

INTERNSHIP REPORT



Unilever

Unilever Bangladesh Limited



Inspiring Excellence

Internship Report On
“The performance of bonds in Bangladesh market”

Submitted to:

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Date: 28th November 2018

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Subject: Submission of Internship Report

Dear Sir,

I am hereby submitting my Internship Report, which is a part of the BBA Program. It is great honor to work under your active supervision.

This report is based on, “The performance of bonds in Bangladesh market”. I had the fortune to work at Unilever Bangladesh Limited through ULIP. I was selected as Marketing Intern for the project ‘Dove Day,’ under Adiba Tasmeeem, the brand manager of Dove.

This project gave me profound practical exposures. Firstly, I learned about the organizational culture of a prominent FMCG organization of the country. Secondly, the project gave me the opportunity to develop a network with the corporate environment.

I shall be highly obliged if you could kindly receive this report and provide your valuable judgment.

Yours Sincerely,

Mir Shakib Shams Ahemd Neeloy

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Acknowledgement

I must start by expressing my gratitude to ALLAH (SWT) who gave me the grand opportunity to work as an intern for Unilever Bangladesh Ltd. I would also like to thank my parents for their constant support to pursue my dreams.

I am greatly thankful to my Faculty Advisor Riyashad Ahmed, whose tireless and amiable guidance helped me to complete this report. Moreover, I am grateful to Adiba Tasmeem, my organizational line manager. It would not have been possible to complete this report without their assistance.

My appreciation also goes to OCSAR of BRAC University for their whole-hearted support during my assigned term with the organization.

Finally, I want to express sincere hat tip to Unilever Bangladesh Ltd for giving me the chance to work with them and to continue on my path of being a life-long learner.

Executive Summary

This report begins with a compact view of Unilever; its glorious history, sustained growth, sustainable goals, financial and company statistics, and a snapshot of Unilever Bangladesh Ltd.

Following, the introduction talks about my topic of bond performance in Bangladesh. Other key point I outlined include rationale, scope, limitation, objective and research questions.

In the literature review I evaluated the studies about Bond performance. The 3 articles I covered are as follows:

- Measuring Corporate Bond Mortality and Performance
- The Investment Performance of Low-grade Bond Funds
- Measuring the timing ability and performance of bond mutual funds

The study is proceeded in a systematic manner with humble assistance from my Faculty on the topic selection and data provision. Thus, the data I used for research is secondary in nature.

My analysis continues in the same path walked by Cornell & Green (1991). I factored Monthly Bond Return against the 5 years Treasury Bond Cut-off Yield and monthly returns of the DSEX index. I made 3 different equations for the 3 bonds in the market.

The regression revealed that all 3 of the bond returns have positive β coefficient with DSEX Index return. Conversely, none of the 3 bonds are affected by Treasury bond yield.

Hence, I feel there is more opportunity to explore the field of bond market. Moreover, my research can be further continued by adding more factors that impacts the bond return.

To sum up my study, I answered the research questions I had. The answers cover that the return on bonds are not up to the level of the Index return. Additionally, the bond returns were seen to be following the DSEX return direction in general. Finally, this research indicated that the return on bonds were not satisfactory for the investors.

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Organizational Overview

A visionary named William Hesketh Lever, founded Lever Brothers back in 1890. The first product of the business was Sunlight soap, which was launched with the aim to make cleanliness commonplace. In 1930, Unilever was formed by the merger of Dutch margarine producer Margarine Unie and British soap maker Lever Brothers. From then on Unilever has added more than 400 brands to their portfolio, spreading to over 190 countries.

Today 2.5 billion people use Unilever products every day. Globally, Unilever has more than 161,000 employees working for them, where 47% managers are women. Some of the financial figures and statistics include:

- In 2017, it had a turnover of €53.7 billion globally.
- The underlying sales growth in 2015 was 4.1%, in 2016 was 3.7% and in 2017 was 3.1%.
- The underlying Free Cash Flow in 2016 was €4.8 billion and in 2017 was €5.4.
- The underlying operating profit margin in 2016 was 16.4% and in 2017 was 17.5%

Unilever is endeavoring on its purpose as a business – making sustainable living commonplace. It is moving towards a business model with sustainable growth. The Unilever Sustainable Living Plan (USLP) is the core of the business model. It sets out how it is growing the business, whilst curbing the environmental damage and nurturing the positive social impact. The USLP has 3 big goals:

- I. Help more than a billion people to improve their health and wellbeing.
- II. Halve the environmental footprint of our products.
- III. Source 100% of our agricultural raw materials sustainably and enhance the livelihoods of people across our value chain.

By 2020 Unilever will source 100% of its' agricultural raw materials sustainably. Moreover, Unilever will become carbon positive by 2030.

Unilever Bangladesh Limited (hereafter UBL) was formed in 1973 as Lever Brothers Bangladesh Limited. It started as a joint venture with Bangladesh Government which is involved in manufacture and distribution of home care, personal care and food & refreshment products.

In 2017 the turnover from Bangladesh was €500 million. Additionally, UBL has more than 20,000 people working for it. The corporate office of Unilever Bangladesh Limited is located at ZN Tower, Gulshan 1, Dhaka. And the factory is located at 51, Kalurghat Heavy Industrial Area, Chittagong. Besides these, there is a tea packaging operation in Chittagong and three manufacturing units in Dhaka, which are owned and run by third parties exclusively dedicated to Unilever Bangladesh.

Unilever's mission is to add Vitality to life; which ushers the employees to have responsibility, integrity, respect and pioneering characteristics.

UBL aims to make pragmatic effects in society with brands, commercial operations and relationships, voluntary contributions to the community and through wider engagement with Bangladeshi society.

Introduction to the Report/Study

Rationale of the study

This study is about the bond performance in Bangladesh. The findings reveal the returns generated by bonds in comparison to the DSEX index return. Since there is a limited number of bonds present in Bangladesh there is a lack of studies in the field. Therefore, this study will be very helpful to investors who are looking to invest in bonds.

Bonds in BD: BRAC Bank, Islami Bank, ACI (matured)

Statement of the problem

The main problem with bonds in this country is that only a handful have ever been issued. Additionally, the mass public do not have the knowledge of their existence and little alone how bonds work. On top of that, there is a gap in the research of bond performance in Bangladesh. This is where my research comes in place to solve this problem.

Scope and delamination of the report

The main intention of the study is to figure out and compare the returns of bond with return of the DSEX index. The report will cover whether the return on bond is over satisfactory level or not for the investors. However, the study is not related to Unilever because I did not have access to the level of data required to complete this report.

Objectives of the report

The objective of the report can be broken down in two forms:

1. General Objective:

This internship report is prepared primarily to fulfill the Bachelor of Business Administration (B.B.A) degree requirement under the BRAC Business School, BRAC University.

2. Specific Objective:

More specifically, this study entails the following aspects:

- To give an overview of the return on bonds.
- To compare the bond performance with the index performance.

Research Questions

Q1. How is the return on bonds compared to the return on the DSEX index?

Q2. Is the bond return moving in the same direction as the market return?

Q3. Is the return on bonds satisfactory to the investors?

