

**SALE OF NATIONAL SAVINGS CERTIFICATE: BENEFICIARIES AND  
INTEREST RATE MISMATCH**

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**BANGLADESH INSTITUTE OF BANK MANAGEMENT**

Mirpur, Dhaka

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**A**s part of the ongoing dissemination of BIBM research outputs, the present research monograph contains the findings of the research project: “Sale of National Savings Certificate: Beneficiaries and Interest Rate Mismatch”.

National Savings Schemes such as National Savings Certificates (NSCs) had been introduced primarily as tools of saving mobilization to small savers based on the notion that savings bring prosperity. The issuance of National Savings Certificates (NSCs) increased rapidly and became the leading instrument of government borrowing before automation of the system done in May 2019. The increase in the NSC issuance was attributed to the difference between the NSC rates and the bank deposit or government securities rates. The study was conducted in 2018 and the paper was presented in a seminar held in April 2019. As a result, the aim of the study was to identify the composition of beneficiaries of NSCs and examine the interest rate structure and thereby identify interest rate mismatch based on the prevailing situation before 2019. This publication also determined the impact of interest rate differential, gross national income, market return and income tax rate on investment in national saving certificates.

It gives me immense pleasure, on behalf of BIBM, to offer this important resource of academic inputs to the practitioners of the banks and financial institutions, regulatory agencies, policy makers as well as to the academics and common readers. I hope this monograph will be a valuable resource especially for the policy makers to understand the then composition of NSCs beneficiaries and the interest rate mismatch among various borrowing instruments.

We do encourage feedback from our esteemed readers on this issue which certainly would help us improve upon our research activities in the years to ahead.

**Md. Akhtaruzzaman, Ph.D.**  
Director General, BIBM

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and Interest Rate Mismatch



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## Abbreviations

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ADF	Augmented Dickey-Fuller
ARDL	Auto Regressive Distributed Lag Model
BB	Bangladesh Bank
CAGR	Compound Annual Growth Rate
DNS	Directorate of National Savings
ECM	Error-correction Model
FDR	Fixed Deposit Rate
FY	Fiscal Year
GDP	Gross Domestic Product
GNP	Gross National Product
ICT	Income Tax Rate
IMF	International Monetary Fund
IRD	Interest Rate Differential
MoF	Ministry of Finance
MR	Market Return
NBR	National Board of Revenue
NSCs	National Savings Certificates
NSD	National Savings Department
OLS	Ordinary Least Squares
UK	United Kingdom
VECM	Vector Error-Correction Model

## Executive Summary

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The importance of household saving in improving the family's living standard, building precautionary reserves, and creating freedom to meet financial goals is well examined by the various researchers in different periods of time. A rationale saver compares the risk-return and liquidity structure of various saving schemes in selecting optimum saving portfolio. Financial condition of savers, risk and return perception, and knowledge are found to have significant relationship with the amount and forms of household saving behavior. National Savings Schemes/ Certificates (NSC) viz. *sanchayapatra* administered by the Government of Bangladesh are widely used non-market-based savings instrument that are purchased by general people individually. NSCs are mainly coupon bonds that are available at different administered prices only for the individuals.

Department of National Savings, Bangladesh, traces its origin to the National Savings Institute of India, which was founded in 1944, at the fag-end of the British rule in India. After the partition of India, the National Savings Institute was managed by the Ministry of Finance of the then East Pakistan. Bangladesh after getting the independence in 1971 created the Directorate of National Savings, which took over the functions of the then National Savings Institute. In 2014, the Directorate of National Savings was upgraded to a full-fledged department with redesigned aims and objectives including meeting the national budget deficits by the money garnered through the national savings schemes, increasing the habit of saving at mass level, and reducing dependence on foreign aid for deficit financing.

Existing different types of NSCs are distinct from each other based on interest rate, maturity, minimum amount to purchase, ceiling, and also from other alternative government securities and FDRs in banks. The ceiling for investment in most NSCs is set at Tk. 30-50 lakh for an individual, and Tk.60 lakh for a family to ensure that the scheme is used mainly by small savers, though there is no bar for rich men to invest in the schemes. National Savings Certificate encompasses various types of savings schemes. This is supervised by Internal Resources Division of Ministry of Finance, Government of Bangladesh and operated by National Savings Department. A 5 percent source tax is cut off from the profit margin by the authority. The schemes are sold to the public through NSD Bureaus, Post Offices, Bangladesh Bank and Commercial Banks.

The issuance of National Savings Certificates (NSCs) increased rapidly before automation done in May 2019 and became the leading instrument to finance government borrowing. The increase in the NSC issuance was attributed to the difference between the NSC rates and the bank deposit or government securities rates. The rapid pace of NSD borrowing increased the share of NSD debt from 37 percent of the total national budget in FY13 to 59.76 per cent of the national budget in FY18. IMF in a study pointed out several negative implications of surge in the issuance of NSC that included slower development of the government securities market and other financial markets, the

inability to plan and execute government borrowing and debt management strategy, availability of less long-term savings to finance private investments that adversely affect the long-term growth performance.

Almost all citizens were eligible to buy up to the ceiling. It was believed that increasingly well off section of the society was purchasing the NSC which ran against the values of NSC. Under this backdrop, the main objectives of the study were: (a) to know the trends of instrument-wise sale of NSCs at different time points, (b) to identify the composition of beneficiaries in terms of instruments, gender, occupation, and income level, (c) to examine the interest rate structure and thereby identify interest rate mismatch, and (d) to determine the impact of interest rate differential, gross national income, market return and income tax rate on investment in national saving certificates.

For the study, both primary and secondary data were utilized. Secondary data were collected from the Bangladesh Bank, the Directorate of National Savings and the Ministry of Finance, GOB. A small survey of the individual investors was conducted through a questionnaire to examine their motives/behavior and perception behind the purchase of NSC. Sample respondents were selected from Dhaka city in such a way so that it included all possible varieties in terms of gender, age, profession, types of saving instruments and educational level. The study also covered the users from all categories of transaction points such as NSD, Post Office, Commercial bank, and Bangladesh Bank. Response was taken from the investors through face-to-face interview to get unbiased results. So, applying the randomness as well as convenience, the study survey ultimately included the opinion of 246 investors in NSC. In analyzing data, besides econometrics analysis, CAGR, ratios, simple growth rate, etc. were applied, and both tabular and graphical approach were utilized. Afterwards, an econometric analysis were conducted to know the impact of interest rate differential, gross national income, market return and income tax rate on investment in national saving certificates. The findings of the study are reported below:

- Among the 17 saving instruments available in the country, investment were concentrated into a few instruments namely family saving certificate, 3-monthly profit bearing saving certificate, pensioner saving certificate, 5-year saving certificate and post office fixed deposit account. Although government fixed a target of borrowing directly from the public through saving certificates, actual borrowing exceeded in most of the years during 2003-2018 resulting in excess interest payment of Government on these instruments.
- In examining the FDR of 3-year with NSCs either 3-year term or 5-year term, it was found that interest rates of 3-year FDR relative to NSCs affected the sale of NSCs, though not significantly. Another important thing was observed that the interest rates of NSCs remain fixed for a long time as they were administered. Consequently banks sometimes had to adjust their rates with NSCs for collecting deposits to meet

their requirements, even ignoring sometimes monetary policy stance. However, interest rate differential of NSCs over 3-year FDR rate was not as much as it is claimed to be. The interest rate on NSC of 3-year Three Monthly Profit Bearing Sanchayapatra and FDR of 3-year & above were 11.04 percent and 10.17 percent respectively at the end of June 2018.

