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Abstract

Prior information often tends to shift the human mind into making decisions not predetermined and stock markets are no exceptions. The Dhaka Stock Exchange (DSE) has been Bangladesh's premier bourse even prior to the country's independence but has lagged behind its South-East Asian peers like the SENSEX and KSE-ALL. The aim of the study was to determine whether it is possible to filter, design, and evaluate qualitatively as to which of the macroeconomic variables may have had an impact on the country's premier bourse in terms of assessing its underperformance. A qualitative survey was designed and used to examine 60 industry personnel whose inputs were subsequently filtered through a simple regression and validated by an F-Test. The overall broad market return of the DSE was found to be positively correlated with the exchange rate and inflation, whilst it had exhibited a negative correlation with foreign exchange reserves, interest rate and broad money supply parameters.

Keywords: Dhaka Stock Exchange, DSE, stocks, volatility, qualitative study.

1. Introduction

The Dhaka Stock Exchange (DSE) has been Bangladesh's leading stock exchange even before the country's independence, but it has faced an array of unprecedented difficulties to draw in both local and foreign investment primarily due to its extremely volatile nature. The title of a *'highly unstable frontier market'*, two major market crashes, and an ongoing crisis has failed to draw in new investors despite a low P/E ratio.

The primary regulator, the Bangladesh Securities and Exchange Commission (BSEC) has tried to justify its state of affairs over the past couple of decades by introducing various regulations from time to time, such as circuit breakers, margin loan limits, categorizing each stock within distinct groups, including imposing a minimum dividend threshold, however, the recurring collapses of the country's premier bourse has questioned the very advocates who promote the DSE as being "efficient". Although Chaity & Sharmin (2012) have outlined the reasons for a loss of investor confidence many experts are still reluctant to examine the causes of the market crashes in 1996, 2010, and, now for the ongoing crisis which begun in 2017 and is continuing as we approach 2021.

The following report is thus, an attempt on how to design and conduct a qualitative analysis that shall aim to explore some of the key factors behind the market crashes via understanding the perspective of various focus groups who have been in the industry ever since the events first occurred. The questions and hypotheses shall also probe into the nuances of each and every macroeconomic variable which might trigger market volatility in frontier markets like Bangladesh, and seek to explain which of the following factors (if any) can justify the previous crashes and ongoing crisis within the Dhaka Stock Exchange despite other Asian Markets having experienced both '*booms and busts*' at the same time.

2. Literature Review

The realm of financial crashes and crises have emerged as an area of study post the global financial crisis of 2008. With the likes of institutions like Lehman Brothers going bankrupt and the US government reassuring stakeholders through unreasonable bailouts, many such stakeholders have begun to take government bailouts for granted. "According to Marshall, Nguyen & Visaltanachoti (2018) "liquidity in the stock market increases post an election, with lower information asymmetry, volatility, and improved economic policy all coming under a Democratic president"." However, an arena like the stock market isn't subject to impartial biases imposed by humans who aren't its sole participants. "Gider and Westheide (2016) suggested that there is a link between this eccentric volatility and asymmetric information whereby investors were transacting based on private information which caused stock prices to deviate from a typical mean-reverting process".

"As for Republicans, Chordia, Sarkar, and Subrahmanyam (2005) discovered a negative correlation between liquidity and volatility, which was later verified Ball, Nagar, and Schoenfeld (2016) as they found a strong causation between increased policy uncertainty and a deterioration in liquidity". However, implying that government policies and events alone can cause markets to crash and rebound would be a somewhat incorrect idea. "Charles and Darné (2014) examined the DJIA index over the 1928-2013 period and found that events like the 1928 crash, the flash crash of 1987 and the events leading up to the 2008 financial crisis were not identified as extraordinary movements by investors when a semi-parametric test was conducted based on conditional heteroskedasticity". Thus, political biases and fiscal policies aside, stock market volatility isn't a one-off event which can be explained by analysing simple policy decisions.

A vast majority of the past crashes and crisis can be linked to shareholders' return expectations from other asset classes, dividend yields and/or macroeconomic policies which include the likes of expansionary monetary policy through interest rate hikes which force investors to withdraw surplus funds from the capital market and deposit in short term money market instruments. However, the case for Dhaka stock exchange has been a peculiar one since Bangladesh had neither sky-high real estate prices like Japan which triggered Japan's stock market to crash in the 1990s nor did the country offer unfavourable interest rate regimes that could instigate a majority of the population to not invest in capital market instruments.