Review of Related Literature

Studies about bond performance are mostly about measuring the way bonds behave in the market. Similarly, this research seeks to figure out how bonds perform in Bangladesh. Works conducted by Altman (1989) developed alternative way to calculate the performance of corporate bond. Their result indicate somewhat higher than expected cumulative mortality rates over long holding periods, return spreads on all corporate bonds are positive, with impressive results for the high-yield, low-grade categories.

In another study by Chen, Ferson & Peters on “Measuring the timing ability and performance of bond mutual funds” calculated the convexity in the relation between the fund’s return and the common factors. Their study reveal consistency with the view that bond funds have investment ability and they are more correlated to selectivity than timing.

Moving over to the research by Cornell & Green on “The Investment Performance of Low-grade Bond Funds” reveal that in the long run the return on investment of low-grade bond are approximately equal to the returns provided by an index of high-grade bonds.

Methodology of the Study

The study is proceeded in a systematic manner starting from selection of the topic to the final report preparation. My faculty advisor guided me step by step with the selection of the topic and provided me with the necessary data. Therefore all the data I used in this research is secondary. The final report is compiled after thorough recommendations and valuable insights given by my honorable advisor.

Analysis and Interpretation of the Data

In congruence with Cornell & Green (1991) and the data I possess, I have based my research on the following equation:

$$\text{Bond Return} = B_0 + B_1 * \text{TB} + B_2 * \text{DSEX} + \varepsilon$$

Here the dependent variable is Bond Return, which represents the monthly return on bonds. The Bond Return is controlled for two factors, TB and DSEX. The first independent variable TB is the 5 years Treasury Bond Cut-off Yield. And the second independent variable DSEX indicates the monthly returns of the DSEX index.

The data I used for this research was the DSEX trade information from February of 2013 to December of 2017. So that to measure the performance of bonds I extracted the monthly return from this 5 years period. For this I used a simple formula:

$$\text{Monthly Bond Return} = \frac{\text{Bond price at the end of the month} - \text{Bond price at the beginning of the month}}{\text{Bond price at the beginning of the month}} * 100$$

As mentioned before, there has been a scarce number of bonds issued in Bangladesh, a scanty number of only 3 in history. They are:

- ACI 20% Convertible Zero Coupon Bonds
- Subordinated 25% Convertible Bonds of BRAC Bank Ltd
- IBBL Mudaraba Perpetual Bond

2 of the 3 bonds have been issued by banks and one by a pharmaceutical company. As of now, only the ACI bond has been matured and other 2 are still active in the market. Instead of

generalizing the bond return, I formulated the bond performance individually with relevance to the available dataset.

In this regard Microsoft excel was used to calculate the monthly Bond return in the following manner:

*Note: The data ACI bond matured in 2015

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
|----|---|-------------|-------------|-------------|-------------|---|---|---|---|--------------------|-------------|-------------|-------------|-------------|-------------|---|
| 1 | MONTH BEGINNING TREND OF ACI BOND INDEX 2017 | | | | | MONTH ENDED TREND OF ACI BOND INDEX 2017 | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | |
| 3 | Month Beginning | 2013 | 2014 | 2015 | 2016 | 2017 | | | | Month ended | 2013 | 2014 | 2015 | 2016 | 2017 | |
| 4 | January | | 911.00 | 1066.50 | | | | | | January | 916.50 | 1058.00 | | | | |
| 5 | February | 835.50 | 931.00 | 997.50 | | | | | | February | 841.50 | 936.00 | 1116.00 | | | |
| 6 | March | 848.00 | 936.00 | 1122.50 | | | | | | March | 830.50 | 886.00 | 1147.50 | | | |
| 7 | April | 830.50 | 887.50 | | | | | | | April | 840.00 | 919.50 | | | | |
| 8 | May | 841.50 | 920 | | | | | | | May | 856.00 | 920 | | | | |
| 9 | June | 853.50 | 920 | | | | | | | June | 835.00 | 940 | | | | |
| 10 | July | 836.00 | 940 | | | | | | | July | 835.50 | 940.5 | | | | |
| 11 | August | 839.00 | 940 | | | | | | | August | 859.00 | 985.5 | | | | |
| 12 | September | 859.00 | 982.50 | | | | | | | September | 871.00 | 1020.00 | | | | |
| 13 | October | 870.00 | 1021.50 | | | | | | | October | 881.50 | 1105.50 | | | | |
| 14 | November | 875.50 | 1075.00 | | | | | | | November | 880.00 | 1036.50 | | | | |
| 15 | December | 880.00 | 1030.50 | | | | | | | December | 910.00 | 1066.50 | | | | |
| 16 | | | | | | | | | | | | | | | | |
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| 20 | | | | | | | | | | | | | | | | |
| 21 | MONTHLY RETURN TREND OF ACI BOND 2017 | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | |
| 23 | Monthly Return | 2013 | 2014 | 2015 | 2016 | 2017 | | | | | | | | | | |
| 24 | January | | 0.60% | -0.80% | | | | | | | | | | | | |
| 25 | February | 0.72% | 0.54% | 11.88% | | | | | | | | | | | | |
| 26 | March | -2.06% | -5.34% | 2.23% | | | | | | | | | | | | |
| 27 | April | 1.14% | 3.61% | | | | | | | | | | | | | |
| 28 | May | 1.72% | 0.00% | | | | | | | | | | | | | |
| 29 | June | -2.17% | 2.17% | | | | | | | | | | | | | |
| 30 | July | -0.06% | 0.05% | | | | | | | | | | | | | |
| 31 | August | 2.38% | 4.84% | | | | | | | | | | | | | |
| 32 | September | 1.40% | 3.82% | | | | | | | | | | | | | |
| 33 | October | 1.32% | 8.22% | | | | | | | | | | | | | |
| 34 | November | 0.51% | -3.58% | | | | | | | | | | | | | |
| 35 | December | 3.41% | 3.49% | | | | | | | | | | | | | |

- Figure 1: Monthly return of ACI 20% Convertible Zero Coupon Bonds from February 2013 to March 2015

