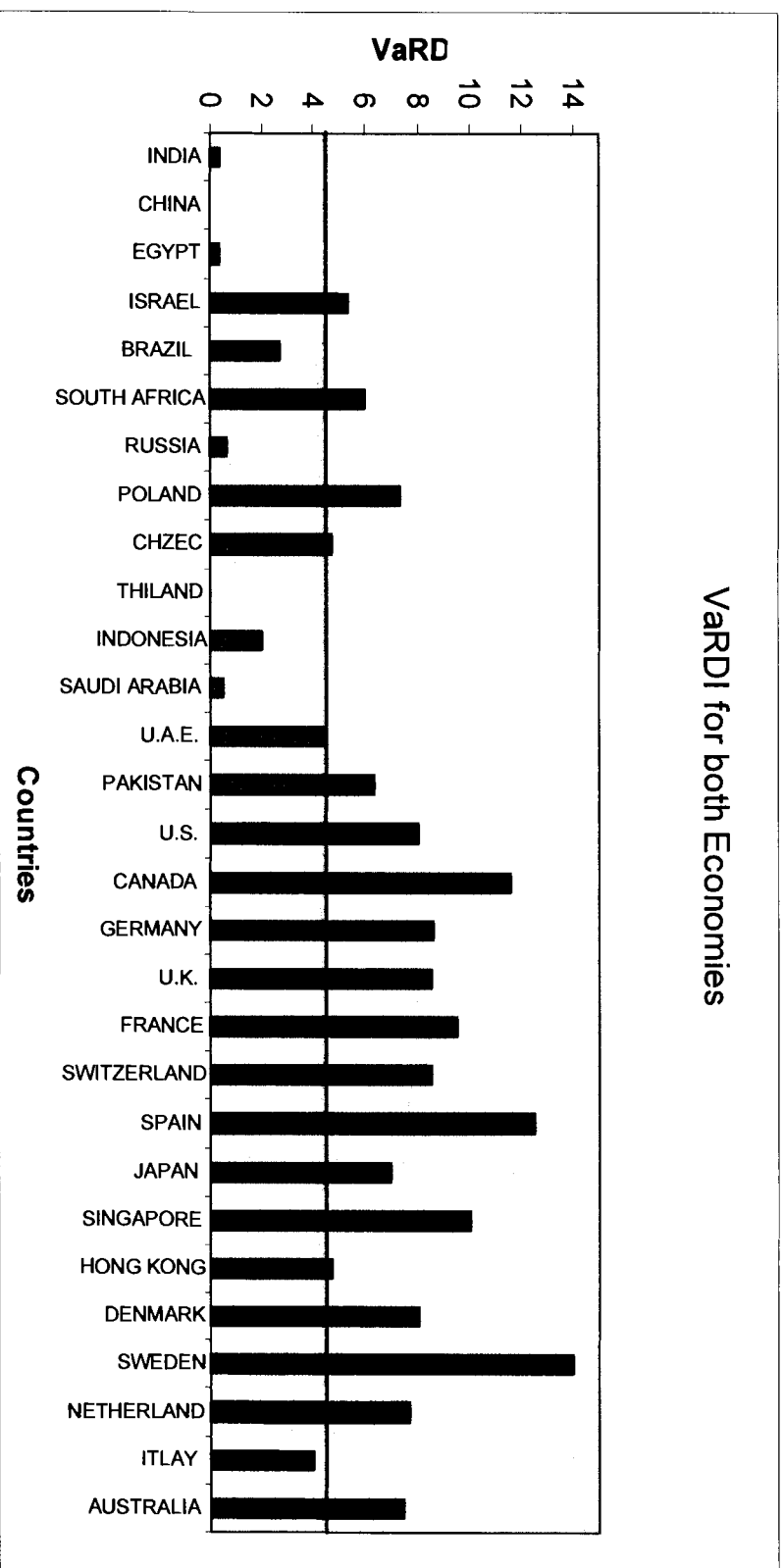
VaRDI for both Economies

Above graph refers to the average VaRDI for all the twenty nine countries studied for both the markets with the aid of the VaRDI Scorecard defined in the text

