Capital Market Exposure and Banking Risk: Evidence from Bangladesh

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Abstract

This study identifies the major risk areas of banks' exposure in the capital market of Bangladesh using various statistical tools. Using data for the period of 2009 to 2011, the study finds that banks' investment in the capital market is very risky for which liquidity risk, credit risk as margin loan, and capital adequacy risk may endanger the position of banks. The estimates of 99.9% daily VaR and the VaR violation indicate that VaR is a reliable measure of market risk in Bangladesh. The separation of investment banking from retail banking can reduce the capital market risk exposures of banks.

Keywords: Risk Management, Banks, Capital Market, Investment Banking, Market Risk

1. Introduction

Banks are highly leveraged organisation and most of the leverage comes from the depositors. Risk management of banks is extremely important as the leverage can magnify losses arising from the investment of banks. Particularly risk management becomes critical when banks are involved in the capital market as the capital market is highly volatile and this exposure can erode capital of banks (Alamgir and Hossain, 2011). Stock market movements impact the liquidity and operating funds available to commercial banks. Commercial banks manage their fund in part by investing in securities markets. If stock market declines, the value of outstanding shares may also decrease resulting in the potential losses of the bank fund.

The amount of deposits maintained by the customers and the repayment behaviour of loans by its customers affect the bank's profitability, which severely penalizes liquidity and, hence, risk arises. Banks are financial intermediaries, taking funds from savers and lending them to borrowers. Given the risk that some borrowers will be unable to repay their loans or that losses will occur for other reasons, banks need capital of their own to protect their depositors (the savers) from the risk of losing money. Capital, thus, acts as a cushion to absorb unexpected losses. When banks invest in the capital market and the market is in a dearth of liquidity, banks need to go for borrowing or liquidate investment. If banks borrow money from the money market, the money market becomes volatile and the result is unexpected interest loss; even the risk arises when it fails to arrange fund from the market. As a result, it must liquidate the investment realising losses to manage fund to honour its clients. In this situation, if banks do not have sufficient capital, it fails and as we know, incremental capital means added required return that will be required by the shareholders and the higher required return the higher the risk exposure that a bank faces.

By the same token, the tendency to expand loans depending on borrowing is risky. It would result in the necessity for maintaining additional capital, which may in future cause the banks to face capital deficit. This scenario is severe when merchant banking wing provide loans to its client depending on borrowing even in the knowledge that these are unrated.

When a commercial bank realises losses to increase liquidity during periods of declining securities values, the bank probably reports lower earnings along with decreased capital levels (Alamgir and Hossain, 2011).

However, The Basel Committee for Banking Supervision (BIS) developed a framework in 1988 to strengthen the soundness and stability of banking system, which was known as 1988 accord or simply Basel-I accord. The framework focused only on the credit risk, the classic risk in banking of a debtor defaulting on his loan, to calculate the minimum capital requirement for banks. However,

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later on, the committee realised that market risk should be included to the calculation of capital requirement. Therefore, the committee revised their guideline in 1996 including the market risk in the framework. Still the framework crude risk weights entailed, for instance, that a loan to a secure blue chip company was treated the same as a retail customer's overdraft, or that a loan to a large industrial country received the same charge as one for to a volatile emerging market.

In September 1998, the Basel Committee announced that it would officially review the 1988 accord with the aim of replacing it with more flexible rules. In June 1999, it released its first set of proposals for the new framework. Hence, in 2004, the Committee announced that it had agreed on a new capital adequacy framework, the Basel II Accord. The new accord rested on three 'pillars'. In addition to specifying minimum capital requirements (pillar 1), the new accord provided guidelines on regulatory intervention to national supervisors namely supervisory review process (pillar 2) and created new information disclosure standards for banks- market disclosure (pillar 3).

However, the recent global financial crisis has revealed weaknesses in the whole approach to risk management (Lapavitsas, 2009) that has been developed through the Basel II process. Risks had come from sources that Basel II did not adequately anticipate such as a collapse in market liquidity as investor confidence disappeared and deep losses in the market value of securities held by banks. Particularly banks were involved in a number of derivative instruments; asset backed securitization and raised subordinate debts to hedge against market risk.

The use of these hedging instruments did not support the capital needed for the bank to survive when market continuously declined and faced a dearth of liquidity. Therefore, the question of quality capital comes.

Taking lessons from the world financial crisis, the Basel Committee of Banking Supervision redesigned their guideline which is known as Basel-III. This Basel accord requires that investment banks should be separated from the retail banks and retail banks can provide 15% of its capital to a single investment banking division. The committee also realised that the banks have to maintain quality capital and for this reason more emphasis is given on Tier-1 capital. In addition, a capital buffer is required to maintain to absorb unexpected shocks according to Basel-III (BIS).

In Bangladesh, banks are implementing Basel-II. However, if any bank wants to provide investment banking services, it must go for opening a separate subsidiary where the parent bank can provide no more than 15% of its capital.

However, banks in Bangladesh are entering in the capital market in the form of own account trading, Merchant banking operations and through forming of brokerage houses and the exposures are different in each case as the activity differs (Alamgir and Hossain, 2011). Therefore, the objective of this paper is to identify the major risk areas of banks' exposures in the capital market.

The rest of the paper is organized as follows: section 2 presents relevant literature; section 3 describes the international experiences; 4 contains merchant banking operation in Bangladesh; section 5 presents the data and methodology employed; section 6 discusses Bangladesh Bank guidelines; section 7 presents the data analysis and findings, and section 8 concludes the paper.