All of the major monetary policy factors such as CPI, inflation and alternatives were discussed by Afrin (2017) whereby all of the credit variables previously not included were examined for emerging and developing economies in general, primarily the money supply, as well as the monetary policy transmission mechanism of Bangladesh.

In terms of other variables such as alternative asset class (mutual funds, hedge funds, REITs, etc.) prices, stock market prices and hence volatility in frontier and emerging markets have historically been correlated with real estate prices and occasionally mutual fund performance.

Other sophisticated investment vehicles such as derivatives, index funds, funds of funds haven't emerged as yet, and are likely to have minimal impacts on directing cash flow away from weak form capital markets such as Bangladesh.

3. Scope of Qualitative Analysis

As previously stated by Selltiz, Wrightsman, and Cook (1981) 'research design' can essentially be labelled as a "deliberately planned arrangement of conditions for analysis and collection of data in a manner that aims to combine relevance to the research purpose with economy of procedure". However, the nature of qualitative analysis is more epistemological in comparison to quantitative since qualitative studies tend to focus more on human perceptions, feelings, and emotions. Qualitative studies affiliate its data set to individuals who despite being termed as experts in their fields can express a variety of opinions that are not in line with the "positivism and interpretivism" nature of most quantitative studies whereby the data can be identified to be "unbiased".

3.1. The nature of the study

Ideally, an exploratory approach can be utilised for conducting the study since the availability of data regarding year-to-date prices of the DSE are either not tracked properly or quite simply unavailable. We can use a inductive approach to our data, whereby a panel of industry experts will be asked a series of related questions in the form of a survey questionnaire, based on which we shall derive our hypothesis for the root causes of the preceding market crashes. The participants will be selected according to their proven expertise and deep experience in the field of asset management, banking, sales and trading, and investment analysis.

Following the survey, a series of expert interviews will be conducted, whereby we shall dissect the experts into four different focus groups as follows: 1) CEOs of asset management companies 2) Senior floor traders affiliated with Broker/ Dealer organizations 3) Academics who work with financial institutions and 4) Policymakers such as the Centre for Policy Dialogue (CPD) who conduct research extensively related to Bangladesh's money market and capital market.

These four focus groups are somewhat disconnected yet affiliated with the financial system in general. Bogner et al. (2009) explicitly stated that "experts, when seen as 'crystallization points for practical insider knowledge' can provide useful insights on newly emerging topics: insights which are not so easily or quickly obtained through other means". Hence their verdict and responses with regards to the survey questionnaire and a semi-structured interview will help clarify any doubts and reduce human biases which might have persisted if they all worked within the same division/ organization. In addition to this form of ethnographic research, we might also encounter other aspects that might not have been covered in our preliminary analysis/ survey questionnaire that might shed some more light into the matter we are trying to explore.

3.2. The nature of the survey and interviews

Since the research primarily seeks to examine the root causes for market failure/ stock market crashes, a series of questions surrounding the key parameters which influence money supply into and out of the capital market will be looked at in depth. Variables such as central bank interest rates, real estate prices, volatility around election periods, the stability of the government, a review of annual monetary and fiscal policies, taxation policies, etc.

The survey questionnaire that was sent out to our panel of industry experts had the following structured questions in addition to their thoughts on *five key macroeconomic parameters; namely: the exchange rate, foreign exchange reserve, inflation, interest rate and broad money supply when it came to affecting index returns*:

i) What were the financial instruments that were deployed to cause the crisis?

ii) How could the crisis have been prevented?

iii) Did the regulatory measures imposed after the 2010 crash have any significant impact?

iv) Why is the stock market still in a declining trend in 2021, twenty five years since the first demise?

v) What are the preventative measures that can be taken to prevent further market crashes in frontier markets like Bangladesh?

After we manage to gather a basic understanding of the key factors, a series of semi-structured interviews with selected personnel from our four selected focus groups will be conducted.

In addition to the questionnaire, the semi-structured interviews would discuss (1) a brief history of the Dhaka Stock Exchange, to understand the reasons for its emergence, (2) outline the tools and methods used by the market makers to analyze the performance of the index year on year (3) the state of stock markets in the developing and other least developed countries, (4) the theories and evidences for low growth in such stock markets. Particular emphasis will be given in this section on capital structure of companies, reliability of company accounts in frontier markets, why such stock markets are highly volatile, the theories and evidences for domestic markets and SMEs in addition to why firms delist, why investment in stock market is low, and the relation between democracy, market competitiveness and stock market development. Following all of the above, we shall try to get a grasp for the strict need of stock market governance. This can include the recent Demutualization Act and Board composition in the Dhaka Stock Exchange and the Securities and Exchange Commission, as well as other subsidies affiliated with these institutions.