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
|----|--|-------------|-------------|-------------|-------------|-------------|---|---|---|--------------------|-------------|-------------|-------------|-------------|-------------|
| 1 | MONTH BEGINNING TREND OF BRAC BANK BOND PRICE INDEX | | | | | | MONTH ENDED TREND OF BRAC BANK BOND PRICE INDEX 2017 | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 3 | Month Beginning | 2013 | 2014 | 2015 | 2016 | 2017 | | | | Month ended | 2013 | 2014 | 2015 | 2016 | 2017 |
| 4 | January | | 1,005.00 | 1010.00 | 1024.50 | 1000.00 | | | | January | | 995.50 | 1065.00 | 1020.50 | 1075.00 |
| 5 | February | 1,077.00 | 995.00 | 1040.50 | 1040 | 1050.00 | | | | February | 1,030.00 | 1,035.00 | 1050.00 | 1025 | 1110.00 |
| 6 | March | 1,033.00 | 1,040.00 | 1065.00 | 1040.00 | 1105.00 | | | | March | 1,100.00 | 1,031.50 | 1130.00 | 1020.00 | 1035.00 |
| 7 | April | 1,105.00 | 1,060.00 | 1200.00 | 1000.50 | 1035.00 | | | | April | 1,050.00 | 1,020.00 | 1055.00 | 950.00 | 1000.00 |
| 8 | May | 1,050.00 | 1020.5 | 1060.00 | 950.50 | 1000.00 | | | | May | 1,125.00 | 1050 | 1030.00 | 1010.00 | 1001.00 |
| 9 | June | 1,120.00 | 1030.5 | 1030.00 | 993 | 1020.50 | | | | June | 1,125.00 | 990 | 1030.00 | 1016.5 | 1050.00 |
| 10 | July | 1,125.00 | 1040 | 1030.00 | 1025 | 1060.00 | | | | July | 1,109.00 | 1050 | 1040.00 | 1025 | 1000.00 |
| 11 | August | 1,087.00 | 1050 | 1065.00 | 965.00 | 1050.00 | | | | August | 1,065.00 | 1050 | 1040.00 | 1,006.00 | 1050.00 |
| 12 | September | 1,099.00 | 1030.00 | 1100.00 | 1043.00 | 1050.00 | | | | September | 1,100.00 | 1065.00 | 1080.00 | 1045.50 | 1060.00 |
| 13 | October | 1,100.00 | 1021.00 | 1100.00 | 1045.50 | 1060.00 | | | | October | 1,030.00 | 1020.00 | 1015.00 | 1040.00 | 1059.50 |
| 14 | November | 992.50 | 1020.00 | 1020.00 | 1030 | 1030.00 | | | | November | 1,000.00 | 1030.00 | 1025.50 | 1030 | 1054.00 |
| 15 | December | 1,010.00 | 1030.00 | 1010.00 | 1023.50 | 1060.00 | | | | December | 995.00 | 1030.00 | 1016.50 | 1000.00 | 1080.00 |
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| 19 | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | |
| 21 | MONTHLY RETURN TREND OF BRAC BANK BOND 2017 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | |
| 23 | Monthly Return | 2013 | 2014 | 2015 | 2016 | 2017 | | | | | | | | | |
| 24 | January | | -0.95% | 5.45% | -0.39% | 7.50% | | | | | | | | | |
| 25 | February | -4.36% | 4.02% | 0.91% | -1.44% | 5.71% | | | | | | | | | |
| 26 | March | 6.49% | -0.82% | 6.10% | -1.92% | -6.33% | | | | | | | | | |
| 27 | April | -4.98% | -3.77% | -12.08% | -5.05% | -3.38% | | | | | | | | | |
| 28 | May | 7.14% | 2.89% | -2.83% | 6.26% | 0.10% | | | | | | | | | |
| 29 | June | 0.45% | -3.93% | 0.00% | 2.37% | 2.89% | | | | | | | | | |
| 30 | July | -1.42% | 0.96% | 0.97% | 0.00% | -5.66% | | | | | | | | | |
| 31 | August | -2.02% | 0.00% | -2.35% | 4.25% | 0.00% | | | | | | | | | |
| 32 | September | 0.09% | 3.40% | -1.82% | 0.24% | 0.95% | | | | | | | | | |
| 33 | October | -6.36% | -0.10% | -7.73% | -0.53% | -0.05% | | | | | | | | | |
| 34 | November | 0.76% | 0.98% | 0.54% | 0.00% | 2.33% | | | | | | | | | |
| 35 | December | -1.49% | 0.00% | 0.64% | -2.30% | 1.89% | | | | | | | | | |

- Figure 2: Monthly return of Subordinated 25% Convertible Bonds of BRAC Bank Ltd from February 2013 to December 2017

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | | | |
|----|---|-------------|-------------|-------------|-------------|-------------|--|---|---|---|---|---|--------------------|-------------|-------------|-------------|-------------|-------------|
| 1 | MONTH BEGINNING TREND OF IBBL BOND PRICE INDEX 201 | | | | | | MONTH ENDED TREND OF IBBL BOND PRICE INDEX 2017 | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | |
| 3 | Month Beginning | 2013 | 2014 | 2015 | 2016 | 2017 | | | | | | | Month ended | 2013 | 2014 | 2015 | 2016 | 2017 |
| 4 | January | | 973.25 | 985.00 | 965.50 | 985.00 | | | | | | | January | | 989.00 | 974.50 | 988.00 | 985.00 |
| 5 | February | 999.25 | 989.50 | 964.00 | 984.5 | 986.00 | | | | | | | February | 993.00 | 983.50 | 970.00 | 985 | 999.50 |
| 6 | March | 986.50 | 984.50 | 965.00 | 984.00 | 999.00 | | | | | | | March | 1,006.50 | 998.50 | 969.50 | 996.50 | 1011.00 |
| 7 | April | 1,006.00 | 1,002.75 | 971.50 | 996.00 | 1003.50 | | | | | | | April | 894.25 | 926.00 | 888.00 | 988.50 | 944.50 |
| 8 | May | 892.25 | 922.5 | 893.00 | 996.50 | 946.00 | | | | | | | May | 933.50 | 936.75 | 916.50 | 925.50 | 977.00 |
| 9 | June | 919.50 | 929.75 | 919.50 | 932 | 980.00 | | | | | | | June | 936.50 | 985.75 | 934.00 | 963.5 | 971.00 |
| 10 | July | 934.00 | 981.75 | 919.00 | 951 | 972.50 | | | | | | | July | 940.25 | 974.75 | 966.00 | 963 | 967.00 |
| 11 | August | 940.75 | 975.75 | 959.50 | 967.50 | 968.00 | | | | | | | August | 951.25 | 979.25 | 975.00 | 970.50 | 967.50 |
| 12 | September | 956.00 | 973.50 | 977.50 | 962.00 | 967.50 | | | | | | | September | 955.25 | 1000.50 | 975.50 | 967.00 | 968.00 |
| 13 | October | 956.25 | 998.75 | 981.00 | 976.00 | 973.00 | | | | | | | October | 960.50 | 983.25 | 970.00 | 970.00 | 974.00 |
| 14 | November | 955.25 | 976.50 | 961.00 | 970.5 | 980.00 | | | | | | | November | 982.25 | 975.75 | 994.00 | 979.5 | 967.50 |
| 15 | December | 983.25 | 977.50 | 987.50 | 990.50 | 968.50 | | | | | | | December | 971.00 | 988.75 | 981.50 | 981.50 | 983.00 |
| 16 | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | |
| 21 | MONTHLY RETURN TREND OF IBBL BOND 2017 | | | | | | | | | | | | | | | | | |
| 22 | Monthly Return | 2013 | 2014 | 2015 | 2016 | 2017 | | | | | | | | | | | | |
| 24 | January | | 1.62% | -1.07% | 2.33% | 0.00% | | | | | | | | | | | | |
| 25 | February | -0.63% | -0.61% | 0.62% | 0.05% | 1.37% | | | | | | | | | | | | |
| 26 | March | 2.03% | 1.42% | 0.47% | 1.27% | 1.20% | | | | | | | | | | | | |
| 27 | April | -11.11% | -7.65% | -8.59% | -0.75% | -5.88% | | | | | | | | | | | | |
| 28 | May | 4.62% | 1.54% | 2.63% | -7.12% | 3.28% | | | | | | | | | | | | |
| 29 | June | 1.85% | 6.02% | 1.58% | 3.38% | -0.92% | | | | | | | | | | | | |
| 30 | July | 0.67% | -0.71% | 5.11% | 1.26% | -0.57% | | | | | | | | | | | | |
| 31 | August | 1.12% | 0.36% | 1.62% | 0.31% | -0.05% | | | | | | | | | | | | |
| 32 | September | -0.08% | 2.77% | -0.20% | 0.52% | 0.05% | | | | | | | | | | | | |
| 33 | October | 0.44% | -1.55% | -1.12% | -0.61% | 0.10% | | | | | | | | | | | | |
| 34 | November | 2.83% | -0.08% | 3.43% | 0.93% | -1.28% | | | | | | | | | | | | |
| 35 | December | -1.25% | 1.15% | -0.61% | -0.91% | 1.50% | | | | | | | | | | | | |

- Figure 3: Monthly return of IBBL Mudaraba Perpetual Bond from February 2013 to December 2017

Most of the bonds in DSEX have a maturity bracket of 5 years. Therefore, I used the 5 years Treasury Bond Cut-off yield to factor for the bond return, in order to synergize with the bonds in the market. As given on the website of Bangladesh Bank (2018), the cut-off yield of 5 years Treasury bond is 4.5%. Hence, I used the 4.5% yield in my dataset to run the empirical test.