Disclosure Index

Table 7: Operational Risk Disclosure Index (ORDI) for ninety-one banks Globally

Serial No.	Name	Country	Assets (US Million $)	Operational Risk	Reputation Risk	Legal Risk	Portion of Risk Capital (%or$)	Calculation Method	Previous Year OR Portion	OR Governance Structure	Reputation Governance Structure	Legal Governance Structure	OR Measurement	Reputation Measurement	Legal Measurement	Data collection Process	OR Reporting	Operational Risk Disclosure Index
US Banks (2006)																		
1	Bank of America	US	$1,459,737	1	0	0	0	0	0	1	0	0	1	0	0	0	0	3
2	JP Morgan Chase	US	$1,884,318	1	1	0	2	1	1	1	1	0	1	1	0	1	1	12
3	Citigroup	US	$706,497	1	1	0	2	1	1	1	0	0	1	0	0	1	1	10
4	Wachovia	US	$707,121	1	0	0	1	0	0	1	0	0	1	0	0	1	0	4
5	Wells Fargo	US	$481,996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	U.S. Bank	US	$219,232	1	1	0	0	0	0	1	0	0	1	0	0	0	0	4
Canadian Banks (2006)																		
7	Royal Bank of	CAN	$484,700	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14

	Canada																
8	Toronto Dominion Bank	CAN	$354,790	1	1	1	0	0	0	1	1	1	1	1	0	1	10
9	Scotiabank	CAN	$342,233	1	1	0	0	0	0	1	1	0	1	0	1	0	7
10	Bank of Montreal	CAN	$288,952	1	1	0	1	1	0	1	1	0	1	0	0	0	8
11	CIBC	CAN	$274,490	1	1	0	0	1	0	1	1	1	0	1	0	0	8
	German Banks (2006)																
12	Deutsche Bank AG	GER	$1,1528,940	1	1	1	2	1	1	1	0	0	0	0	0	0	9
13	Bayerische Hypo-und Vereinsbank AG	GER	$690,193	1	0	1	2	1	1	1	0	1	1	1	1	0	11
14	Dresdner Bank Group*	GER	$626,842	1	1	1	2	1	1	1	0	1	1	1	1	0	12
15	Commerzbank AG	GER	$826,466	1	1	1	2	1	1	1	1	1	1	1	1	1	15
16	Landesbank Baden-Württemberg	GER	$581,845	1	1	1	1	1	1	1	0	1	0	0	0	0	9
	British Banks (2006)																
17	Barclays	UK	$2,032,864	1	0	1	2	1	1	1	0	1	0	0	0	1	11
18	HSBC Bank	UK	$1,860,758	1	1	1	2	1	1	1	0	1	1	1	1	1	14
19	Bank of Scotland	UK	$1,177,923	1	1	0	0	0	0	1	0	0	1	0	0	0	5
20	Lloyds TSB Group	UK	$685,593	1	0	1	0	0	0	1	1	1	0	1	0	1	7
	French Banks (2006)																
21	BNP Paribas SA*	FRA	$1,709,288	1	0	1	0	0	0	1	1	1	0	1	1	0	6
22	Crédit Agricole	FRA	$1,713,660	1	0	1	2	1	1	1	1	0	0	1	0	1	9

#	Bank	Country	Value														Total
	SA																
23	Société Générale	FRA	$1,300,000	1	0	1	2	0	1	0	1	1	0	1	1	1	10
24	Calyon*	FRA	$653,918	1	0	1	0	1	1	0	1	1	0	0	1	1	8
Swish Banks (2006)																	
25	UBS AG	SWZ	$1,979,612	1	0	0	2	0	1	1	0	1	0	0	0	0	6
26	Credit Suisse Group	SWZ	$1,037,791	1	1	1	2	1	1	1	1	1	1	1	1	1	14
Spanish Banks (2006)																	
27	Banco Scamander Central Hispano SA, Santander	SPN	$1,133,470	1	1	0	2	1	1	1	1	0	1	0	1	1	12
28	Banco Bilbao Vizcaya Argentaria SA	SPN	$560,117	1	1	0	2	1	1	1	1	0	1	0	0	1	10
Japanese Banks (2006)																	
29	The Bank of Tokyo Mitsubishi UFJ Ltd	JPN	$1,585,116	1	0	0	0	0	0	0	1	0	0	1	0	1	3
30	Sumitomo Mitsui Banking Corporation	JPN	$869,741	1	0	1	0	0	1	0	1	0	1	1	0	0	5
31	The Norinchukin Bank	JPN	$603,227	1	0	1	0	0	1	0	1	0	1	1	0	0	5
32	Mizuho Bank Ltd	JPN	$1,245,843	1	1	1	0	0	0	0	1	1	0	1	0	1	5
Singapore Banks (2006)																	
33	DBS Bank	SNG	$197,372	1	0	0	0	0	1	0	1	0	0	0	0	1	4