- The majority of the investors (65 per cent) were well educated having the level of undergraduate or above with 53 per cent of them belonging to the age group from 30-50 years. Housewives, service holders (private and public), and retired employee constitute the major occupational groups among the purchasers of NSC. Major sources of income for purchasing sanchayapatra were found as salary income, previous savings, business income, house rent, and transfer income. Higher interest rate and the feeling of safety by the investors were found as the two major factors affecting buyers' decision of the NSC purchasers. Bank deposit ranked the top of the list of alternatives form of saving as viewed by the NSC holders followed by investing in business and physical asset. 'Paribar Sanchayapatra' and Quarterly Profit/ Interest Based Sanchayapatra were found as the most popular instrument among all other types of NSC because of getting the highest interest rate and the facility of withdrawal of interest on monthly basis. A large variation among the individual investors has been found in their dependence on sanchayapatra income for maintaining their livelihood. About 20 per cent of NSC holders depend heavily on NSC income to the extent of 80 per cent-90 per cent of their total family expenditure. It was hard to get the real expectation of the people about the future movement of sanchayapatra interest rate because of their unwillingness to accept a lower interest rate in the future than the current level.
- A significant long run positive association between gross national income and investment in NSC of the country was found. It indicated that low and middle pay people with income from local as well as foreign sources were putting their substantial amount of saving in against of NSC, a safe investment avenue. Particularly increasing of safety net programs to multiple groups along with growing aging persons also attributed to park the huge amount of investment in NSCs. A similar inference was also found between rate of income tax and investment in NSC, as co-efficient showed positive sign with significant t-value. It revealed that rich people with high tax bracket invested a substantial amount of their savings in NSC growingly. With the increasing rate of income tax, rich people interested to invest more money in this instrument. In contrast, no significant impact was found of interest rate differential between NSCs and FDR, a commonly discussed issue for augmenting investment on NSCs, with investment in this area. However, it showed a positive impact without any statistical significance meaning that subdued impact did exist between these variables. In other words, it could be said that administered interest rates on NSCs was not the strong determinant of

investment in NSCs. Finally, share market return was showing statistically insignificant positive impact on NSC investment which was not matching with the theory. As per theory, if secondary market return was attractive, people supposed to rush to invest in share market consequently investment in other financial instruments like in NSCs was believed to be decreased.

Finally, NSC served two important objectives of Government. It acted as a stable source of funds for the government and also met the social objectives of making prioritized saving instruments available for the target group of people such as low and middle income family, retired employees and senior citizens. But, high volume of NSCs with an above market interest rate was increasing the interest cost of the government and might make the borrowing unsustainable in the absence of intervention measures. Many banks opined that well above market rate offered by the national saving schemes was impacting the growth of bank deposit as well that in turn might create liquidity problem for the banking sector. Also was the finding that gradually the rich people were taking the advantage of putting their saving in these schemes to get relatively higher return as well as to reduce their tax burden. However, there was counter argument supported by findings that the interest rate differential did not matter for the bank deposit because of (i) imperfect substitutability between the NSC and bank deposit and (ii) nonexistence of strong relationship between the NSCs and money market that determined the interest rate. However, a consensus was found about the necessity of these schemes for the marginal savers with a sensible rate of interest rate. In this connection, firstly an analysis was necessary to learn as to how and what extent target investor groups were benefitted from investing their hardcore money, or benefits were going to the pocket of influential groups of the society. A thorough study could therefore be undertaken in this area. Additionally, a definition of marginal savers was also required to be developed. Afterwards, a higher interest rate could be applied for marginal savers and relatively lower or market interest rate might be followed for the richer people. However, without a strong database under a full digitalization system, it was almost impossible to rationalize this process. Digitalization was foremost important for retaining investors' investment under the predetermined ceiling; checking accuracy of sale, profit distribution and encashment; linking between outlet of selling NSCs and relevant departments and reconciliation of data; detecting fraud, forgeries and errors through proper monitoring. However, the results of the study could be made more robust by increasing the sample size of the respondents on the one and by estimating the model in different forms for different sample periods on the other. So, it could be safely concluded that the impact of NSC apart from its problem relating to fiscal management on the financial sector was not that much (if any) as it was thought out.

# Sale of National Savings Certificate: Beneficiaries and Interest Rate Mismatch

## 1.1 Introduction

Household savings contribute to the family's living standard, building emergency reserves, and the ability to meet financial goals such as meeting intended purchases using cash rather than credit (Anong and DeVaney, 2010; Lee *et al.*, 2000). A rationale saver thus compares the risk-return and liquidity structure of various saving schemes in selecting optimum saving portfolio. A number of studies investigated factors influencing saving behavior. Financial situation of savers, risk and return perception, knowledge have significant relationship with the amount and forms of household saving behavior (Shorrocks, 1957; Katona, 1975). There are also several studies on other factors influencing saving decision such as interest rate, liquidity, and easy to access (Doornbos and Raaij, 1984). Crockett (1977) examining the role of risk and return to saving decision found that return from saving asset and income level of savers are main factors for saving form determinant, and savers tend to save more into higher return asset.

An individual or a household thus finds its optimum combination of savings from among various alternatives financial markets such as banks, nonbank financial institutions, capital market and so on. Besides all these, there is another widely used non-market-based savings instrument viz. *sanchayapatra* which is administered by the government. National Savings Schemes/ Certificates (NSC) are basically non-market-based instruments and purchased by general people individually. Government issues Treasury Bills and Bonds in our country that are usually called market-based instruments and mainly purchased by banks and non-bank financial institutions although general people are also allowed to purchase through bank accounts. But, NSCs mainly coupon bond are available at different administered prices only for the individuals.

National Savings Schemes (NSCs) had been introduced primarily as tools of saving mobilization to small savers based on the notion that savings bring prosperity. National saving or investment scheme for the savers was introduced in 1861 when the Government of UK established Post Office Savings Bank. The aim of the scheme was to provide ordinary workers a facility against adversity and ill-health", and to provide the government with access to debt financing. The savings certificates were also issued by the countries during World War-I and World War-II to help finance the war effort.

Department of National Savings, Bangladesh, traces its origin to the National Savings Institute of India, which was founded in 1944, at the fag-end of the British rule in India. After the partition of India, the National Savings Institute was managed by the Ministry of

Finance (Pakistan). Bangladesh after getting the independence in 1971 created the Directorate of National Savings, which took over the functions of the then National Savings Institute. In 2014, the Directorate of National Savings was upgraded to a full-fledged department with redesigned aims and objectives. The Department of National Savings is then aimed at ensuring welfare of the disadvantaged, marginalized, handicapped, retired government employees, senior citizens (above 65 years old), women, freedom fighters and the middle- and lower-income group of people in the country. The main objectives of the department are (i) to encourage people to inculcate as well as inspire the habit of saving, (ii) to garner small savings scattered across the country and bring those to the mainstream saving scheme of the government, (iii) to meet the national budget deficits by the money garnered through the national savings schemes, (iv) to bring the targeted group of people under the economic and social safety net through national saving scheme, and (v) to reduce dependence on foreign aid for deficit financing (Mollah, 2018).