Finally, the last element in my equation is the DSEX return. The monthly DSEX return was calculated from the DSEX file (2013-2018). So that to calculate the index return I used similar formula to that of bond return:

$$\text{Monthly DSEX Return} = \frac{\text{DSEX Index at the end of the month} - \text{DSEX Index at the beginning of the month}}{\text{DSEX Index at the beginning of the month}} * 100$$

Again I used Microsoft excel to figure out the DSEX return in the following way:

| MONTH BEGINNING TREND OF DSEX SHARE PRICE INDEX 2017 | | | | | | MONTH ENDED TREND OF DSEX SHARE PRICE INDEX 2017 | | | | | |
|--|----------|----------|----------|----------|----------|--|----------|----------|----------|----------|----------|
| Month Beginning | 2013 | 2014 | 2015 | 2016 | 2017 | Month ended | 2013 | 2014 | 2015 | 2016 | 2017 |
| January | | 4,286.15 | 4,941.52 | 4,624.02 | 5,083.89 | January | 4,136.31 | 4,753.17 | 4,724.05 | 4,540.89 | 5,468.34 |
| February | 4,163.83 | 4,787.66 | 4,654.95 | 4,560.42 | 5,473.89 | February | 3,973.28 | 4,749.87 | 4,624.95 | 4,511.97 | 5,612.70 |
| March | 3,765.98 | 4,697.30 | 4,739.65 | 4,484.04 | 5,597.22 | March | 3,590.05 | 4,491.98 | 4,530.48 | 4,357.54 | 5,719.61 |
| April | 3,458.10 | 4,526.94 | 4,513.11 | 4,379.23 | 5,691.37 | April | 3,438.90 | 4,566.86 | 4,047.29 | 4,195.70 | 5,475.55 |
| May | 3,468.18 | 4,504.78 | 3,959.74 | 4,171.41 | 5,521.38 | May | 3,878.07 | 4,430.48 | 4,586.95 | 4,419.39 | 5,403.12 |
| June | 3,943.25 | 4,448.58 | 4,623.63 | 4,421.79 | 5,438.71 | June | 4,104.65 | 4,480.52 | 4,583.11 | 4,507.58 | 5,656.05 |
| July | 4,224.16 | 4,466.62 | 4,572.59 | 4,495.19 | 5,654.62 | July | 3,940.81 | 4,427.16 | 4,792.31 | 4,525.35 | 5,860.65 |
| August | 3,911.75 | 4,420.62 | 4,802.02 | 4,533.71 | 5,876.26 | August | 4,127.48 | 4,549.52 | 4,768.67 | 4,526.58 | 6,006.43 |
| September | 4,140.30 | 4,554.98 | 4,724.52 | 4,549.04 | 6,038.38 | September | 3,937.68 | 5,074.31 | 4,852.08 | 4,695.19 | 6,092.84 |
| October | 3,928.49 | 5,153.27 | 4,856.97 | 4,690.93 | 6,092.95 | October | 3,967.73 | 5,173.23 | 4,564.49 | 4,592.18 | 6,019.59 |
| November | 3,993.33 | 5,105.22 | 4,514.85 | 4,596.86 | 6,072.33 | November | 4,230.73 | 4,769.43 | 4,581.00 | 4,801.24 | 6,306.86 |
| December | 4,147.21 | 4,868.65 | 4,621.67 | 4,823.02 | 6,296.20 | December | 4,266.55 | 4,864.96 | 4,629.64 | 5,036.05 | 6,244.52 |

| MONTHLY RETURN TREND OF DSEX SHARE PRICE INDEX 2017 | | | | | |
|---|--------|--------|---------|--------|--------|
| Monthly Return | 2013 | 2014 | 2015 | 2016 | 2017 |
| January | | 10.90% | -4.40% | -1.80% | 7.56% |
| February | -4.58% | -0.79% | -0.64% | -1.06% | 2.54% |
| March | -4.67% | -4.37% | -4.41% | -2.82% | 2.19% |
| April | -0.56% | 0.88% | -10.32% | -4.19% | -3.79% |
| May | 11.82% | -1.65% | 15.84% | 5.94% | -2.14% |
| June | 4.09% | 0.72% | -0.88% | 1.94% | 4.00% |
| July | -6.71% | -0.88% | 4.81% | 0.67% | 3.64% |
| August | 5.51% | 2.92% | -0.69% | -0.16% | 2.22% |
| September | -4.89% | 11.40% | 2.70% | 3.21% | 0.90% |
| October | 1.00% | 0.39% | -6.02% | -2.11% | -1.20% |
| November | 5.94% | -6.58% | 1.47% | 4.45% | 3.86% |
| December | 2.88% | -0.08% | 0.17% | 4.42% | -0.82% |

- Figure 4: Monthly return of DSEX Index from February 2013 to December 2017

Empirical Analysis and Findings

I began the regression analysis once I arranged my dataset to the likes of the equation. I used Microsoft excel to run the regression. Based on the equation $\text{Bond Return} = B_0 + B_1 \cdot TB + B_2 \cdot \text{DSEX} + \epsilon$, I formulated 3 separate equations for 3 bonds.