2. Literature Review

A great deal of research has been conducted over the past few years to address the issues of risk management practices by banks, particularly in the areas beyond the traditional lending into investment banking. As the central bank of Bangladesh view that market risk is inherent in the stock market in Bangladesh, it is important to investigate the empirical evidence regarding the sources and management of such risk.

Shamsuddin (2009) analyzed the exposure of Australian public listed banks towards market risk and found out that it prevailed significantly but its intensity varied from bank to bank. The study investigated that market-risk is considered as an important constituent of market return. However, banks minimum capital requirement for bearing shocks of market risk was just 1% of total capital requirement. Similarly, a study conducted by Drucker and Puri (2006) found that commercial banks in the United States did not suffer from conflicts of interest and can be net certifiers of firm value when performing investment banking services. Moreover, the study observed that there were some evidences of efficiencies from banks being able to hold equity stakes. Further, the existing studies reveal that credit risk of banks is critical since the default of a small number of important customers can generate large losses, which can lead to insolvency (Bessis, 2002;

Ahmed and Pandit, 2011). Giesecke (2004) found that credit risk including margin loan[1] was by far the most significant risk faced by banks and the success of their business depended on accurate measurement and efficient management of this risk to a greater extent than any other risk. Hence, proper risk management practices can substantially reduce the market risk.

However, some empirical evidences suggest that liquidity risk factor is also one of the most important sources of market risk. A study conducted by Muranaga and Ohsawa (2002) on Japanese equity market revealed that market liquidity risk factor was fully incorporated in market risk measurement, meaning that market liquidity risk factor was a source of market risk specifically in Japanese equity market.

The Basel Committee of Banking Supervision states that the standard method for measuring market risk is value-at-risk (VaR). Rogachev (2007) conducted research on Private Swiss Bank and according to banker's view VaR was capable to measure various types of risks it could also be used as a comparable risk management technique between different asset classes and business lines. VaR can deduce market risk by taking into account market prices. By extending Jorion (2002) findings, Liu et al. (2004) go on to examine the relationship between VaR and banks' total risk (i.e., stock return volatility), priced risk (i.e., beta) and stock returns. Their results indicate that VaR is indeed a good predictor of these factors; this finding is similar to the findings of Muzaffar (2010).

3. Banks Entry in the Capital Market: International Experience

Almost all the banks in the world have capital market exposures but different countries have different experiences in regard to access to the capital markets.

United States: After the stock market crash of 1929, people blamed the commercial banks' access to capital markets for the economy's woes. The Glass-Steagall Act, also known as the Banking Act of 1933, addressed commercial banks' direct involvement in the issuance of securities. Certain commercial banks in the 1920s established securities divisions. Glass-Steagall separated commercial and investment banking in the United States.

The Gramm-Leach-Bliley Act, signed into law by President Clinton in 1999, repealed part of Glass-Steagall. Commercial banks, insurance companies and investment banks were then able to merge their businesses and they started to enter in the capital market. Financial engineering is a big factor which also created opportunities for banks to trade on their own account. These factors were exacerbated by the abolition in 1999 of the Glass-Steagall Act (in force since 1933), which now formally enabled commercial banks to engage in riskier investment banking practices. The result is the collapse of Lehman Brothers, The Tiny Isle, and The Bear Stearns to name a few.

India: Financial services in India have witnessed remarkable changes in the recent past after the implementation of "liberalization, privatization and globalization". The formal beginning of the merchant banking services in India began in 1967 when the Reserve Bank of India provided license to the Grindlays Bank. The Grindlays Bank was engaged in capital issue management and it provided diverse financial services to the emerging section of entrepreneurs, especially those belonging to the small and medium enterprise sector. Citibank started the merchant banking services in 1970 and the State Bank of India followed the same in 1972. After a few years, the national merchant banks started collaborating with their counterparts in different countries to start their merchant banking divisions abroad. According to the Securities and Exchanges Board of India, four categories of merchant banking organizations exist in the country:

- Institutional based merchant banking organizations, which operate as subsidiaries of private financial institutions or those recognized by the state or central governments.
- Banker based organizations are those that operate as divisions or subsidiaries of the nationalized commercial banks or the foreign banks functioning in the country.
- The third category consists of qualified brokers who provide skilled merchant banking services like portfolio management.
- The private merchant banking organizations work as sole proprietorships, private limited, public limited or partnership companies.

Broadly a merchant banker provides a number of services in India, for example, Corporate Counselling, Project Counselling and Pre-Investment Studies, Credit

[1] A loan given to bank's client against shares of stock

syndication and Project finance, Issue management, Underwriting, Portfolio management, Venture capital financing, Leasing, Non resident investment counselling and management, Acceptance credit and bill discounting, Advising on mergers, Arranging offshore finance, and Relief to sick industries.

Pakistan: Merchant banks in Pakistan are termed as investment Banks and their functions are divided in two categories, namely; Capital Market Division and Consumer Market Division. Capital market division is the main division of an investment bank in Pakistan and engaged in the traditional activities of an investment bank. This division performs a number of activities, some of the major functions performed by this division are: Corporate finance, Securities underwriting, Merchant banking, Leveraged buy outs (LBOs), Private placements, Money market instruments, and Privatization.

The functions of consumer market division are sale and distribution of financial securities, and to perform all the activities from the creation of a new financial product till the management of new product's system. However, some other areas that this division deals with are the establishment of financial products and funds for retail consumers and institutions, and to provide limited partnership of various types e.g., partnership in research and development, etc. This division of consumer markets is related to the main function of investment banks, as it provides a vehicle for distribution of financial securities due to which it helps in increasing confidence in underwriting, when the institutional support is minimal. This is, especially true because the bank has the capability to distribute and sell the securities of the company that the bank has underwritten.