Two important sources namely foreign and domestic sources are used for financing development budget. Foreign sources are cheaper in nominal terms, though not always available as required. Domestic financing sources may be banking or non-banking source. Existing different types of NSCs are distinct from each other based on interest rate, maturity, minimum amount to purchase, ceiling, and also from other alternative government securities and FDRs in banks. Presently, there are multiple savings instruments with maturities of 3 or 5 years, available on demand in various outlets (Different offices of DNS, Bangladesh Bank, commercial banks and post office), and these are overall managed by the DNS under the Ministry of Finance. The rates of profit or interest set on different NSCs are also different. The ceiling for investment in most NSCs is set at Tk. 30-50 lakh for an individual, and Tk.60 lakh for a family to ensure that the scheme is used mainly by small savers, though there is no bar for rich men to invest in the schemes.

In recent years, the issuance of National Savings Certificates (NSCs) has increased rapidly and become the leading instrument to finance government borrowing, continually exceeding the planned amount by a large margin. The recent increase in the NSC issuance was attributed to the difference between the NSC rates and the bank deposit or government securities rates (IMF, 2018). The rapid pace of NSD borrowing increased the share of NSD debt from 37 percent of the total national budget in FY13 to 59.76 per cent of the national budget in FY18. Government borrowing through NSC as percentage of GDP experienced an increase by more than 50 percent over the 4-year period to 10.69 per cent of GDP in in FY18 (MoF, NSD and BB). National savings certificates for the most part of its life span remained a modest part of government financing source and did not prove to be a strong contender of bank deposit. Outstanding stock of NSD instruments in end-June 2013 was 37.1 percent of government budget, 15.8 percent of public debt, and 6.2 percent of GDP. Apparently, the situation changed quickly since FY14 with the increase in the spread



between the NSC interest rates and market interest rates. Fixed deposit rates of banks dropping down significantly to 5.8 percent in FY17 with no change in NSC rates led to the spread of more than 5 percentage points in that period and continued to remain thereafter. So, there was a siphoning of financial asset to NSC instruments for higher yield, contributing to a substantial buildup of NSC debt of the government (Mansur, 2017).

Unlike any other borrowing, government as the borrower does not have any control on the volume of sales although in recent times, investors are facing difficulty in purchasing new or renewing their existing NSC because of the introduction of barriers such as requiring larger set of documents and non-availability of the instruments. The rapid growth and high level volume of NSC have implications for the fiscal management, estimating the borrowing requirement by the government from the banking sector and deposit growth of the banking sector. Since, the government has no control over the sale of NSCs; it is exceeding the budgeted amount by a large margin continually and causing extra liability for the government as higher than market interest rates are paid on them. Mansur (2017) stated several negative aspects of an increasing amount of borrowing through NSC. These are (i) rapidly growing interest payment burden complicating the fiscal management in terms of cost and diversion of resources away from important social and economic sectors, (ii) reducing the possibility of developing an already narrow domestic bond market due to very limited issuance of or even withdrawal of treasury bills and bonds from the market (iii) having adverse impact on the banking system through diversion of its deposit base to NSCs, and (iv) diversion of prospective investment away from the stock market as more and more funds are being invested in the form of NSC instruments. IMF (2018) in a study has pointed out several negative implications of surge in the issuance of NSC that includes slower development of the government securities market and other financial markets, the inability to plan and execute government borrowing and debt management strategy, availability of less long-term savings to finance private investments and adversely affecting the long-term growth performance.

The major two objectives of NSC are to give the facility to low and middle income people by giving them the opportunity of putting their saving at above market interest rate with no default risk and to provide a social and financial safety net for certain groups of people viz. senior citizens, women, retired government employees, non-resident Bangladeshis and physically challenged people. These objectives were fairly accomplished at least until 2013 based on a Bangladesh Bank sample survey report released in that year (BB, 2013). According to that report, the average monthly family income of the investors in NSC scheme was Tk. 28,770 with the lowest 45 percent of the investors having an average income of less than Tk. 20,000. The average investment of the majority of investors, 54.7 percent, was no more than Tk. 0.5 million, while another 20.7 percent had investment of Tk. 0.5-1 million (Taslim, 2016).

One major concern about the impact of relatively high interest rate offered by NSC on the deposit growth of the banks however, does not go without challenge. Observation suggests that a significant number of the investors because of their low asset base withdraw money before the maturity period and thus receive a lower return. Moreover, an investor does not get any return if withdrawn before the completion of a full year. So, the apparent difference between the market rate and NSC rate does not show the actual rate of return.

Easy opening of NSC compare to that of a deposit account in a bank, necessity of fewer documents and convenient withdrawal of interest made the NSC a more attractive instrument to a set of customers. On the contrary, opportunity to take loan against the deposit amount, which is missing in case of NSC, made bank deposit more attractive to a set of people. We cannot ignore the reality that a large set of people with a relatively low level of literacy and income feel more comfortable in dealing with government owned centers without caring about the difference in interest rates. Moreover, people with different mind-set choose the schemes as per their preferences, which is not likely to change frequently.

Taslim (2018) states that savings certificates and bank deposits are not two-way perfect substitutes because of the ceiling in NSC. He also questioned the widely acclaimed opinion that NSC is diverting funds of savers away from the banking system. At the first layer, sale of NSC reduces bank deposit by an equivalent amount through the transfer of the individual investor's bank deposit to the government account. But as the government, the ultimate user of the NSC borrowing spends this fund in its various purchases the amount again finds its way in different banks keeping the deposit base unchanged. He also went on arguing that the NSC does not have any impact on market interest rate as neither it does not affect neither the demand for money nor the supply of money.

Under the existing framework of NSCs, almost all citizens are eligible to buy up to the ceiling. Hence, the rich people also invest in the schemes and receive an implicit subsidy though in principle, these are not issued for them. It is believed that increasingly well off section of the society is purchasing the NSC which runs against the values of NSC. In addition, there is no data base of NSCs. As a result, many people are purchasing NSCs even beyond the ceiling, exceeding the budgeted target of the government by a sizable margin at higher cost. Hence, the government borrows fewer amounts from banks though bank borrowing is cheaper. So, the two major research questions pertinent at this moment include does the higher interest rate of NSC is impacting the growth of bank deposits in our banking sector and whether the majority of the NSC buyers belong to the target groups of the society. A limited number of studies in the context of Bangladesh are available. Under this backdrop, the main objectives of the study include:

- To know the trends of instrument-wise sale of NSCs at different time points.

- To identify the composition of beneficiaries in terms of instruments, gender, occupation, and income level
- To examine the interest rate structure and thereby identify interest rate mismatch
- To determine the impact of interest rate differential, gross national income, market return and income tax rate on investment in national saving certificates.

## **1.2. Literature Review**

A few studies have been conducted in this area of research. This is why evidence in the existing literature is tiny, mixed and inconclusive. According to Rameshkumar (2018) post office service is very important for a country's communication and it plays an important role for the economic growth. The study has been undertaken to analyze the whether the postal saving schemes have gained importance among the rural working women investors or not and it aims at bringing the rural working women attitude towards Post Office Saving Schemes with special reference to Pollachi taluk in Coimbatore district. It was found that post office savings scheme was beneficial for the rural working women. It was found to be one of the best investment schemes for this class of people. Rural working women had a greater faith and a positive attitude towards post office savings schemes because of less complicated procedure for making investment, easy accessibility, security and safety of the investment. Patil and Chaudhuri (2017) made a notable attempt to understand and analyze the impact of individuals' income on perception towards various postal services. It is found that services provided by Indian post offices plays an important role in financial, retail and premium services among all type individual income groups. Post offices are working in urban, semi urban and rural area, everybody has trust on Indian post. There is significant impact of individuals' income on perception about the Financial, Retail and Premium services by post offices of India.