3.3 The sampling technique

Since we had selected a sample of the banking population (i.e., asset managers, academic involved with finance, and banking professionals) when conducting the survey, we have inevitably gone for a stratified sampling technique, whereby the sample population of interest comprises of several distinct sub-groups, ensuring that our sample contains an adequate number of individuals from every required group (Bogner et al. (2009)). This required sample size is sub-divided into sub-groups, which is known as the strata, and adequate conclusions are drawn from the results provided via the sample drawn from each stratum of a manageable size.

4. Analysis

The survey primarily included a direct yes/no response to five parameters in accordance with the DSE broad market return index. The respective personnel (CEOs, bankers, asset managers) all gave their verdict in either yes (being labelled as a 1) or a no (being labelled as a 0) to these five parameters and later went onto add their versions of other factors/ commentaries on what entails markets to move in either direction.

Table 1: Summary of Variables

Macroeconomic Variable	Acronym
Stock Market Index	logdse
Exchange Rate	logexrate
Foreign Exchange Reserve	logfcreserve
Inflation	logcpip2p
Interest Rate	logdrate
Broad Money Supply	logm2

A total of 60 participants (data points) formed the basis of our survey and their responses of how the five variables might affect overall broad market returns were regressed on a natural logarithmic scale, with the following results:

DSE RETURN = 3.092478 (logexrate) - 0.105948 (elogfcreserve) + 0.4854082 (logcpip2p) - 0.171388 (elogm2) - 0.9187984 (logdrate

4.1 F-Test

To further differentiate amongst the key parameters an F-test was used to investigate whether any of the independent variables had significant coefficients. The hypotheses were:

• Here, null hypothesis was that neither of the five independent variables have statistically significant coefficients.

• The alternative hypothesis was at least one of the above independent variables can be used has statistically significant coefficient.

$$H_0: \beta_1 = \beta_2 = \ldots = \beta_k = 0$$

$$H_1: \text{Not all } \beta \text{ s equal } 0$$

Where β_1, β_2, β_3 were co-efficients of the independent variable

- The test statistic for the F distribution with k=5 (5 independent variables) and 60- (5+1) = 54 degrees of freedom, given our sample size of 60.

- The associated p-value with this corresponding F value is very small (0.0000).

Thus, we can conclude that the null hypothesis that all the multiple regression coefficients are zero can be rejected with 99% confidence level, suggesting that partial biases from the personnel sharing their views were minimized.

Table 2: Summary Parameters of Initial Regression Model

Number of Observations	60
F (5,54)	34.96
Prob>F	0
R-Squared	0.764
Adjusted R Squared	0.7421
ROOT MSE	0.02502

5. Discussion

As exhibited above, the overall broad market return of the DSE was found to be positively correlated with exchange rate and inflation, whilst it had exhibited a negative correlation with foreign exchange reserves, interest rate and broad money supply parameters.

Ideally, even though this study was designed from a qualitative perspective, it will eventually tend towards a more quantitative approach when trying to draw valid conclusions from the initial data, in terms of filtering out the exact key parameters and their contribution. Although an exploratory inductive approach has been used to identify the key variables that might have been responsible for the market failure, a further hypothesis test, conducting a secondary F-test on regressed variables following our initial regression following our series of interviews will enable us to determine which of the variables are more significant.

Although the issue of triangulation can be somewhat eliminated through multiple interviews, confirmability and authenticity of responses remains somewhat uncertain. From an ethical perspective, the identities of each of the individuals participating in both the surveys and interviews would remain anonymous, but industry professionals have a tendency to share certain information amongst themselves which might anchor our conclusion towards a few particular factors. Additional quantitative tests would be essential if such a situation persists.

6. Concluding Remarks

The range of our population sample can be selected using a "systematic sampling" technique which is much easier to administer and provides a more concrete portion of the sample of interest, but it narrows down the scope of our data, in that the overall sample population can be considered very small. In addition to that, we can use an ordinal data approach in our survey questionnaire. This is because it might be easier for the surveyors to rank a particular variable/ factor on a scale of 1 to 10 as opposed to conducting surveys with binary responses like we did (1 or 0) to directly describe what they believe might be the root causes since potential conflicts of interest might arise. Average scores derived from each of the factors should then be filtered through a hypothesis testing procedure, whereby we test the significance of each variable, which will provide us with the insights required for questioning our focus groups more objectively, and somewhat reduce confirmability bias, eliminating the triangulation issue even further.

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