Bankers Equity Limited, Atlas Investment Bank Limited, BMA Capital Management Limited, Escorts Investment Bank Limited, Invest Capital Investment Bank Limited, JS Investment Bank Limited, Orix Leasing (Pakistan) Limited, Trust Investment Bank Limited, and First Investment Bank Limited are a few of the merchant banks operating in Pakistan separated from the commercial banks and mostly subsidiary companies.

Sri Lanka: Sri Lankan banks have been largely characterized as commercial ones providing investment loans. It is important to note that majority of the banking institutions in Sri Lanka strictly operate under the purview of Central Bank of Sri Lanka, which widely regulates the monetary and banking system of the country. The two large banks in Sri Lanka - the Bank of Ceylon and Peoples Bank, are state owned and offer mainly lending operations.

In addition to commercial banking activities, the Bank of Ceylon began to enter into other business areas through subsidiary and associate companies. The Merchant Bank of Sri Lanka Limited, the first Merchant Bank in Sri Lanka was set up by Bank of Ceylon in 1982. At present Merchant Bank of Sri Lanka, Mercantile Merchant Bank, Seylan Merchant Bank and People's Merchant Bank are providing merchant banking services in Sri Lanka as a separate entity.

4. Merchant Banking Operations in Bangladesh

Merchant banks were allowed to operate with the hope that they would play a meaningful role in salvaging the country's limping stock market, by generating fresh funds, following the 1996 stock market crash (www.scribd.com). According to the Securities and Exchange Commission (SEC) official website, at present, the total number of merchant banks in Bangladesh is 37. Of them, 36 companies are performing full fledge merchant banking operation. It is important to note that a total of 20 companies received merchant banking licences from the Commission between January 1998 and April 2002, 5 companies in 2009 and 8 companies in the year 2011. Most of the banks performing merchant banking operation got licence within the year 2009 to 2011, when the market was highly volatile (see Table 1).

However, the central bank of Bangladesh asked the commercial banks to run their merchant banking business through separately formed subsidiary companies. Under those new regulations, the banks had to convert their existing merchant banking wing or department into a separate subsidiary company by September 1, 2010. It helped to ensure transparency of the merchant banking business. Therefore, banks performed the merchant banking operation through a wing or department before the regulation. However, a merchant bank in Bangladesh can perform multiple operations including underwriting, issue management, portfolio management, and merger & acquisition.

5. Methodology

The paper is mainly based on secondary data. Primary data has also been collected to facilitate the empirical analysis. Data on various indicators relating to risk exposures have been collected from different sources such as annual and semi-annual reports of different banks, and Bangladesh Bank Off-site supervision desk. The data on the various parameters have been collected for the year 2009, 2010 and 2011. Various policies and circulars of Bangladesh Bank issued by the Banking Regulation and Policy Department (BRPD) and other departments have also been consulted for preparing this paper. A small scale survey has also been conducted during the study period through a set of semi-structured questionnaire and taking interview of experts. For the survey purpose 21 banks, and their Merchant banking units (where applicable) have been considered purposively.

The study uses daily Dhaka Stock Exchange (DSE) general index spanning from January 2009 to December 2011 taken from DSE library to measure the market volatility, which is defined as follows:

$$CV_t = \frac{\sigma_t}{\mu_t} \times 100 \qquad (1)$$

Where, $\mu_t = \frac{1}{N}\sum_{i=1}^{n} P_i$ and $\sigma_t = \left[\frac{1}{N}\sum_{i=1}^{n}(P_i - \mu_t)\right]^{\frac{1}{2}}$, and P_i is the index value at time t. The framework of market risk measurement as suggested by Basel Accord is to calculate the Value at Risk (VaR), which is defined as a one-sided confidence interval on portfolio losses:

$$Prob\left[\Delta\bar{P}\left(\Delta t, \Delta\tilde{X}\right) > -VaR\right] = 1 - \alpha \qquad (2)$$

where, $\Delta\bar{P}\left(\Delta t, \Delta\tilde{X}\right)$ and is the change in the market value of the bank's portfolio, expressed as a function of the forecast horizon Δt and the vector of changes in the random state variables. $\Delta\tilde{X}$. The parameter α is the confidence level. The interpretation is that, over a large number of trading days, the value of the bank's portfolio will decline by no more than VaR % of the time.

Finally, the most widely used approach to validate the forecast accuracy of the bank VaR is to compare the targeted violation rate, α, to the observed violation rate. This study uses the unconditional coverage hypothesis (Campbell, 2005) to test the forecast accuracy of VaR, which states that the probability of an ex-post loss exceeding VaR forecasts must exactly be equal to the coverage rate:

$$P[I_t(\alpha) = 1] = E[I_t(\alpha)] = \alpha \qquad (3)$$

where, $I_\tau(\alpha)$ be the indicator variable associated to the ex-post observation of a % VaR violation at time t. Therefore, the forecasts provide a lower bound on aggregate trading loss that should be breached 1 day in 1000 for a 99.9% VaR.

6. Bangladesh Bank Policy and Guidelines

In order to smoothen operation of banking activities, Bangladesh Bank promulgated a number of rules. Along with the Bangladesh Bank, Securities and Exchange Commission (SEC) gave a number of directives which banks and securities houses need to comply with. The following are the most important Bangladesh Bank circular and SEC directives related to Banks, Merchant Banks and Security Houses.