The paper of Giri (2014) gives a bird eye view of India Post and brief introduction of Pondicherry Postal Division. It gives a brief idea of various financial services rendered by the Pondicherry Division of India like Post office savings schemes, Postal Life Insurance, Money Remittance Service, Instant Money Remittance Service, Mobile Money Transfer, WorldNet Express, and National Pension Scheme. It also highlights the other technology driven services provided by the Pondicherry Postal Division to the urban and rural people of Pondicherry, Cuddalore and Villupuram Districts like Collection of Data for Consumer Price Index, Booking of Railway tickets, Booking of SRM ticket, Payment of Money gram, Western Union Money transfer, Payment of Instant money remittance, etc.

Some important issues relating to saving certificates are highlighted by Taslim (2016). If the deposit rates are higher than the NSC rates, few investors, rich or poor, would be interested in subscribing to this scheme. But when the NSC rates are higher than the deposit rates all depositors cannot switch to the scheme because of the ceiling. Since the scheme

is a deliberate policy decision of the government it will not be appropriate to judge it in terms of only market outcomes. Any cost benefit analysis must bring to the fore the reasons why the subsidy is given. The government provides subsidies and incentives to various groups including those in its savings scheme for various reasons. If some subsidies and incentives are distorting the market and also not meeting the original objectives of the government, or if there are better ways of achieving them, then the termination or adjustment of the subsidies can be justified. But advocating the termination of a particular subsidy without any analysis of its efficacy in realizing the broader objectives for which it was instituted is disingenuous.

According to Moazzem (2013), sales of savings certificates marked a significant rise as most of the investors prefer to invest in the state-owned instrument rather than banks mainly because of high interest rates. The prolonged slump in the country's capital market and decrease in deposit rates in banks and political uncertainties are learnt to be the main reasons which, sources said, encouraged investors to turn to savings certificates. The capital market has been passing through a crucial period over the last few years and instead of stabilizing, it is getting more uncertain day by day shying away prospective investors. So many investors are turning to risk-free savings certificates. Investor confidence in bank deposits had also fallen after a spate of financial scandals in the banking sector. The savings tool sales increased as the banks were not offering attractive rates of interest on deposits that discouraged the deposit mobilization. Many savers were switching over to the government savings schemes due to the lower interest rates on bank deposits.

Mansur (2017) pointed out that during FY14-16, the banks were largely flushed with excess liquidity and thus did not feel the pressure from the declining deposit growth in recent years. However, the outlook is changing very rapidly. With the recent acceleration in private sector credit demand and slower deposit growth, the excess liquidity in the banking system is disappearing rapidly and interest rates are going to increase. A significant cut in the NSD interest rates will contribute to a slower growth in NSD investment and a corresponding diversion of funds to the banking system easing pressure on banks' profitability and allowing them to expand their asset base faster. One approach may be to link the interest rates on NSD instruments to the corresponding rate of returns on T-bills and T-bonds of similar maturities. From an operational point of view, interest rates may be adjusted every quarter. In this approach, the cost of NSD borrowing would be broadly market based and the element of subsidy would disappear. Structural reforms leading to rationalization of interest rates in line with market rates may also be considered with some rule-based mark up (premium) above the market rate.

The remainder of the paper proceeds as follows: Section two states methodology, data sources and outlines framework for empirical analysis. Section three describes salient features of National Savings Certificates. Section four shows trend and status of National Savings Certificates (NSCs). Section five demonstrates composition of beneficiaries, and interest rate structure and interest rate mismatch are explained in section six. Section seven shows empirical analysis on impact of interest rate differential, gross national income, market return and income tax rate on investment in NSCs and finally, section eight offers findings and concluding remarks.

## **2. Methodology, Data Sources and Framework for Empirical Analysis**

**2.1.** For the study, both primary and secondary data have been utilized. Secondary data have been collected from the Bangladesh Bank, the Directorate of National Savings and the Ministry of Finance, GOB. A small survey of the individual investors has been conducted through a questionnaire to examine their motives/behavior and perception behind the purchase of NSC. Sample respondents have been selected from Dhaka city in such a way so that it includes all possible varieties in terms of gender, age, profession, types of saving instruments and educational level. The study also covers the users from all categories of transaction points such as NSD, Post Office, Commercial bank, and Bangladesh Bank. Samples have been selected in different days in different trade centers. Response has been taken from the investors through face-to-face interview to get unbiased results. So, applying the randomness as well as convenience, the study survey ultimately includes the opinion of 246 investors in NSC (details in chapter five). In analyzing data, besides econometrics analysis, CAGR, ratios, simple growth rate, etc. have been applied, and both tabular and graphical approach have been utilized. Afterwards, an econometric analysis have been conducted to know the impact of interest rate differential, gross national income, market return and income tax rate on investment in national saving certificates.

### **2.2. Empirical Methodology**

*First*, the time series property of each variable is examined by utilizing the Augmented Dickey-Fuller (ADF) test, although such pre-testing is optional in the autoregressive distributed lag model.

*Second*, in the event of non-stationarity of time-series variables, the most commonly used procedures for ascertaining their cointegrating relationship include the Engle-Granger residual-based procedure and the Johansen-Juselius maximum likelihood-based procedure. Both procedures focus on the cases in which the underlying variables are integrated of order one,  $I(1)$ . If so, both  $\lambda_{trace}$  and  $\lambda_{max}$  tests can be applied to find cointegration on the evidence of  $I(1)$  behavior of each variable. However, it is unlikely in the real world that all variables will depict  $I(1)$  behavior. To address the issue of unequal order of integration of non-stationary variables for long-run equilibrium relationship and causal flows, the ARDL

model or bounds-testing procedure, as suggested by M. Pesaran *et al.*, has been used in this study. It is applicable irrespective of whether the regressors in the model are purely I(0), I(1), or mutually integrated. Another advantage of this approach is that the model takes a sufficient number of lags to capture the data-generating process in a general-to-specific modeling framework.

**Third**, a dynamic Error-Correction Model (ECM) for long-run causality can also be derived from the ARDL procedure through a simple linear transformation (Banerjee *et al.*). The ECM integrates the short-run dynamics with the long-run equilibrium relationship without losing long-term memory.

**Fourth**, the ARDL procedure, based on a bounds-testing approach, uses the following unrestricted model, as found in M. Pesaran & Y. Shin and M. Pesaran *et al.* Assuming a unique long-run relationship among the weakly exogenous independent variables, the following estimating models are specified:

$$\begin{aligned} \Delta \ln NSC = & \alpha + \sum_{i=1}^n \Delta b \ln NSC + \sum_{i=0}^n c \Delta \ln IRD + \sum_{i=0}^n d \Delta \ln GNP \\ & + \sum_{i=0}^n e \Delta \ln MR + \sum_{i=0}^n f \ln ICT + \lambda_1 \ln NSC_{t-1} + \lambda_2 \ln IRD_{t-1} \\ & + \lambda_3 \ln GNP_{t-1} + \lambda_4 \ln MR_{t-1} + \lambda_5 f \ln ICT_{t-1} + \varepsilon(1) \dots \dots \dots (1) \end{aligned}$$

Where, NSC = Outstanding Amount of National Saving Certificate, IRD = Differential Interest between 3-year NSC and 3-year FDR rate, MR = Market Return of Dhaka Stock Exchange and ICT= Income Tax Rate. All variables are expressed in natural logs. To implement the bounds-testing procedure, the following steps are outlined.