The data I was using contained only two years trade information about ACI 20% Convertible Zero Coupon Bonds, starting from February 2013 up to March 2015. Hence, I used the same number of observations in TB and DSEX. The formula I used to calculate ACI Bond return is as follows:

$$\text{ACI BOND RETURN} = B_0 + B_1 \cdot TB + B_2 \cdot \text{DSEX} + \epsilon$$

| ACI BOND RETURN = B0 + B1*TB + B2*DSEX+ ε | | | | | | | | |
|---|--------------|----------------|----------|---|----------------|-----------|-----------|-----------|
| SUMMARY OUTPUT | | | | | | | | |
| <i>Regression Statistics</i> | | | | | | | | |
| Multiple R | 0.267165 | | | | | | | |
| R Square | 0.071377 | | | | | | | |
| Adjusted R Square | -0.00898 | | | ACI BOND RETURN = 0.0145190555666426 + 0*TB + B2*0.174057321265196+ ε | | | | |
| Standard Error | 0.033934 | | | | | | | |
| Observations | 26 | | | | | | | |
| ANOVA | | | | | | | | |
| | df | SS | MS | F | Significance F | | | |
| Regression | 2 | 0.002124 | 0.001062 | 1.844716 | 0.180704077 | | | |
| Residual | 24 | 0.027636 | 0.001152 | | | | | |
| Total | 26 | 0.029761 | | | | | | |
| | Coefficients | Standard Error | t Stat | P-value | Lower 95% | Upper 95% | Lower 95% | Upper 95% |
| Intercept | 0.014519 | 0.006687 | 2.171259 | 0.040024 | 0.000717913 | 0.02832 | 0.000718 | 0.02832 |
| 5yrs TB Cut-off Yield | 0 | 0 | 65535 | #NUM! | 0 | 0 | 0 | 0 |
| DSEX Return | 0.174057 | 0.128153 | 1.358203 | #NUM! | -0.090436745 | 0.438551 | -0.09044 | 0.438551 |

- Figure 5: Snapshot of the regression result of ACI Bond Return

The R² from the regression says that 7.1% of the variation in the ACI bond return is explained by the variation in Treasury bond yield and DSEX return. The standard error tells us the average error of estimation is about 0.034% per return. Moreover, there was a total of 26 observations for this regression.

The coefficient on the intercept reads 0.015% return from the ACI bond even if the TB yield and DSEX Return are 0. The coefficient on the DSEX return indicate that a 1% increase in DSEX return will increase the ACI bond return by 0.17%.

Therefore the underlying formula becomes:

$$ACI\ BOND\ RETURN = 0.0145190555666426 + 0*TB + B2*0.174057321265196 + \epsilon$$

I had the full 5 years data for the rest of the 2 bonds. Starting from February 2013 up to December 2017. Thus, I had a greater number of observations for the next two regressions. The formula I used to calculate BRAC Bank Bond return is as follows:

$$BRAC\ BANK\ BOND\ RETURN = B_0 + B_1 * TB + B_2 * DSEX + \epsilon$$

| BRAC BANK BOND RETURN = B0 + B1*TB + B2*DSEX+ ε | | | | | | | | |
|---|--------------|---|----------|----------|----------------|-----------|-------------|-------------|
| SUMMARY OUTPUT | | | | | | | | |
| Regression Statistics | | | | | | | | |
| Multiple R | 0.276985 | | | | | | | |
| R Square | 0.076721 | | | | | | | |
| Adjusted R Square | 0.042979 | BRAC BANK BOND RETURN = -0.00307750586941236 + 0*TB + B2*0.217356713804186+ ε | | | | | | |
| Standard Error | 0.036826 | | | | | | | |
| Observations | 59 | | | | | | | |
| ANOVA | | | | | | | | |
| | df | SS | MS | F | Significance F | | | |
| Regression | 2 | 0.006423 | 0.003212 | 4.736478 | 0.012575645 | | | |
| Residual | 57 | 0.077301 | 0.001356 | | | | | |
| Total | 59 | 0.083724 | | | | | | |
| | Coefficients | Standard Error | t Stat | P-value | Lower 95% | Upper 95% | Lower 95.0% | Upper 95.0% |
| Intercept | -0.00308 | 0.004862 | -0.63297 | 0.529283 | -0.012813471 | 0.006658 | -0.01281 | 0.006658 |
| 5yrs TB Cut-off Yield | 0 | 0 | 65535 | #NUM! | 0 | 0 | 0 | 0 |
| DSEX Return | 0.217357 | 0.099872 | 2.176345 | #NUM! | 0.017365765 | 0.417348 | 0.017366 | 0.417348 |

- Figure 6: Snapshot of the regression result of BRAC Bank Bond Return

The R² from the regression says that 7.6% of the variation in the BRAC Bank bond return is explained by the variation in Treasury bond yield and DSEX return. The standard error tells us the average error of estimation is about 0.037% per return. Moreover, there was a total of 59 observations for this regression.

The coefficient on the intercept reads -0.003% return from the BRAC Bank bond even if the TB yield and DSEX Return are 0. The coefficient on the DSEX return indicate that a 1% increase in DSEX return will increase the BRAC Bank bond return by 0.21%.

Therefore the underlying formula becomes:

$$BRAC\ BANK\ BOND\ RETURN = -0.00307750586941236 + 0*TB + B_2*0.217356713804186 + \epsilon$$

The formula I used to calculate IBBL Mudaraba Perpetual Bond return is as follows:

$$IBBL\ BOND\ RETURN = B_0 + B_1 * TB + B_2 * DSEX + \epsilon$$

| IBBL BOND RETURN = B0 + B1*TB + B2*DSEX+ ε | | | | | | | | |
|--|--------------|----------------|----------|----------|----------------|-----------|-------------|-------------|
| SUMMARY OUTPUT | | | | | | | | |
| <i>Regression Statistics</i> | | | | | | | | |
| Multiple R | 0.293313 | | | | | | | |
| R Square | 0.086032 | | | | | | | |
| Adjusted R Square | 0.052454 | | | | | | | |
| Standard Error | 0.029209 | | | | | | | |
| Observations | 59 | | | | | | | |
| ANOVA | | | | | | | | |
| | df | SS | MS | F | Significance F | | | |
| Regression | 2 | 0.004578 | 0.002289 | 5.365439 | 0.007380965 | | | |
| Residual | 57 | 0.048631 | 0.000853 | | | | | |
| Total | 59 | 0.053208 | | | | | | |
| | Coefficients | Standard Error | t Stat | P-value | Lower 95% | Upper 95% | Lower 95.0% | Upper 95.0% |
| Intercept | -0.00011 | 0.003856 | -0.0286 | 0.977283 | -0.007832518 | 0.007612 | -0.00783 | 0.007612 |
| 5yrs TB Cut-off Yield | 0 | 0 | 65535 | #NUM! | 0 | 0 | 0 | 0 |
| DSEX Return | 0.183489 | 0.079215 | 2.316342 | #NUM! | 0.02486378 | 0.342115 | 0.024864 | 0.342115 |

- Figure 7: Snapshot of the regression result of IBBL Bond Return

The R² from the regression says that 8.6% of the variation in the IBBL Bond return is explained by the variation in Treasury bond yield and DSEX return. The standard error tells us the average error of estimation is about 0.029% per return. Moreover, there was a total of 59 observations for this regression.

The coefficient on the intercept reads -0.0001% return from the IBBL Bond even if the TB yield and DSEX Return are 0. The coefficient on the DSEX return indicate that a 1% increase in DSEX return will increase the IBBL Bond return by 0.18%.