(i) BRPD circular of 2009 states that no banking company can hold shares in any company whether as pledge or mortgagee or absolute owner of an amount of 30% of total of its own paid-up share capital and reserves, or 30% of the paid-up capital of that company, whichever is less. It is also mentioned in the same section that no bank can invest in shares of various companies in aggregate with an amount of 10% of total liabilities of its own. Moreover, banks are also advised to operate merchant banking activities constituting separate legal entity i.e., subsidiary company to protect the interest of the depositors. To constitute subsidiary company, following rules to be abide by the banks:

- No bank company shall conduct Merchant banking operation without constituting a separate subsidiary company;
- If the subsidiary company in its own portfolio, or in the investment/margin account of clients holds an amount of 15% or more share of a company in its main (omnibus) account, prior approval of Bangladesh Bank will be required to extend loans/advances to the company by the Parent bank of the merchant banking subsidiary company; this means that banks are not allowed to lend more than 15 per-

cent of their investable amount to a single borrower, including its subsidiary.

- No subsidiary company shall buy the share of such a company in its own portfolio or in the Clients Margin Account where the Bank (parent company) or any of its director or their family member (wife/husband, son-daughter, and all other dependants of the director) is appointed as director of the later company;
- In case of constituting subsidiary company to conduct Merchant Banking operation, banks shall have to obtain prior approval from Bangladesh Bank;
- Banks shall transform their existing Merchant Banking wings/Departments into subsidiary company within January 2010 complying with proper rules and regulations.
- Subsidiary constituted by banks to conduct merchant banking operation, shall also follow the rules and regulation of the Securities and Exchange Commission (BRPD Circular No. 12 Date: 14 October 2009).

(ii) No Bank is allowed to perform merchant banking and brokerage operation from September 01, 2010 without forming separate subsidiary (Department of Off-side Supervision, circular no. 4, date 15 June 2010).

(iii) Banks' exposure in capital market will be calculated on the market value basis and such exposure will not exceed 10 percent of its liabilities. Total exposure includes own portfolio (share, bond, debenture and units of mutual fund), loans given to subsidiary, guarantee given to other company for loan taken by subsidiary, and loan given to stock dealer but exclude funds given to subsidiary as capital. The long term equity investment in other companies by banks will not be considered as capital market exposure (Department of Off-side Supervision, circular no. 4, date 15 June 2010).

(vi) The information related to the shares held by Bank company (acquired by purchased, mortgage or deposit), that is, total exposure prepared last date of the said month should be submitted monthly basis to the following month on or before date 10 of the next month to the off-side supervision, Bangladesh bank. (DOS Circular-13, Date: July 06, 2009 and Circular No. 4, Date: 15 June 2010).

(vii) All banks are required to keep a provision of diminution values in investment in shares, bonds, etc., as per the BRPD circular no.14, dated 25 June 2003 but this can be done on the basis of profit/loss net off (DOS, Circular No.4, Date: 24 November 2011).

(vii) In Case of loans given to subsidiary, the single borrower exposure limit will be adjusted by December 2013 (DOS, Circular No.4, and Date: 24 November 2011).

Recently the capital market of Bangladesh has witnessed a declining trend and banks were involved in security transaction beyond their allowable ceiling. However, a number of corrective measures have been taken to provide liquidity flow in the market. The stock market regulator plans to extend the tenure of unit funds of the state-run Investment Corporation of Bangladesh in a move to boost the market (daily star Sept 21, 2011). They argue that if the funds are liquidated as scheduled, it may create extra sales pressure in the secondary market when the market suffers a downward trend.

Bangladesh bank is on the way to amend the bank company act. According to the draft amendment to Bank Company Act, the exposure limits of commercial banks in the stock market will be 25 percent of their equity instead of 10 percent of liability.

Many reports states that DSE is applying wrong method to the calculation of market index. The error in index calculation first came to light through media reports in October 2010. Later the SEC found that DSE did not follow the correct method of index calculation while incorporating new securities under direct listing rules. Therefore, SEC formed a three-member committee to introduce flawless index computation methods on the bourses. The committee made two recommendations on flawless index computation- the first one is eliminating the wrongly added points from the index, and the second one is launching a new index based on free-float shares (Chowdhury and Ahmed, 2011).

There is no guideline for the merchant banks for their investment in market. Market experts, merchant banks and regulator feel that there should be 'prudential investment guidelines' for merchant banks (Daily Star, May 22, 2011). They said the prudential guidelines will help increase professional investment in stock market. The prudential guidelines are found in many different countries in the world namely Nigeria, Canada, Malaysia, and India. However, prudential investment guidelines can be defined as legislated investment guidelines intended to ensure a conservative investment spread, to protect the investors from the loss of value due to risky investment selection (Sarwar 2011).

Recently, on November 24, 2011, the securities regulator announced 21-point stock market rejuvenation package that primarily focuses on greater participation of banks and other financial institutions in stock market in the short-term. It has also tried to create some space for banks to make fresh investment in stock market by redefining their ‘exposure to capital market’. It argued that the securities regulator will immediately take measures to increase the capital of merchant banks and other subsidiary firms (The Financial Express[2], Nov. 2011).

7. Data Analysis and Findings

Though, it is commonly believe that stock market is a risky investment place, it did not appear that way in Bangladesh stock market, especially in 2010. The institutional investors with the general people followed the suit forgetting the general investment principles. Banks in Bangladesh similarly, are involved in the capital market through its own account trading, merchant banks and brokerage houses (Khalily and Barua, 2011). The following sections will explore the banks involvement in the capital market and the risk arisen thereto.

Table 1: Market Volatility Measured by Coefficient of Variation (CV)

Year	DSE20 (CV %)	Rank	DGEN (CV %)	Rank
2009	9.60	2	22.54	1
2010	21.07	1	17.05	2
2011	7.58	3	11.66	3

Source: Authors’ Calculation

Note: The values of this table have been reported using equation 1.