For weak exogeneity, the ARDL procedure is implemented through VAR pair-wise Granger causality. (ii) For block exogeneity, the Wald Test is applied. S. Johansen states that the weak exogeneity assumption influences the dynamic properties of the model and must be tested in the full system framework.

**Fifth**, equation (1) has been estimated by the Ordinary-Least-Squares (OLS) approach in order to test for the existence of a cointegrating relationship among the variables through conducting F-test for the joint statistical significance of the coefficients of the lagged variables in levels. The null and the accompanying alternative hypotheses for the cointegrating relationship are specified as follows:

For equation (1), Ho:  $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = 0$  for no cointegration, and Ha:  $\lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq \lambda_5 = 0$  for cointegration.

If the calculated F-statistic is above its upper critical value, the null hypothesis of no long-run relationship can be rejected irrespective of the orders of integration for the time-series variables. Conversely, if the calculated F-statistic falls below its lower critical value, the null hypothesis cannot be rejected. If the calculated F-statistic falls between its lower and upper critical values, the inference remains inconclusive. Finally, on the evidence of cointegrating relationship, a Vector Error-Correction Model (VECM) is estimated for long-run causality and short-term dynamics.

$$\Delta \ln NSC = \pi + \sum_{i=1}^n \Omega \Delta \ln NSC + \sum_{i=0}^n \Omega \Delta \ln IRD + \sum_{i=0}^n \mu \Delta \ln GNP + \sum_{i=0}^n \eta \Delta \ln MR + \sum_{i=0}^n \phi \ln ICT + \gamma ECM_{t-1} + \varepsilon \dots \dots \dots (2)$$

Where, 's are the coefficients relating to the short-run dynamic elasticities and  $\gamma$  is the speed of adjustment toward the long-run equilibrium associated with the error-correction term. The expected sign of error-correction term is negative. Its statistical significance is reflected through the associated t-value and its numerical magnitude indicates the speed of adjustment toward long-run convergence in equation (2).

Annual data from 1987 through 2018 are employed in empirical analysis. Outstanding amount of investment in NSCs and 3-year NSCs rate are collected from Directorate of National Savings. Rate on 3-year FDR is sourced from scheduled bank statistics. The remaining data namely income tax rate, share market return and GNP data have been collected from National Board of Revenue (NBR), Dhaka Stock Exchange and International Financial Statistics.

**3. Salient Features of National Savings Certificates**

National Savings Certificate encompasses various types of savings schemes. This is supervised by Internal Resources Division of Ministry of Finance, Government of Bangladesh and operated by National Savings Department. Each year 5 per cent source tax is cut off from the profit margin by the authority. The schemes are sold to the public through NSD Bureaus, Post Offices, Bangladesh Bank and Commercial Banks.

**Table 3.1: Key Features of National Saving Certificates**

#	Name of Schemes	Maturity	Limit	Interest Rate	Tax Treatment	Eligible Investors	Penalty	Implementing Agency
1	2	3	4	5	6	7	8	9
1.	5 years Bangladesh Sanchayapatra	5-Year	Single: 30 lac; Jointly: 60 lac	11.28% on Maturity	5% on profit	All classes of people	No interest accrued in case of encashment before 1st year <sup>1</sup>	Bank, Bureau & Post office
2.	3-Monthly Profit basis Sanchayapatra	3-year	Single: 30 lac; Jointly: 60 lac	11.04 % on Maturity	5% on profit	All classes of people	No interest accrued in case of encashment before 1st year	Bank, Bureau & Post office
3.	Pensioner Sanchayapatra	5-Year	50 lac	11.76% on Maturity	5% on profit	Retired Govt., Semi-Govt, Autonomous, Semi-Autonomous officials.	No interest accrued in case of encashment before 1st year	Bank, Bureau & Post office
4.	Poribar Sanchayapatra	5-Year	45 lac	11.52% on Maturity	5% on profit.	Any Adult Bangladeshi Female	No interest accrued in case of encashment before 1st year	Bank, Bureau & Post office
5.	Bangladesh Prize Bond	3-Month	Unlimited	6.50%	20% on prize money	Any persons	-	Bank, Bureau & Post office
6.	Wage Earner Development Bond	5-Year	Unlimited	12.00% (Compound) (11.00%+ 0.80%)	5% on profit	A Bangladeshi wage earner serving abroad	No profit will be paid before 6-month	Bank
7.	US Dollar Premium Bond	3-Year	Unlimited	7.50% on Maturity	Tax free	Non-Residence Bangladeshi FC Account holder	No profit is payable before 1 year	Bank
8.	US Dollar Investment Bond	3-Year	Unlimited	6.50% on Maturity	Tax free	Non-Residence Bangladeshi FC Account holder	No profit is payable before 1 year	Bank
9.	Post office Savings Bank-Ordinary A/C	-	Single 30 lac; Jointly 60 lac	7.50%	10% on profit	All classes of people	No profit will be paid before 1-month	Post Office
10.	Post office Savings Bank-Fixed Deposit	3-Year	Single 30 lac; Jointly 60 lac	11.28 % on Maturity	10% on profit	All classes of people	No profit will be paid before 6-month	Post Office

<sup>1</sup> In case of pre-mature encashment, interest rate is paid at lower rates.



#	Name of Schemes	Maturity	Limit	Interest Rate	Tax Treatment	Eligible Investors	Penalty	Implementing Agency
1	2	3	4	5	6	7	8	9
11.	<b>Postal Life Insurance:</b>				Tax free	All classes of people (Age limit 19 to 55 Yrs)	-	Post Office
	(I) Whole Life Insurance		Minimum limit of Investment Tk. 1,000/=	Tk.42 per Thousand. Yearly 4.2%				
	(II) Fixed Term Insurance	5/10/15/20/25/30/35/40	Minimum limit of Investment Tk. 1,000/=	Tk.33 per Thousand. Yearly 3.3%				

Source: <http://www.nationalsavings.gov.bd>

There are different schemes with different maturity levels. Five-year and three-year schemes are most frequent among the different categories. This is followed by the three-year schemes. The above mentioned schemes implicitly carry Government guarantee. These are quite popular and every year a huge amount of money is collected through these schemes. Additionally, NSCs give returns higher than the banks; seemingly this discourages the people from investing in high risk instruments. Thus higher rate in NSCs along with the increase in number of investors is likely to cause a significant liability to the government.