Therefore the underlying formula becomes:

$$IBBL\ BOND\ RETURN = -0.000110296374673298 + 0*TB + B2*0.183489496276585 + \epsilon$$

One common thing to be noted among the 3 results is that the β coefficient on Treasury bond return is 0. This is 0 because the 5-years Treasury bond rate is fixed at 4.5%. Therefore, there

Recommendations

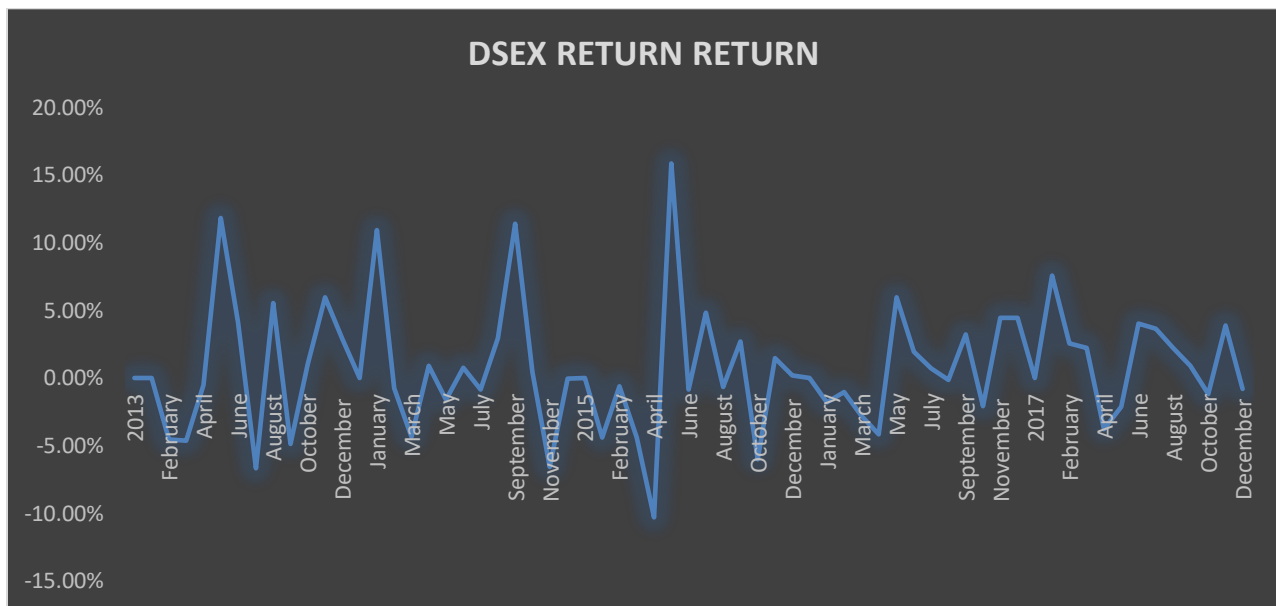
On completion of my study I realized that I have only covered the tip of the iceberg of the bond market situation in Bangladesh. There is a wide horizon of research to be done on the topic bonds in Bangladesh. In the light, of my study further research should be done on bond performance especially with additional factors like shonchoy potro return, inflation rate, recession etc. I believe the bond performance can be better explained with additional factors as such.

Conclusion

I attempted to fill the gap in research on bond performance with my report. To wrap up, I will answer the research questions I had at the beginning of this study.

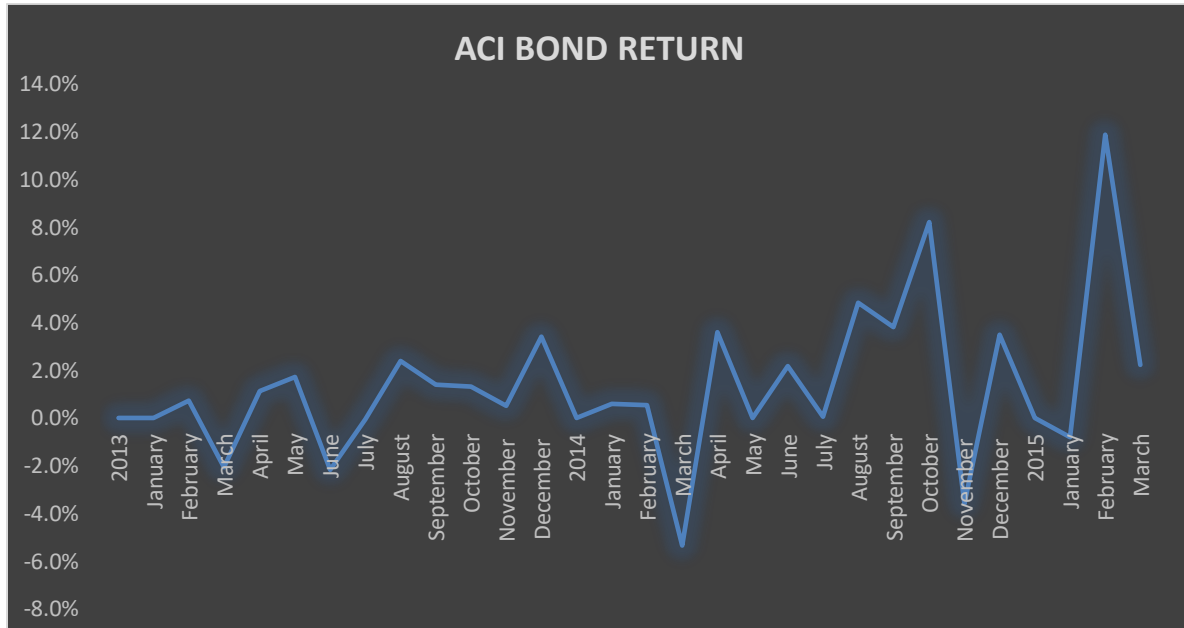
Q1. How is the return on bonds compared to the return on the DSEX index?

The 3 bonds has produced 3 individual returns when compared to the DSEX index return. The DSEX return has been fluctuating all over the 5-years length.



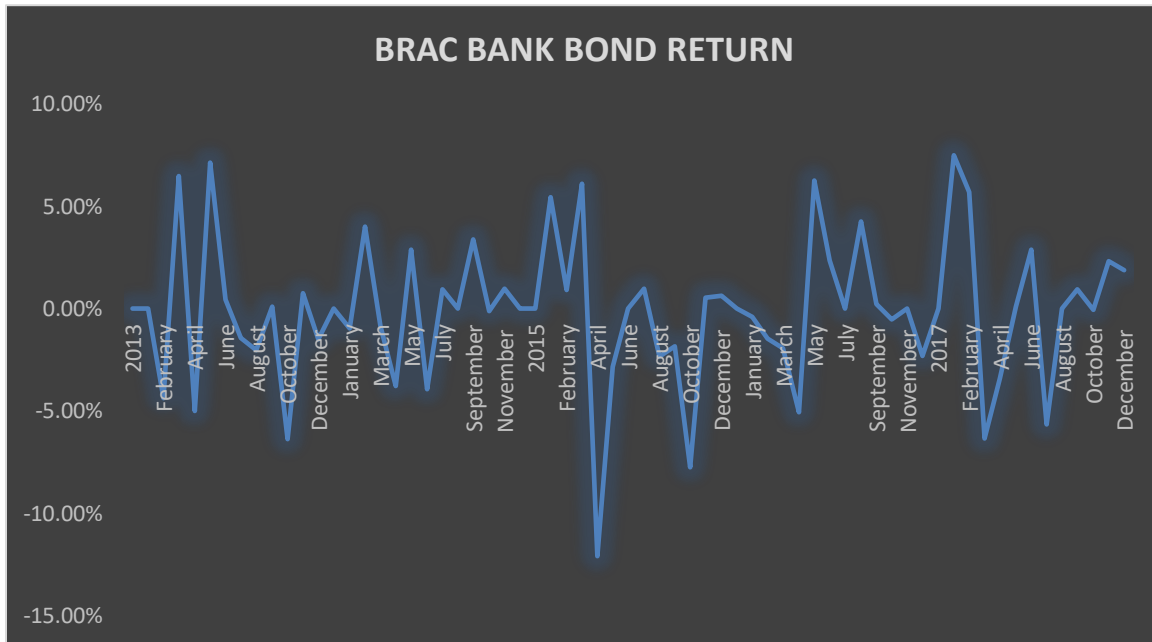
- Figure 8: Trend line of monthly return of DSEX Index from February 2013 to December 2017

It can be seen that the index return has created sharp spikes with no fixed trend. In contrast, the bonds seem to be telling a different story.