51

#	Bank		Amount														
34	Oversea Chinese Banking Corporation	SNG	$100,000	1	1	0	0	0	1	1	1	0	1	0	0	0	6
35	United Overseas Bank	SNG	$106,478	1	1	1	0	0	0	1	1	1	1	0	0	0	7
Indian Banks (2006)																	
36	State Bank of India	IND	$121,553	1	0	0	0	0	1	0	0	0	0	0	0	0	2
37	ICICI Bank	IND	$57,066	1	0	0	0	0	1	0	1	0	1	0	0	0	3
38	HDFC Bank	IND	$18,091	1	0	0	0	0	1	0	0	0	1	0	0	0	2
Chinese Banks (2006)																	
39	ICBC Limited*	CHN	$837,542	1	0	0	0	0	1	0	1	0	0	0	0	0	3
40	Agricultural Bank of China	CHN	$591,190	1	0	0	0	0	0	0	1	0	1	0	0	0	2
41	Bank of China Limited	CHN	$69,1055	1	0	0	1	0	1	0	1	0	0	0	0	0	4
Hong Kong Banks (2006)																	
42	HSBC Limited	HK	$402,951	1	1	0	0	0	1	1	1	0	1	1	0	0	8
43	Public Bank	HK	$206,628	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Bank of China	HK	$118,804	1	1	0	0	0	1	1	1	0	1	1	0	0	7
Egyptian Banks (2006)																	
45	Central Bank of Egypt	EGY	$63,045	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	National Bank of Egypt	EGY	$22,132	1	0	0	0	0	0	0	0	0	0	0	0	0	1
47	Banque Misr	EGY	$18,861	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Israel Banks (2006)																	
48	Bank Leumi	ISR	$71,929	1	1	1	0	0	1	1	1	1	1	0	0	0	7
49	Bank	ISR	$17,678	1	1	1	0	0	1	0	1	1	1	0	1	1	8

#	Bank	Country	Amount															Total
50	Hapoalim Bank Otsar Ha-Hayal	ISR	$15,665	1	0	1	0	0	1	0	0	0	1	0	0	1	0	5
	Brazilian Banks (2006)																	
51	Banco do Brasil*	BRZ	$120,589	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	Banco Itaú*	BRZ	$74,312	1	0	0	1	1	0	0	0	0	0	0	0	0	0	3
53	Bradesco	BRZ	$126,156	1	0	0	1	1	0	0	0	0	0	0	0	0	0	3
	South African Banks (2006)																	
54	ABSA*	SA	$44,894	1	0	0	0	0	1	0	0	0	0	0	0	0	1	3
55	First Rand Bank	SA	$84,014	1	1	1	0	1	1	0	1	1	0	0	0	0	1	8
56	Standard Bank of South Africa*	SA	$119,000	1	1	0	1	1	1	0	1	0	0	0	0	1	1	8
	Denmark Bank (2006)																	
57	Danske Bank A/S	DEN	$500,254	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Swedish Bank (2006)																	
58	Nordea Group	SWE	$472,046	1	0	0	0	0	1	0	0	0	1	0	0	0	0	3
	Russian Banks (2006)																	
59	Sber Bank*	RUS	$97,350	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
60	Alfa Bank*	RUS	$9,836	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
61	Vneshtorg Bank	RUS	$36,723	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	The Netherlands Banks (2006)																	
62	ABN Amro Holding NV	NTH	$1,334,360	1	1	1	1	1	2	1	1	1	1	1	1	1	1	15
63	ING Bank NV	NTH	$1,657,305	1	0	0	0	1	1	0	1	0	0	0	0	1	1	6