#### 4. Trend and Status of National Savings Certificates (NSCs)

##### 4.1. Scheme-wise Outstanding Amount of NSCs (Tk. Billion) and Interest Rate (%)

A total number of seventeen savings certificates are available in Bangladesh for different types of investors. Table-4.1 shows outstanding stocks (Tk. billion) of all the savings certificates for the period 2010-2018. In 2010, highest amount of outstanding stocks was captured by 3-monthly profit bearing savings certificates (Tk. 235.95 billion) followed by Post Office Fixed Deposit scheme (Tk.116.66 billion) and 5-year Bangladesh sanchayapatra (Tk. 114.39 billion). Pensioner sanchayapatra and wage earner development bond are two other widely bought savings instruments. In 2018, the highest amount of outstanding stocks among all the savings certificates has been captured by family savings certificates (Tk. 917.41 billion) followed by 3-monthly profit bearing savings certificates (Tk. 590.92 billion) and Post Office Fixed Deposit account (Tk. 284.30 billion). After experiencing declining trends from 2010 to 2013, 3-monthly profit bearing sanchayapatra and Post Office Fixed Deposit account have enjoyed steady growth upto 2018. Among, all the savings certificates, family savings certificate has witnessed the extra ordinary growth in outstanding stocks amounting Tk. 917.41 billion in 2018 compared to only Tk. 0.85 billion of outstanding stock in 2010. Among the instruments, 5-year Bangladesh sanchayapatra has experienced steady growth in outstanding stock during 2010-2018. Considering the Compound Annual Growth Rate (CAGR) of all the instruments for the period of 2010-2018, family savings certificate has ranked the top (CARG 117.41%). The next highest compound annual growth instruments are Post Office Ordinary Account

(CAGR 15.69%), US dollar investment bond (CAGR 13.08%), pensioner sanchayapatra (CAGR 11.24%) and 3-monthly profit bearing savings certificate (CAGR 10.74%). The lowest CAGR of outstanding amount of savings certificate was for 3-year National Investment Bond (28.29%) followed by defense savings certificates (22.3%). Among all the instruments, 10-year Bangladesh sanchayapatra has experienced zero growth in outstanding stocks (Table-4.1). In terms of interest rate, 6-monthly profit bearing sanchayapatra and wage earners development bond have the highest rate (12%) followed by pensioner sanchayapatra (11.76%) and family savings certificates (11.52%). Both 5-year Bangladesh sanchayapatra and Post Office Fixed deposit schemes provide 11.28% interest. Among all the instruments, postal life insurance scheme provides the lowest interest rate (4.2%) (Table-4.1). Of all the savings instruments, family saving certificate is the most popular and the second most popular instrument is the 3-monthly profit bearing sanchayapatra.

**Table 4.1: Status and Trend of Scheme-wise Outstanding Amount of NSCs (Tk. Billion) and Interest Rate (%)**

Instruments		Year									CAGR
		2010	2011	2012	2013	2014	2015	2016	2017	2018	
5Y BD Sanchayapatra	Amount	114.39	114.49	105.35	105.60	117.88	148.36	186.24	236.55	269.60	9.99%
	IR (%)	10.50	10.50	11.55	13.19	13.19	13.19	11.28	11.28	11.28	
10Y BD Sanchayapatra	Amount	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0%
	IR (%)	-	-	-	-	-	-	-	-	-	
3-M Profit Sanchayapatra	Amount	235.95	199.90	163.96	121.49	148.07	232.04	316.35	460.93	590.92	10.74%
	IR (%)	11.50	10.00	10.78	12.59	12.59	12.59	11.04	11.04	11.04	
6-M Profit Sanchayapatra	Amount	2.00	1.97	1.86	1.86	1.86	1.81	1.79	1.79	1.79	-1.23%
	IR (%)	12	12	12	12	12	12	12	12	12	
Pensioner Sanchayapatra	Amnt.	66.64	77.63	79.91	75.83	73.39	76.46	94.12	135.60	173.79	11.24%
	IR (%)	12.50	11.81	13.19	13.19	13.19	13.19	11.76	11.76	11.76	
Family Savings Certificate	Amount	0.85	50.82	111.48	177.41	251.04	391.57	538.69	748.46	917.41	117.41%
	IR (%)	11.04	12.07	13.45	13.45	13.45	11.52	11.52	11.52	11.52	
Jamanat Sanchayapatra	Amount	0.33	0.33	0.33	0.32	0.32	0.32	0.27	0.27	0.27	-2.11%
	IR (%)	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	
Bonus Sanchayapatra	Amount	0.33	0.33	0.26	0.26	0.26	0.25	0.25	0.25	0.25	-2.92%
	IR (%)	-	-	-	-	-	-	-	-	-	
3Y Sanchayapatra	Amount	0.44	0.44	0.44	0.44	0.44	0.44	0.32	0.32	0.32	-3.31%
	IR (%)	-	-	-	-	-	-	-	-	-	
Defence Savings Certificate	Amount	4.00	1.46	0.98	0.75	0.55	0.50	0.45	0.42	0.41	-22.3%
	IR (%)	-	-	-	-	-	-	-	-	-	
PO Ordinary A/C	Amount	6.81	8.13	8.09	8.30	8.58	9.71	12.73	16.92	25.28	15.69%
	IR (%)	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	

Instruments		Year									CAGR
		2010	2011	2012	2013	2014	2015	2016	2017	2018	
PO Fixed Deposit	Amount	116.66	111.94	99.02	91.87	96.74	119.21	154.21	217.06	284.30	10.40%
	IR (%)	12.00	10.00	10.00	13.24	13.24	13.24	11.28	11.28	11.28	
PO Bonus A/C	Amount	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.38	5.74%
	IR (%)	-	-	-	-	-	-	-	-	-	
Postal Life Insurance	Amount	4.73	5.16	5.45	5.59	5.69	5.63	5.37	5.39	5.41	1.5%
	IR (%)	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	
Bangladesh Prize Bond	Amount	3.24	3.42	3.60	3.80	3.96	4.18	4.39	4.81	5.17	5.33%
	IR (%)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Wage Earner Development Bond	Amount	52.68	54.13	52.68	51.92	53.21	57.50	67.76	76.92	94.26	6.68%
	IR (%)	10.5	10.5	11.8	12	12	12	12	12	12	
3-Year National Investment Bond	Amount	12.16	10.23	8.10	0.82	0.64	0.63	0.62	0.61	0.61	-28.29%
	IR (%)	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	
US Dollar Premium Bond	Amount	1.21	1.38	2.09	2.41	2.68	2.76	2.81	2.71	2.73	9.46%
	IR (%)	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
US Dollar Investment Bond	Amount	6.71	7.90	10.88	13.52	13.97	15.23	17.09	18.61	20.29	13.08%
	IR (%)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	

Source: Directorate of National Savings

#### 4.2. Instruments Group-Wise Status of NSCs

The National Savings Certificates have been categorized into three broad headings. National bureau savings certificates, post office savings certificates and savings bonds. Among the three sub groups, national bureau savings certificates captured the major portion of household savings throughout whole period 2010-2018. More than one-third of total investment by individual belongs to this category. The second largest group chosen by the investors is post office saving certificates which captures more than 10 per cent of total savings. It is observed from Table-4.2 that the proportion of investment in national bureau savings certificates is increasing steadily over the period 2010-2018 and during the last three years more than 80 per cent of the savings has been put into these instruments by the people. On the other hand, proportion of investments by individual in other two categories of savings instruments is decreasing constantly. Especially, savings bond has captured only about 5 per cent of the total savings belonging to the NSCs. This trend is also supported by CAGR of the instruments. Whereas CAGR of national bureau savings instruments is 18.48 per cent, it is 10.50 per cent for post office savings certificates and 5.50 per cent for savings bonds. The overall CAGR of total outstanding stocks of all the instruments during 2010-2018 is 16.00 per cent (Table-4.2). National Bureau Savings Certificates group is the most popular instrument bundle purchased by the investors.