There is a perception that high volatility can lead to a general erosion of investor’s confidence and flow of capital away from the equity market. As a matter of fact, volatility is the variability of the asset price changes over a particular period of time and it is very hard to predict correctly and consistently (Kumar, 2006).

During the last decade, it is observed that volatility is persistent in the stock market in Bangladesh. The coefficient of variation in Table 1 shows that the DSE20[3] has jumped to 21.07 percent in 2010 followed by 7.58 percent in 2011. In the year 2009, it recorded 9.60 percent which is slightly higher than the year 2011. The volatility in DSE general index (DGEN), similarly, jumped at 22.54 percent in 2009 and the rest of the years the market seems to be highly volatile according to DGEN.

Hence, the question; is there any viability of investing bank capital in such volatile market as it may erode bank capital. Even, when volatility is persistent, market gradually becomes illiquid; therefore, bank may fall in liquidity crunch or may be forced to sell the shares with lower prices than the cost, which again lower profitability or bank equity.

According to central bank statistics published in the Daily Star of October 20, 2011 the banks’ investment in share market stood at 3 percent or Tk[4].16,542 crore of their liabilities as of September 2011. The statistics shows that of the Tk.16,542 crore invested banks’ own portfolio is Tk.10,097 crore and they invested Tk.5,172 crore through subsidiaries and gave another Tk.1,272 crore as loans to individuals (Byron 2011). Table 2 shows the market exposure according to ownership structure of banks.

Table 2: Capital Market Exposure of Banks (As on November 2011)

Bank	Exposure (crore)	% of their Liabilities
SCBs	Tk.3148	2.40
PCBs	Tk.10,132	4.46
Islami Banks	Tk.1238	1.57
FCBs (Bank Alfalah)	Tk.12	0.04
BDBL	Tk.504	43.92

Source: The Daily Star, December 26, 2011, p.B4

However, Table 3 presents the real picture of banks’ overall exposure in the capital market. It shows that the percentage of exposures to total liabilities exceeds for Bangladesh Development Bank Limited (BDBL), which is 49.11%; The City Bank limited 11.66%; the exposures of the National Bank Limited (NBL) and IFIC Bank Limited are just below the 10 percent ceiling which was allowable. The rest of the banks’ exposure is 5 percent or below expect the Bank Asia (6%) and Mutual Trust Bank Limited (6.07%).

2 A national daily news paper, published from Dhaka, Bangladesh.

3 DSE20 Index. Calculated on the basis of 20 blue chip companies traded on the Dhaka Stock Index (DSE)

4 Currency of Bangladesh called Taka

Table 3: Position of Banks' Exposure in Capital Market

Bank Name	Total Liabilities (as on 30/06/2011)	Exposure (Tk. in crore)				% of Total Exposure to total liabilities	Total Capital as on 30/06/2011	Loan to subsidiary to total Capital (%)
		Total	Own Portfolio	Loan to Subsidiary	Loan (Funded and Non-funded) to others			
AB Bank	13,011.35	695.97	299.47	219	177.5	5.35%	1533.59	14.28%
Bank Asia	9662.89	579.92	167.2	369.9	42.82	6.00%	1030.72	35.89%
IFIC	7452.91	637.85	273.14	135.41	229.30	8.56%	739.76	18.30%
MTBL	6568.28	398.77	114.81	267.49	16.47	6.07%	669.49	39.95%
National Bank	13258.48	1239.59	743.41	466.00	30.18	9.35%	2194.56	21.23%
NCC	7419.70	436.10	65.07	269.02	102.00	5.88	1051.16	25.59%
Premier Bank	6700.18	375.77	164.23	181.55	30.00	5.61%	663.62	27.36%
The City Bank	8450.80	985.42	708.51	275.00	1.91	11.66%	1254.88	21.91%
Shajalal Islami	8605.82	502.09	62.64	378.11	61.34	5.83%	849.62	44.50%
BCBL	1504.51	64.09	19.09	45.00	-	4.26%	190.73	23.59%
BDBL	1147.59	563.55	563.55	-	-	49.11%	-	-

Source: Department of Off-site supervision (DOS), Bangladesh Bank

It is important to look at the loans provided to subsidiary which is presented at the last column of Table 3. It shows that most of the banks have over exposure in the subsidiary; Shajalal Islami Bank being the top loan provider (44.50%) followed by MTBL (39.95%). Bank Asia provided 35.89% loan to subsidiary which ranks third among the banks. Premier bank, NCC bank, National Bank, and BCBL have 27.36%, 25.59%, 21.23%, and 23.59% subsidiary exposures, respectively.

These high exposures are risky in the sense bank may stuck up their fund in the market and may face liquidity problem in a bearish market situation. Even, it will earn a lower profit in the declining market and may not be in a position to pay a good return to the depositors and shareholders as well. Its loan giving capacity will also shrink as it may need to book losses.

Banks usually earns dividend income, enjoys capital gains on the sale of shares by investing in capital market. These earnings are exposed to highly volatility if the market fluctuates in the wrong direction. Income from capital market will be high when market exhibits a continuous increasing trend, but if down trend continues bank will lose income. The following table shows the volatility of income from investment of the banks along with dividend income and gain on sale of shares.

Table 4 shows that all the banks realize lesser income in June 2011 than the previous period December 2010, when market index fall to 6117.23. The interesting finding is that when index reach at 8290.41 on 30 December the last date of trading in December and slightly below the record high of 8918.51 all banks realize hefty profit. The investment income recorded 93.27 percent, 154.69 percent, 128.45 percent and 128.19 percent higher than the previous year of AB Bank, NCC bank, Southeast bank, and EBL respectively

Of the total investment income, AB bank realizes 76.58 percent as dividend and capital gain, Southeast bank 58.91 percent, EBL 62.59 percent, and NCC bank 25.36 percent in 2010. Table 4 reveals that the capital market related incomes of banks are sometimes increasing and sometimes decreasing with the increase and decrease of the overall market exposing bank in a volatile situation in regard to income generation.