No.	Bank	Country	Value														Total
64	Rabo Bank Netherland	NTH	$752,215	1	0	0	0	1	0	1	1	1	0	1	0	0	5
	Italian Banks (2006)																
65	UniCredito Italiano SpA	ITL	$1,119,088	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Banca Intesa SpA	ITL	$380,761	1	0	0	0	1	0	0	0	1	0	0	0	0	3
	Polish Banks (2006)																
67	Bank BPH	POL	$22,482	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	Bank Millennium	POL	$18,755	1	0	0	0	1	0	0	0	1	0	0	0	0	3
69	Bank Handlowy	POL	$12,931	1	0	0	0	1	0	0	0	0	0	0	0	0	2
	Czech Republic Banks (2006)																
70	Ceskoslovenska Obchodni Banka	CZH	$40,554	1	0	0	0	1	0	1	1	0	0	1	0	0	5
71	Bank Austria Creditanstalt*	CZH	$17,909	1	0	0	0	1	0	1	1	0	0	0	0	0	4
72	Zivnostenska banka	CZH	$9,505	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Thailand Banks (2006)																
73	Bangkok Bank	THA	$45,364	1	0	0	0	1	0	1	1	0	0	0	0	0	4
74	Krung Thai Bank	THA	$36,238	1	0	0	0	1	1	1	0	0	0	0	0	0	4
	Indonesian Banks (2006)																
75	Bank Rakyat Indonesia*	INO	$13,980	1	0	0	0	1	0	1	0	0	0	1	0	0	4
76	Bank Negara Indonesia*	INO	$16,796	1	1	0	1	1	1	1	1	0	1	1	0	0	9
	Australian																

Banks (2006)																		
77	National Australia Bank	AUS	$361,398	1	0	1	2	1	1	1	0	0	1	0	0	0	1	10
78	Commonwealth Bank of Australia	AUS	$307,785	1	0	1	1	1	1	1	0	0	1	0	0	0	1	7
79	Australia and New Zealand Banking Group	AUS	$279,497	1	0	0	0	0	1	0	0	0	1	0	1	0	1	5
80	Westpac Banking Corporation	AUS	$140,310	1	0	0	0	0	1	1	1	1	1	0	0	0	1	6
Saudi Arabian Banks (2006)																		
81	Arab National Bank	SAR	$20807	0	0	0	0	0	1	0	0	1	1	0	0	0	0	2
82	Bank Al Jazeera	SAR	$13,570	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	Saudi British Bank*	SAR	$17,578	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	National Commercial Bank	SAR	$38,873	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
United Arab Emirates Banks (2006)																		
85	Emirates Bank Group	UAE	$76,885	1	0	2	1	1	1	0	0	1	1	0	0	0	1	8
86	Abu Dhabi Commercial Bank	UAE	$22,079	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	Abu Dhabi Islamic Bank*	UAE	$16,044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	National Bank of Abu Dhabi	UAE	$27,491	1	0	2	1	1	1	0	0	0	1	0	1	0	1	8
Pakistani Banks																		

(2006)															
89	National Bank of Pakistan	PAK	$12,466	1	0	0	0	1	0	0	1	0	0	0	1	4
90	Muslim Commercial Bank	PAK	$8,637	1	0	1	0	1	1	0	1	0	0	0	1	6
91	Bank Alfalah	PAK	$9,529	1	0	1	0	1	1	0	1	0	0	0	1	6

Here * means that for that Bank, the Annual Report of 2005 was referred as at the time of study 2006 Annual Report was unavailable for public reference on Bank's website

Table 8: Value at Risk Disclosure Index (VaRDI) for ninety-one banks Globally

Serial No.	Name	Country	Assets (US Million $)	Holding Period	Confidence Level	High, Low, Average	Year-End VaR	Risk Category	Diversification	Previous Year	Histogram Daily VaR	Plot Daily VaR	Hypothetical Revenue	No Trading Fees	Histogram Daily Revenue	Plot Daily Revenue	Exceptions	Explanation Exceptions	Market Risk Disclosure Index
US Banks (2006)																			
1	Bank of America	US	$1,459,737	1	1	1	1	1	1	1	0	2	0	0	1	1	2	0	13
2	JPMorgan Chase	US	$1,884,318	1	1	1	1	1	1	1	0	0	0	0	1	0	2	0	10
3	Citigroup	US	$706,497	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	8
4	Wachovia	US	$707,121	1	1	1	1	1	0	1	0	2	0	0	1	1	2	0	12
5	Wells Fargo	US	$481,996	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3
6	U.S. Bank	US	$219,232	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
Canadian Banks (2006)																			
7	Royal Bank of Canada	CAN	$484,700	1	1	1	1	1	1	1	0	2	1	0	1	1	1	0	13
8	Toronto	CAN	$354,790	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	4