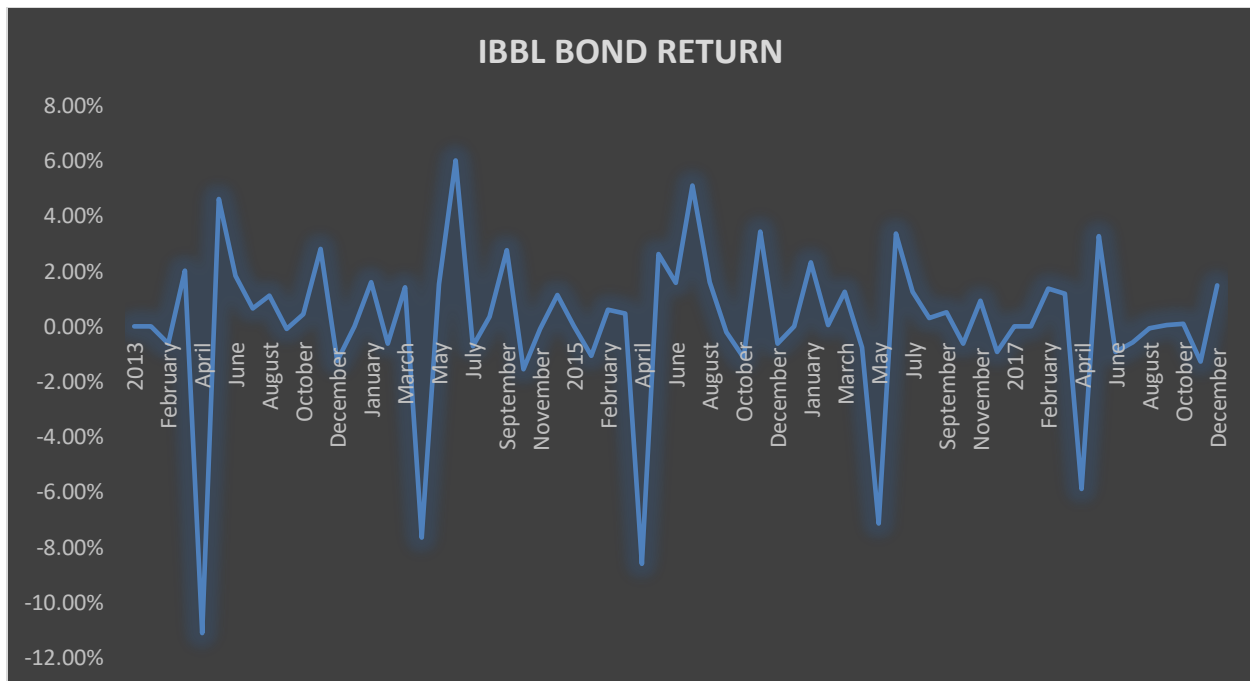
- Figure 9: Trend line of monthly return of ACI Bond from February 2013 to March 2015

Firstly, the ACI bond generated positive returns through 2013 to February 2014 then it slowed down for a month before picking up once again up until 2017 December.



- Figure 10: Trend line of monthly return of BRAC Bank Bond from February 2013 to December 2017

Secondly, the BRAC Bank bond return was mostly positive from 2013 to February 2014. Starting from April of 2014 the return steeply declined to about -12% till April of 2016 after which it fluctuated all the way till December 2017.



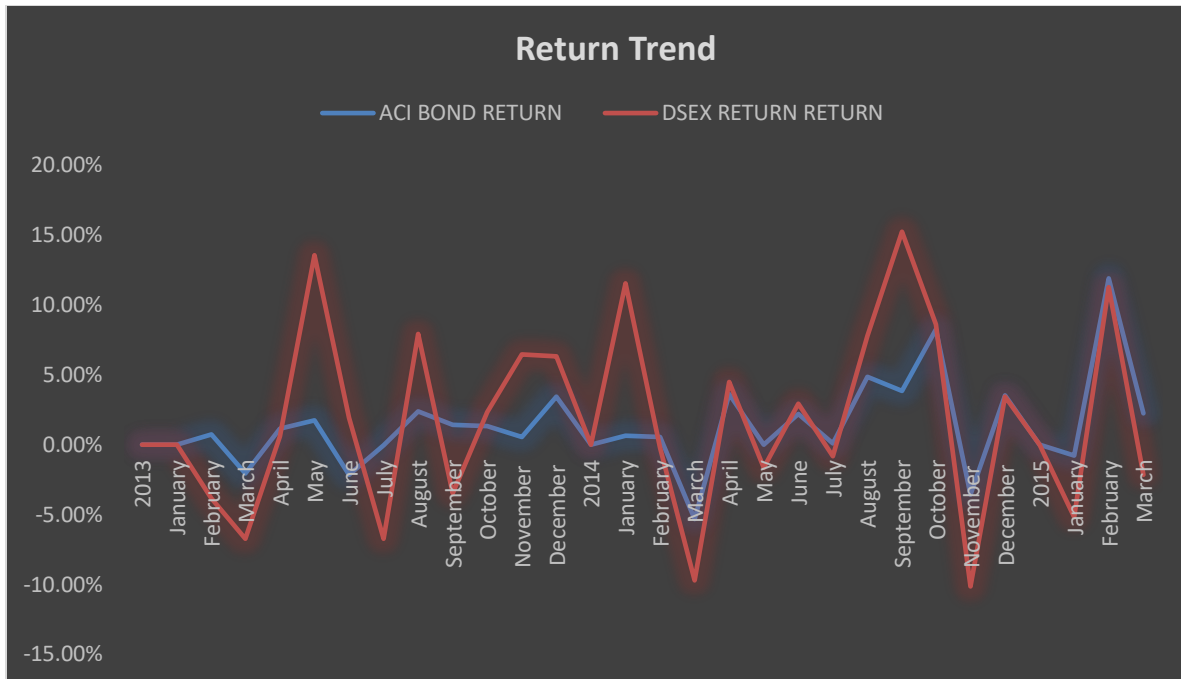
- Figure 11: Trend line of monthly return of IBBL Bond from February 2013 to December 2017

Thirdly, the IBBL bond return never settled into any trend it had steep declines throughout the 5 years term but managed to climb back each time.