Table 4: Variability of Income from Investment of Banks

Year		DGEN	% Change	Dividend Income (cr.)	% Change	Capital gain on sale of shares (cr.)	% Change	Total Investment Income (cr.)	% Change
AB Bank Limited									
2009	June	3010.26	-	1.57	-	98.70	-	142.12	-
	Dec	4535.53	50.67	12.27	681.53	177.44	79.78	292.35	51.39
2010	June	6153.68	26.30	9.60	-21.76	205.62	15.88	261.81	-10.45
	Dec	8290.41	34.72	60.65	531.77	326.85	58.96	505.99	93.27
2011	June	6117.23	-26.21	3.24	-94.66	13.20	-95.96	94.03	-81.42
NCC Bank Limited									
2009	June	3010.26	-	0.12	-	4.26	-	56.28	-
	Dec	4535.53	50.67	0.27	125	10.76	152.58	107.12	90.33
2010	June	6153.68	26.30	0.23	-14.81	18.03	67.57	64.47	-39.82
	Dec	8290.41	34.72	0.77	234.78	40.87	126.68	164.20	154.69
2011	June	6117.23	-26.21	0.39	-49.35	2.09	-94.88	105.75	-35.60
Southeast Bank Limited									
2009	June	3010.26	-	0.80	-	10.27	-	100.57	-
	Dec	4535.53	50.67	1.55	93.75	79.50	674.10	290.31	188.66
2010	June	6153.68	26.30	2.72	75.48	79.75	0.31	165.83	-43.06
	Dec	8290.41	34.72	3.52	29.41	219.66	175.44	378.84	128.45
2011	June	6117.23	-26.21	0.85	-75.85	31.45	-85.68	196.18	-48.22
Eastern Bank Limited									
2009	June	3010.26	-	1.07	-	2.17	-	50.14	-
	Dec	4535.53	50.67	4.76	344.86	2.62	20.74	95.51	90.49
2010	June	6153.68	26.30	2.61	-45.17	47.07	1696.56	89.85	-5.93
	Dec	8290.41	34.72	5.76	120.69	122.56	160.38	205.03	128.19
2011	June	6117.23	-26.21	2.52	-56.25	39.19	-68.02	89.14	-56.52

Source: Annual Report and Semi-annual Report

As the investment in capital market is very risky, Bangladesh bank require that there should be a provision for investment fluctuation in share value (see section 5 for the circular) to protect the depositors. The more the value of shares declines, the more the provision should be kept, leading to lower net profit for the banks. Table 5 shows such provision banks' kept in the year 2009 through June 2011 with coefficient of variation (CV) of DSE 20 index as shown in table 1.

The CV of Table 5 implies that there was a huge fluctuation of share prices. As a result, all the banks except AB bank required maintaining a higher provision in terms of absolute figure in 2011. As long as volatility is concern, we can understand from the Table that there is a 56,400 percent increase in provision of EBL, 1,805 percent of Prime bank, 1,417 percent of AB bank and 909 percent of Trust Bank Limited. Therefore, this volatility in provision is attributed to the volatility in profit and hence, EPS.

The capital requirement guideline of Bangladesh Bank require that each bank will maintain a minimum capital of Tk.400 crore or 10 percent of total risk weighted assets whichever is higher. The risk weigh is calculated considering credit risk, market risk, and operational risk. The market risk includes foreign exchange risk, interest rate risk, equity risk, and commodity risk. Hence, banks are required to maintain additional capital for capital market exposures. If the exposure is higher, banks need to maintain higher additional capital for equity risk.

Table 6 shows Risk Weighted Asset (RWA) for equity position risk, RWA for Market risk, and total RWA. It indicates that most of the banks have higher concentration

Table 5: Provision for Investment Fluctuations in Share Price

Year	*DSE 20 CV (%)*	*Provisions for diminution value in quoted Shares (TK. in cr.)*	*% Change*	*Year*	*DSE 20 CV (%)*	*Provisions for diminution value in quoted Shares (TK. in cr.)*	*% Change*
AB Bank Limited				*Prime Bank Limited*			
2009	9.60	0.00	-	2009	9.60	0.15	-
2010	21.07	14.27	1427%	2010	21.07	0.00	-100%
2011*	7.58	10.29	-27.89%	2011*	7.58	18.05	1805%
NCC Bank Limited				Southeast Bank Limited			
2009	9.60	0.00	-	2009	9.60	7.8	-
2010	21.07	0.076	7.6%	2010	21.07	(1.64)	-121%
2011*	7.58	8.35	108.87%	2011*	7.58	36.64	233.41%
Shajalal Islami Bank Limited				**Trust Bank Limited**			
2009	9.60	0.00	-	2009	9.60	0.11	-
2010	21.07	4.75	475%	2010	21.07	1.11	909%
2011*	7.58	14.50	205.26%	2011*	7.58	1.18	6.31%
One Bank Ltd.				**EBL**			
2009	9.60	3.75	-	2009	9.60	0.006	-
2010	21.07	6.78	80.80%	2010	21.07	3.39	56,400%
2011*	7.58	13.75	102.80%	2011*	7.58	14.21	319.17%
Janata Bank Ltd.				**MTBL**			
2009	9.60	0.00	-	2009	9.60	0.00	-
2010	21.07	1.33	133%	2010	21.07	0.23	23%
2011*	7.58	5.69	327.82%	2011*	7.58	0.50	117.39%

Source: Annual Report

*Note: *indicates June closing*

Table 6: Capital Adequacy for Market Exposure (Amount in cr. Tk.)