**Table 4.2: Instruments Group-Wise Status of NSCs Outstanding**

Year	National Bureau Savings Certificates		Post Office Savings Certificates		Savings Bonds		Total	
	Amount (Tk. Bill)	% of Total	Amount (Tk. Bill)	% of Total	Amount (Tk. Bill)	% of Total	Amount (Tk. Bill)	% of Total
2010	425.02	67.52	128.43	20.40	75.98	12.08	629.43	100
2011	447.48	68.84	125.47	19.30	77.06	11.86	650.00	100
2012	464.65	70.96	112.79	17.23	77.35	11.81	654.79	100
2013	484.06	73.06	106.00	16.00	72.47	10.94	662.52	100
2014	593.89	76.18	111.24	14.27	74.46	9.55	779.59	100
2015	851.84	79.84	134.78	12.63	80.29	7.53	1066.92	100
2016	1138.59	81.11	172.55	12.29	92.67	6.60	1403.81	100
2017	1584.71	82.20	239.61	12.43	103.67	5.37	1927.98	100
2018	1954.87	81.68	315.36	13.18	123.05	5.14	2393.28	100
CAGR	18.48%		10.50%		5.50%		16.00%	

Source: Directorate of National Savings

### 4.3. Outlet-wise Outstanding Amount of NSCs

Outlet-wise outstanding amount of NSCs is presented in Table-4.3. It is noticed that sales volume through the banks was the highest in 2010 (53.90%). In 2011, this proportion is the highest for savings bureau outlets in (42.12%) but post offices take the lead in 2012 (61.31%). In 2013 and onward, highest proportion of outstanding NSCs of all categories has been sold through post offices. In the last two years (2017 and 2018) more than half of the savings instruments have been sold through post offices (53.75% and 56.06%, respectively). This trend of increasing amount of NSCs sold through post offices is also supported by CAGR. CAGR of the volume of NSCs sold through post offices is 23.77% for the period 2010-2018 followed by sales volume captured by savings bureau offices (13.11%) for the same period. CAGR of total volume of NSCs sold through all the outlets is 16.70% (Table-4.3).

**Table 4.3: Outlet-wise Outstanding Amount of NSCs**

Year	Sales Outlets							
	Savings Bureaus Offices		Banks		Post Offices		Total	
	Amount (Tk. Bill)	% of Total	Amount (Tk. Bill)	% of Total	Amount (Tk. Bill)	% of Total	Amount (Tk. Bill)	% of Total
2010	15.16	13.08%	62.47	53.90%	38.27	33.02%	115.91	100%
2011	8.66	42.12%	4.09	19.88%	7.81	37.99%	20.57	100%
2012	2.99	62.33%	-1.13	-23.64%	2.94	61.31%	4.79	100%
2013	1.43	18.50%	-10.10	-130.68%	16.40	212.18%	7.73	100%
2014	19.05	16.28%	41.96	35.84%	56.06	47.88%	117.07	100%
2015	52.48	18.27%	104.20	36.27%	130.64	45.46%	287.33	100%
2016	48.05	14.26%	125.36	37.21%	163.48	48.53%	336.89	100%
2017	65.08	12.42%	177.40	33.83%	281.75	53.75%	524.17	100%
2018	45.95	9.87%	158.54	34.07%	260.82	56.06%	465.30	100%
CAGR	13.11%		10.9%		23.77%		16.70%	

Source: Directorate of National Savings

#### 4.4. Original Budgeted Amount of Borrowing and Actual Amount of Borrowing by Govt. through NSCs

Table-4.4 presents the picture of original budgeted amount of government borrowing, actual amount of borrowing and percentage of actual borrowing as percentage of budgeted amount through NSCs. It is noteworthy to mention that in most of the years during 2007-2018, government's borrowing through NSCs has far exceeded the original budgeted amount. Particularly in 2010, actual amount of borrowing was more than 3.5 times than the original budgeted amount. The reverse situation is also observed during 2011-2013 when actual borrowing was far less than the original budgeted amount. It is notable to state that in 2012 government has actually borrowed only 4 per cent of the original budgeted amount through NSCs followed by 11 per cent in 2013. In 2007, government borrowing through NSCs was exactly at par of the original budgeted amount. The amount of both original budgeted and actual borrowing through NSCs has increased over the year 2007-2018 which is evident from CAGR. CAGR of original budgeted amount of government borrowing through NSCs is 24.96 per cent compared to 29.92 per cent for actual amount of borrowing during 2007-2018 (Table-4.4).

**Table 4.4: Original Budgeted Amount of Borrowing and Actual Borrowing by Govt. through NSCs**

Year	Original Budgeted Amount of Borrowing (Tk. Billion)	Actual Amount of Borrowing (Tk. Billion)	Actual Borrowing as % of Original Budgeted Amount
2007	26.00	26.00	100%
2008	37.78	NA	-
2009	27.86	34.96	125%
2010	32.77	116.99	357%
2011	74.77	18.02	24%
2012	60.00	2.11	4%
2013	74.00	8.24	11%
2014	49.71	117.74	237%
2015	90.56	287.05	317%
2016	150.00	341.52	228%
2017	196.10	518.06	264%
2018	301.50	462.89	154%
CAGR	24.96%	29.92%	-

Source: Budget at a Glance, Ministry of Finance (2007-2018)

#### 4.5. Deposit (FDR)-NSCs Ratio

Deposit (FDR)-NSCs ratio has been portrayed in Table-4.5. It is observed that outstanding stock of FDR is higher than that of NSCs for the entire period of 1998-2018. Although FDR-NSCs ratio declined during 2001-2002, it showed increasing trend after 2002 and continued till 2013. Again, the ratio started to decline from 2014 and continued till 2018 and has become less than 2 in 2018 (Table-4.5).

**Table 4.5: Deposit (FDR)-NSCs Ratio**

Year	Deposit (FDR-All) (Amount Tk. Billion)	NSCs (Amount Tk. Billion)	Deposit-NSCs Ratio
1998	160.015	118.484	1.35
1999	185.481	136.458	1.36
2000	223.118	184.479	1.21
2001	260.851	226.852	1.15
2002	311.137	273.519	1.14
2003	376.67	316.579	1.19
2004	435.121	355.635	1.22
2005	514.196	380.596	1.35
2006	635.215	410.262	1.55
2007	769.684	452.011	1.70
2008	948.967	477.194	1.99
2009	1246.78	513.527	2.43
2010	1390.22	629.433	2.21
2011	1856.64	650.002	2.86
2012	2402.8	654.792	3.67
2013	2980.62	662.521	4.50
2014	3494.74	779.594	4.48
2015	3825.36	1066.92	3.59
2016	4107.62	1403.81	2.93
2017	4232.16	1927.98	2.20
2018	4713.84	2392.09	1.97

Source: Directorate of National Savings

#### 4.6. Interest Rate Change of NSCs

Table-4.6 shows the point of interest rate changes of NSCs year on year basis. It is found that interest rate changes occurred in 1998 for the recorded time period. The rate becomes 13.50 per cent in 1998. Other interest rates changing years and rates are captured in the table below. Last interest rate change happened in 2015 and the rate was fixed at 11.04 per cent.