57

	Dominion Bank																	
9	Scotia Bank	CAN	$342,233	1	1	1	1	1	1	1	0	2	0	0	1	1	2	0	13
10	Bank of Montreal	CAN	$288,952	1	1	1	1	1	1	1	0	2	1	0	1	1	2	0	14
11	CIBC	CAN	$274,490	1	1	1	1	1	1	1	0	2	1	0	1	1	2	0	14
German Banks (2006)																			
12	Deutsche Bank AG	GER	$1,1528,940	1	1	1	1	1	1	1	0	2	1	0	1	1	1	1	14
13	Bayerische Hypo- und Vereinsbank AG	GER	$690,193	1	1	0	1	1	1	1	0	2	0	0	0	0	0	0	8
14	Dresdner Bank Group*	GER	$626,842	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
15	Commerzbank AG	GER	$826,466	1	1	1	1	1	0	1	0	2	0	0	0	0	0	0	8
16	Landesbank Baden-Württemberg	GER	$581,845	1	1	1	1	1	0	1	0	2	0	0	0	2	1	0	11
British Banks (2006)																			
17	Barclays	UK	$2,032,864	1	1	1	1	1	1	1	0	2	0	0	1	0	2	0	12
18	HSBC Bank	UK	$1,860,758	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	8
19	Bank of Scotland	UK	$1,177,923	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	8
20	Lloyds TSB Group	UK	$685,593	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	6

Group / No.	Bank	Country	Amount																Total
French Banks (2006)																				
21	BNP Paribas SA*	FRA	$1,709,288	1	1	1	1	1	1	0	0	2	0	0	0	0	2	2	0	12
22	Crédit Agricole SA	FRA	$1,713,660	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	7
23	Société Générale	FRA	$1,300,000	1	1	1	1	1	1	1	0	2	0	0	0	0	2	2	0	13
24	Calyon*	FRA	$653,918	1	1	1	0	1	0	0	0	2	0	0	0	0	0	0	0	6
Swish Banks (2006)																				
25	UBS AG	SWI	$1,979,612	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
26	Credit Suisse Group	SWI	$1,037,791	1	1	1	1	1	1	1	0	2	0	1	1	1	2	2	0	13
Spanish Banks (2006)																				
27	Banco Scamander Central Hispano SA, Santander	SPA	$1,133,470	1	1	1	1	1	0	1	1	1	1	0	0	0	2	2	0	13
28	Banco Bilbao Vizcaya Argentaria SA	SPA	$560,117	1	1	1	1	1	0	1	0	1	0	0	0	0	2	2	0	12
Japanese Banks (2006)																				
29	The Bank of Tokyo Mitsubishi UFJ Ltd	JPN	$1,585,116	1	1	1	1	1	1	1	0	0	0	0	0	0	2	2	0	9

59

No.	Bank	Country	Value																Total
30	Sumitomo Mitsui Banking Corporation	JPN	$869,741	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0	6
31	The Norinchukin Bank	JPN	$603,227	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	4
32	Mizuho Bank Ltd	JPN	$1,245,843	1	1	1	1	1	0	0	0	2	0	0	0	0	2	0	9
Singapore Banks (2006)																			
33	DBS Bank	SNG	$197,372	1	1	1	1	1	0	0	1	0	0	0	1	0	2	0	9
34	Oversea Chinese Banking Corporation	SNG	$100,000	1	1	1	1	1	1	1	0	0	0	0	1	0	2	0	10
35	United Overseas Bank	SNG	$106,478	1	1	1	1	1	1	1	1	0	0	0	1	0	2	0	11
Indian Banks (2006)																			
36	State Bank of India	IND	$121,553	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
37	ICICI Bank	IND	$57,066	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	HDFC Bank	IND	$18,091	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chinese Banks (2006)																			
39	ICBC Limited*	CHN	$837,542	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Agricultural Bank of China	CHN	$591,190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

60

#	Bank																			Total
41	Bank of China Limited	CHN	$69,1055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hong Kong Banks (2006)																				
42	HSBC Ltd.	HK	$402,951	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	7
43	Public Bank	HK	$206,628	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Bank of China	HK	$118,804	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	7
Egyptian Banks (2006)																				
45	Central Bank of Egypt	EGY	$63,045	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	National Bank of Egypt	EGY	$22,132	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
47	Banque Misr	EGY	$18,861	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Israel Banks (2006)																				
48	Bank Leumi	ISR	$71,929	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	7
49	Bank Hapoalim	ISR	$17,678	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	4
50	Bank Otsar Ha-Hayal	ISR	$15,665	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	5
Brazilian Banks (2006)																				
51	Banco do Brasil*	BRZ	$120,589	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	5
52	Banco Itaú*	BRZ	$74,312	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	3