Name of the Bank	*Total RWA*	*RWA for Market Risk*	*RWA for Equity Position Risk*	*% of Equity Position Risk to Total RWA*	*% of Equity Position Risk to Market RWA*
BRAC Bank	10380.95	589.80	523.97	5.05%	88.84%
AB Bank	14,794.86	884.90	654.85	4.63%	74%
Premier Bank	6,857.80	448.62	306.19	4.46%	68.25%
Dhaka Bank	8,881.94	419.38	238.20	2.68%	56.80%
Islami Bank	25,680.49	226.16	128.21	0.50%	56.69%
MTBL	5,419.76	219.78	95.92	1.77%	43.64%
Rupali Bank	11,140.17	548.72	174.43	1.57%	31.79%
Bank Asia	10,054.59	358.63	62.88	0.63%	17.53%

Source: Annual Report 2010

on equity position risk among the market risk exposures. It ranges from about 18% to 89% for the banks. That is, market risk dominates equity risk. To protect against market risk particularly equity risk, banks need to keep additional capital.

However, the question is where these additional capitals come from. One solution is that it may offer right shares or declare stock dividend. If it offers right share in the declining market, market may not respond to the offer as the investors can buy the shares from the market at a lower price if the right offer is not enjoyed. As a result, banks may in future fall into the trap of capital deficit. The situation will further worsen if banks realize capital losses by selling its holdings in a bearish market. Therefore, the whole business is a riskier venture.

The situation again jeopardises banks' strength if it provides margin loan to its clients. With the margin loan, clients can purchase double the amount of share than their own equity if the margin ratio is 1:1 for example. Banks in this case provide loans without justifying the client's credit worthiness. On the other hand, banks prepare a proposal to appraise the loan request for the clients in other sectors. Without proper documentation, personal guarantee, third party guarantee, etc., bank will not approve any loan. But these matters are not seen in the margin loan facility. Experts argue that banks should at least perform an analysis whether the said client has proper knowledge to invest in the security market and take KYC, transaction profile while giving margin loans. One important thing that needs special attention is that, such loan also increases credit risk exposure under Basel requirement and hence additional capital is required to maintain for granting margin loans.

Table 7 shows the position of margin loans given to clients in 2010. AB Investment Limited provides Tk.609.83 crore as margin loan to the clients and booked a profit of Tk.56.05 crore while Prime Investment Limited earned Tk.54.59 crore and provides margin loan facility of Tk.504.14 crore. Banks prefers to allow the loan facility as they can realize the interest easily; simply by debiting the clients account. Bank exposes itself in a serious risky position in a declining market when the clients' portfolio value declined to a level below his equity. In this case, banks need to sale the entire holding of the clients to realize the loan and the bank may end up with lower amount of money than the loan. That is, there is an erosion of bank capital. A report of Byron (2011) shows that the amount of defaulted loans ros by Tk.688 creore or 2.82 percent in three months as banks could not recover their investment in the stock market.

Often banks take steps to recover the entire margin loan by margin call[5] to minimize the default rate. The survey of this study reveals that this effort is meaningless. When a client is asked who got the margin call, he replied that he is not going to restore the balance as he lost his entire holdings. In this situation further injection of money is a loss of fund, according to him. Therefore, banks have to be satisfied selling the portfolio and losing some of its fund. The ultimate result is a liquidity crunch in the market, which will be transmitted to the inter-bank money market. Banks position will be even risky if it has a tendency to expand loans depending on borrowing.

Merchant banks provide a number of services other than the loan to its clients, for example, portfolio management, advisory services, underwriting, issue management, etc. These services provide stable revenue on the one hand and almost risk free on the other hand. Therefore, merchant banks should be separated from the retail banking to provide its services in a competitive way and to manage the funds separately (see Khalily and Barua, 2011).

During the survey, it was found that merchant banks have a research wing to perform security analysis, and market analysis for example, which is not the case for banks whose investment decision completely come from the

5 Bank sends letter to clients to restore the equity value.

Table 7: Margin Loan Position of Merchant Banks in 2010

Name	*Margin loan (cr. Tk.)*	*Profit (cr. Tk.)*
Trust Investment Ltd	409.11	1.20
Prime Investment Ltd	504.14	54.59
AB Investment Ltd	609.83	56.05
BRAC EPL Investment Ltd.	307.10	19.48

Source: Annual Report 2010

Table 8: Investment and Profit Position of Security Houses of Banks (Subsidiary)

Name	*Investment in Shares (TK.)*	*Profit/Loss (TK.)*
Prime Bank Securities Ltd.	97,33,918	-93,59,615
AB Securities Ltd.	7,22,11,459	24,87,89,323
Islami Bank Securities Ltd.	180,23,77,252	7,15,83,527
EBL Securities Ltd.	Nil	7,36,38,298
MTB Securities Ltd.	10,93,78,374	21,54,27,544
BRAC EPL	6,84,59,046	23,68,32,244

Source: Annual Report, 2010

Table 9: Value at Risk (VaR)