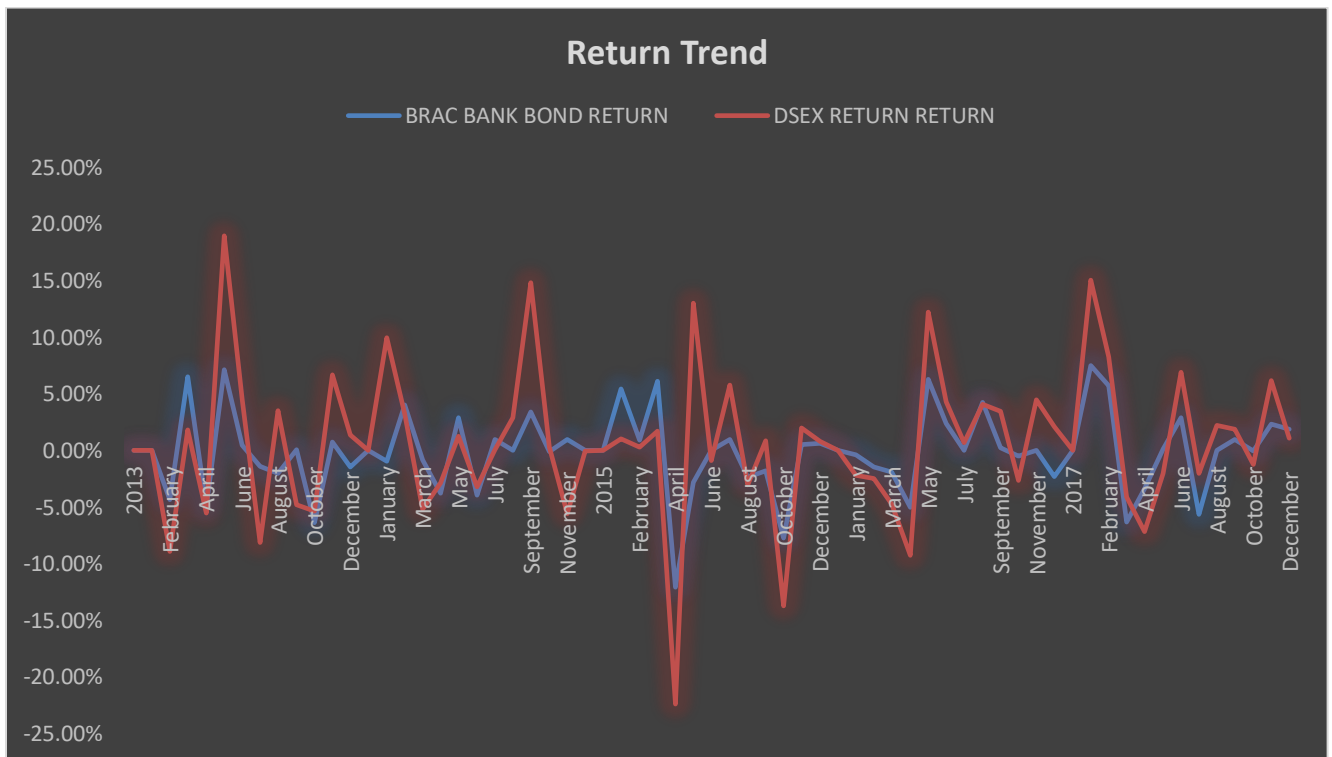
In a nutshell, it can be said that the return on the Index fluctuated quicker than the bonds. As a consequence, the DSEX index produced greater number positive returns in the last 5 years than the bonds.

Q2. Is the bond return moving in the same direction as the market return?

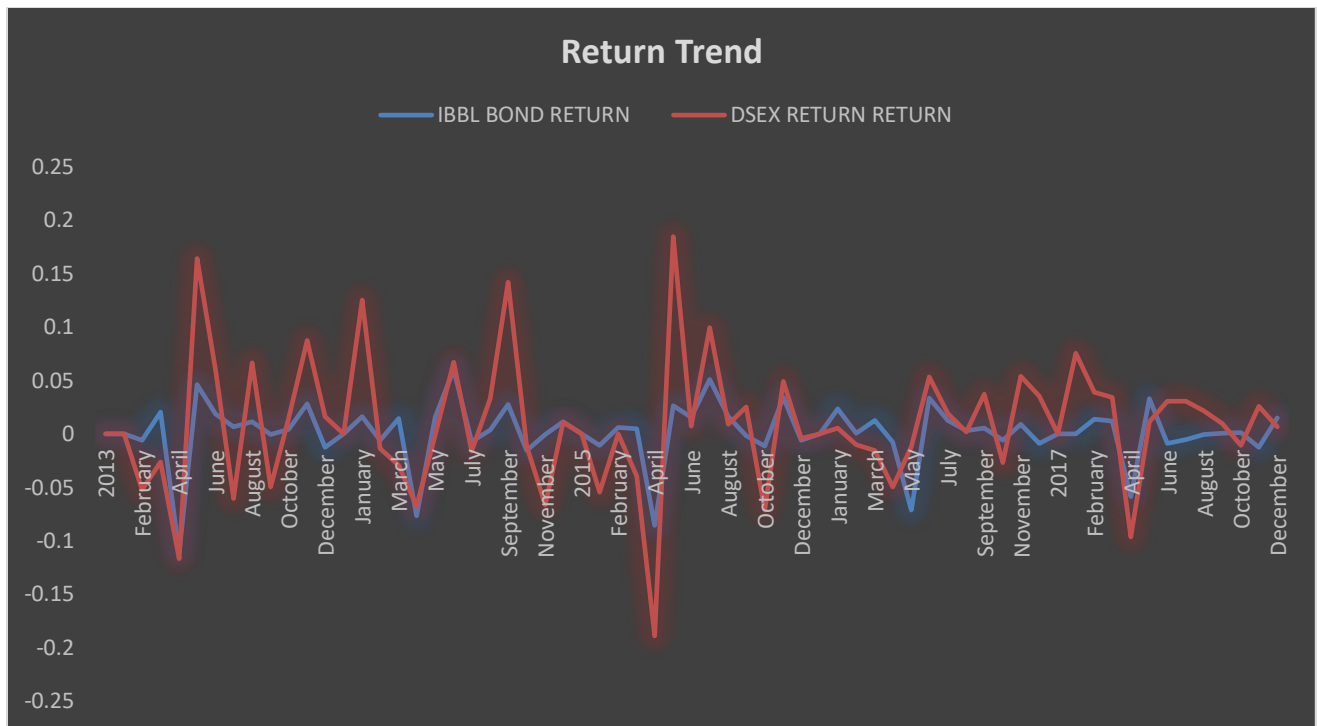
From my research it can be seen that the return on bonds have positive correlation to the DSEX return. All 3 bonds seems to be trailing the DSEX index but at a slower pace. The following are illustrations of the return paths of the 3 bonds compared to the index:



- Figure 12: Comparison of trend return between the DSEX index and ACI Bond from February 2013 to March 2015



- Figure 13: Comparison of trend return between the DSEX index and BRAC Bank Bond from February 2013 to December 2017



- Figure 14: Comparison of trend return between the DSEX index and IBBL Bond from February 2013 to December 2017

It can be noted from the graphs that the bonds have been moving in the same direction as the DSEX index. The BRAC Bank bond has been tailgating the index most closely with a β coefficient of 21.7%.

Q3. Is the return on bonds satisfactory to the investors?

In accordance to figure 11, 12, & 13 it is apparent that the index has been giving higher returns than the bonds. Although the bonds have been following the index, the returns were not quick enough to catch up to the index return. Thus, it can be concluded that the return on bonds have not been all that satisfactory to the investors.

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Appendix

List of figures

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