	Bank	Country	Value																Total
53	Bradesco	BRZ	$126,156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South African Banks (2006)																			
54	ABSA*	SA	$44,894	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	First Rand Bank	SA	$84,014	1	1	1	1	1	0	1	0	1	0	0	0	1	0	0	8
56	Standard Bank of South Africa*	SA	$119,000	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	10
Denmark Bank (2006)																			
57	Danske Bank A/S	DEN	$500,254	1	1	1	1	1	0	1	0	1	0	0	0	0	0	0	8
Swedish Bank (2006)																			
58	Nordea Group	SWE	$472,046	1	1	1	1	1	2	2	1	0	2	0	2	0	0	0	14
Russian Banks (2006)																			
59	Sber Bank*	RUS	$97,350	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
60	Alfa Bank*	RUS	$9,836	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
61	Vneshtorg Bank	RUS	$36,723	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands Banks (2006)																			
62	ABN Amro Holding NV	NTH	$1,334,360	1	1	1	1	1	0	1	0	0	0	0	0	0	1	1	9
63	ING Bank NV	NTH	$1,657,305	1	1	1	1	1	0	1	0	0	0	0	0	0	1	0	9
64	Rabo Bank Netherland	NTH	$752,215	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	5

62

Italian Banks (2006)																					
65	UniCredito Italiano SpA	ITL	$1,119,088	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Banca Intesa SpA	ITL	$380,761	1	1	1	1	1	1	1	1	0	1	0	1	0	0	0	0	8
Polish Banks (2006)																					
67	Bank BPH	POL	$22,482	1	1	1	1	1	1	0	1	0	1	0	0	0	0	0	0	6
68	Bank Millennium	POL	$18,755	1	1	1	1	1	1	0	0	1	0	1	1	0	1	1	0	9
69	Bank Handlowy	POL	$12,931	1	1	1	1	1	1	1	0	0	0	1	0	0	0	0	0	7
Czech Republic Banks (2006)																					
70	Ceskoslovenska Obchodni Banka	CZH	$40,554	1	1	1	1	1	1	1	0	1	0	1	0	0	0	0	0	7
71	Bank Austria Creditanstalt*	CZH	$17,909	1	1	1	1	0	1	0	1	0	0	1	0	0	0	0	0	5
72	Zivnostenska banka	CZH	$9,505	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Thailand Banks (2006)																					
73	Bangkok Bank	THA	$45,364	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Krung Thai Bank	THA	$36,238	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indonesian Banks (2006)																					
75	Bank Rakyat	INO	$13,980	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2

	Indonesia*																			
76	Bank Negara Indonesia*	INO	$16,796	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Australian Banks (2006)																				
77	National Australia Bank	AUS	$361,398	1	1	1	1	1	1	1	1	0	0	1	0	0	1	0	0	10
78	Commonwealth Bank of Australia	AUS	$307,785	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	8
79	Australia and New Zealand Banking Group	AUS	$279,497	1	1	1	1	1	0	0	0	0	0	0	1	0	1	0	1	7
80	Westpac Banking Corporation	AUS	$140,310	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	5
Saudi Arabian Banks (2006)																				
81	Arab National Bank	SAR	$20807	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
82	Bank Al Jazeera	SAR	$13,570	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	Saudi British Bank*	SAR	$17,578	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	National Commerci	SAR	$38,873	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	al Bank																	
United Arab Emirates Banks (2006)																		
85	Emirates Bank Group	UAE	$76,885	1	1	1	1	1	1	1	1	0	0	0	0	1	0	9
86	Abu Dhabi Commercial Bank	UAE	$22,079	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	Abu Dhabi Islamic Bank*	UAE	$16,044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	National Bank of Abu Dhabi	UAE	$27,491	1	1	1	1	1	1	1	1	0	0	0	0	1	0	9
Pakistani Banks (2006)																		
89	National Bank of Pakistan	PAK	$12,466	1	1	0	0	0	1	1	0	1	0	0	0	0	0	5
90	Muslim Commercial Bank	PAK	$8,637	1	1	1	1	0	1	1	0	1	0	0	0	0	0	7
91	Bank Alfalah	PAK	$9,529	1	1	1	1	0	1	1	0	1	0	0	0	0	0	7

Here * means that for that Bank, the Annual Report of 2005 was referred as at the time of study 2006 Annual Report was unavailable for public reference on Bank's website