Name of Bank	*Observations*	*Investment in Shares and Corporate Bonds in Quoted Companies (Tk. in cr.)[1]*	*99.9% Daily VaR[2]*	*Violations*	*Mean Violations*
AB Bank	244	259.13	-15.78	0	-
EBL	244	250.06	-15.23	1	-2.18
BRAC Bank	300	225.61	-13.74	2	-1.96
Shajalal Islami	244	222.89	-13.57	1	-1.94
Janata Bank	265	198.86	-18.13	0	-
One Bank	265	124.29	-11.45	0	-
Standard Bank	281	101.47	-9.34	1	-0.13
Trust Bank	250	79.27	-6.18	0	-
Bank Asia	244	44.23	-2.69	2	-0.88
MTBL	281	37.70	-3.46	0	-
NCC Bank	244	23.81	-1.45	0	-
Rupali Bank	244	123.55	-7.52	1	-1.08

Source: Annual Report

N.B: 1. [1]indicates 2010 closing data, [2]Value at Risk Authors' Calculation (Historical simulation technique has been applied), 2. Mean violation refers to the loss in excess of the VaR.

treasury department. Experts say that market will behave rationally if companies have professionalism and skilled financial analyst (Tapia - Chartered Institute for Securities and Investment, CISI-London). Therefore, separation of merchant banks form the retail banks may ensure in making the market sustainable.

Similarly, Khalily and Barua (2011) state the market that developed based on borrowed funds from the banks or brokerage house creates vulnerable situation in the market. They also argue that some of the companies have memberships and they also have merchant banking licence which creates an environment of conflict of interest. However, the separation of brokerage activity from the main banking business may resolve the problem.

Merchant Banking and brokerage activity in Bangladesh is a recent phenomenon. Most of the banks started their operation in this field in 2010. However, Table 8 shows the position of investment in shares by brokerage houses of banks and the profit earned by them. In some cases, brokerage houses give margin loan to its clients. But those houses, which have merchant banks, give margin loan from that unit. The risk exposures are the same as the banks investment in the capital market. The high amount of exposures leads to high degree of risk exposures resulting in lesser profit margin. The Table 8 shows that Islami Bank Securities has Tk.180 crore investments in the capital market among the securities houses enjoy at less risk. For example, commission income. However, there are some earnings that security houses enjoy mostly risk free, for example, commission income and other fees and charges. Experts claims that skilled professionalism can ensure certain return from the market. Survey findings of this study indicate that most of the security houses have research cell to conduct security analysis and market analysis. This will promote the market and a group of skilled professional which will lead the market to abetter situation in future.

Value at Risk (VaR) is a widely used measure in financial market to measure risk arising from market movements. It is a single, summary, statistical measure of possible portfolio losses. It describes the magnitude of likely losses of portfolios (Linsmeier and Pearson 1996). In fact, VaR is an estimate of the worst possible monetary loss from a financial investment over a future period of time with a certain confidence level. Table 9 shows 99.9% daily VaR of different banks. The violations of table 10 indicate that the concept of VaR is significant for market risk measurement in Bangladesh.

However, the analysis shows that banks with high exposure in the market have high probability of losing a large chunk of investment in a day or in a monthly horizon. When banks are asked whether they use the concept of VaR in making investment decision, 95% banks give negative answers and the rest were ambiguous.

According to the recent circular issued by Bangladesh Bank, it is found that the loans provided by banks to their capital market subsidiaries will not be taken into account while estimating their 'exposure to stock market'; the long-term equity investment made by a bank in any company will not be considered as 'capital market exposure'; and the central bank will consider the banks' exposure limit to the stock market on a 'net-off' basis, instead of 'marking to market', basis. Though Bangladesh Bank is not considering the above issues as capital market exposure, Banks will have to arrange capital due to exposure in market as a component of market risk exposure. Besides, it may have to devote more time to manage risk arising from such bulk amount of investment in market and may even face significant liquidity crisis if market continues to go downward.

Survey findings show that regulators took a number of unstable decisions e.g. margin loan facility, face value harmonization, debate on capital gain tax and so on, which have contributed to turn the market more volatile in the recent months. It is said that key instruments in mitigating market risk in the trading portfolio of banks and their subsidiary brokerage houses are the derivatives but experts believe that these types of complex instrument is not suitable for the capital market of Bangladesh. Therefore, banks in Bangladesh have to rely on VaR, scenario analysis, stress testing, and forecasting models that incorporate sound economic theory including market microstructure factors as a tool of market risk measurement and accordingly develop its own risk management devices.

8. Concluding Remarks

VaR certainly seems to be a useful measure of risk in Bangladesh; therefore, it seems prudent for regulators to continue to integrate VaR and its disclosure into the regulatory framework. As the VaR modeling process and the aforementioned empirical testing models become more refined, VaR's importance for the various stakeholder groups will become increasingly more apparent. However, investment bank lending raises serious issues for regulators, as there are some negative evidences on the consequences of investment bank lending. Therefore, regulators should think over the modelling of margin loan given by investment banks.

Market experts, merchant bankers and regulators feel that there should have a 'prudential investment guidelines' for merchant banks. The prudential investment guidelines will help increase professional investment in the stock market of Bangladesh and it will not only help the merchant banks but also the retail investors who may follow the guideline and investment strategy of the merchant banks. As a result, the investment risk will come down.

Experts argue that margin loan should be given to the clients who have adequate knowledge about the capital market and ability to invest accurately as capital market is completely a knowledge based market otherwise bank will be in a risky position.

Further, the recent movement declared by SEC on November 24, 2011 states that the securities regulator will further strengthen the monitoring activities in the stock market by establishing improved surveillance system; The present 'insider trading' rules will be upgraded and stricter; the regulator will make the 'Small Investor Protection' law more time-befitting and so on. Therefore, the volatility of the securities market is also associated with governance problems of the market (Rahman and Moazzem, 2010). Nevertheless, banks can use VaR, market microstructure theory, stress testing, and scenario analysis to manage the risk arises in capital market exposure.

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