**Table 4.6: Interest Rate Change of NSCs**

Year	Interest Rate Change To (%)
1998	13.50%
2001	12.00%
2004	10.50%, 10.00%
2005	11.50%
2010	10.00%
2011	10.78%
2012	12.59%
2015	11.04%

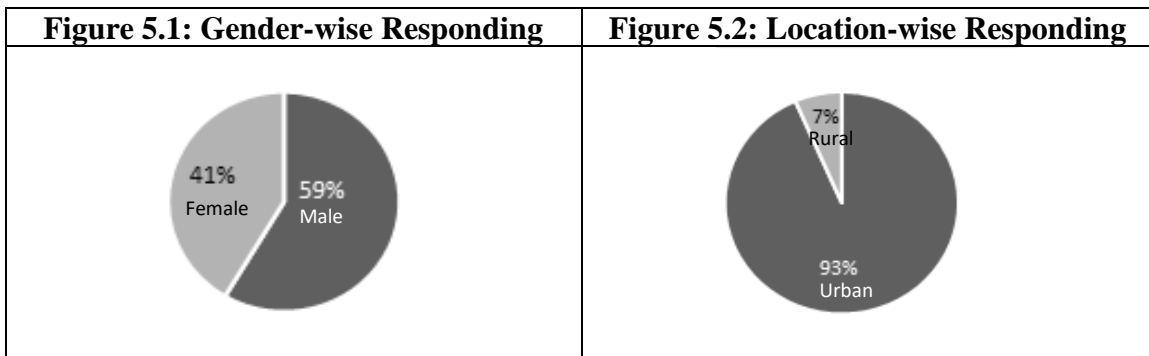
Source: Directorate of National Savings

## 5. Composition of Beneficiaries and Decision of the Investors in NSC

### 5.1. Description of the Sample

#### 5.1.1. Gender and Location

One of the objectives of the study is to examine the composition of investors including perception and decision factors of the individuals in purchasing national savings certificates. With this respect, a sample survey has been conducted in which a total of 246 respondents put their opinions. The sample consists of 59 per cent male and 41 per cent female respondents and majority of them live in urban areas (Figures-5.1 and 5.2).



Source: Survey

#### 5.1.2. Education and Age

In examination education level, it is interesting to see that a significant portion of investors (44.31 per cent) was from the highest level of education followed by undergraduate with 20.33 per cent and HSC with 23.98 per cent. It indicates that literate persons in the urban area mostly invest in NSCs. The distribution of age is shown in Table-5.2. More than 50 per cent of the respondents are within the age bracket of 30-50 years. This was followed by the age bracket of 50-60 while people below 30 years of age were the least in terms of percentage. This reveals that majority of the investors belongs to the age group between 30-50 years.

Table 5.1: Educational Level		Table 5.2: Age	
Level of Education	%	Age	%
Below Primary	3.25%	Below 30	6.91%
SSC	8.13%	30-50	52.03%
HSC	23.98%	50-60	26.83%
Under-Graduate	20.33%	60+	14.23%
Graduate and Above	44.31%	Total	100.00%
Total	100.00%		

Source: Survey.

### 5.1.3. Point of Transactions and Professional Variety

The distribution of the respondents categorized by the points of transaction documents the liking of the investors for doing transactions. The highest number of respondents prefers to do transactions in Post Office followed by National Savings Bureau/ Directorate (Table-5.3).

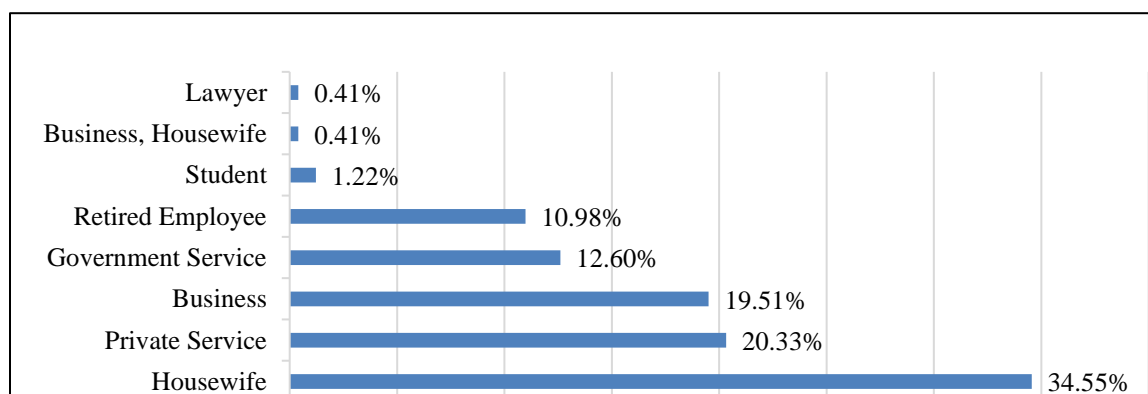
**Table 5.3: Point of Transaction**

Point of Transaction	Number			
	100%	50-100%	0-50%	Total
Bangladesh Bank	8	0	2	10
Commercial Bank	6	0	1	7
Post Office	160	2	3	165
National Savings Bureau/ Directorate	67	3	0	70

Source: Survey

In terms of professional diversification, housewives are dominating in investing NSCs. This is followed by service holders, businessman, Government service holders, retired employee, etc. (Figure-5.3).

**Figure 5.3: Professional Variety**



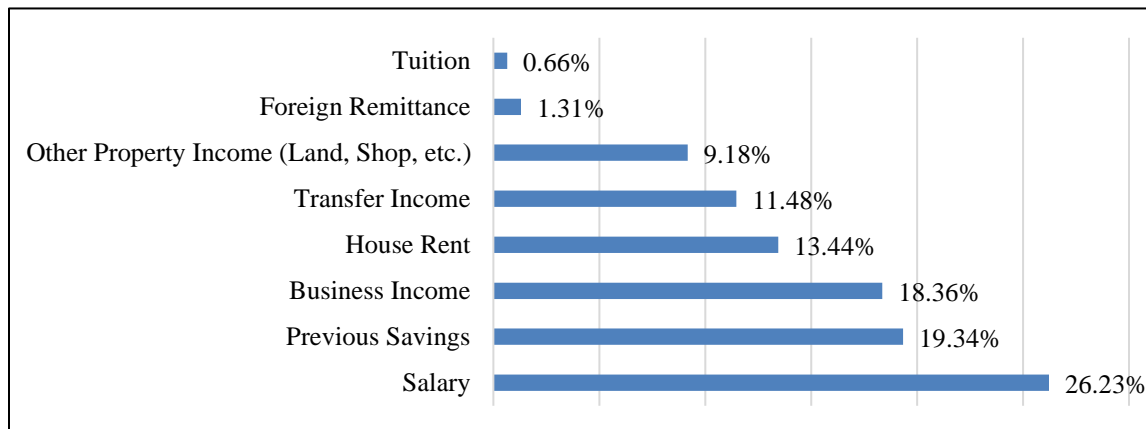
Source: Survey



### 5.2. Source of Funds for Investment

Sources of income of the investors are shown in Figure-5.4. Incomes of investors are generated from salary, previous savings, business income, house rent, transfer income and some others. Salary is the highest sources of income with a share of 26.23 incomes. Additionally, business income and previous savings are also influential sources of income with 18.36 per cent and 19.34 per cent, respectively.

**Figure 5.4: Source of Income of Investors**

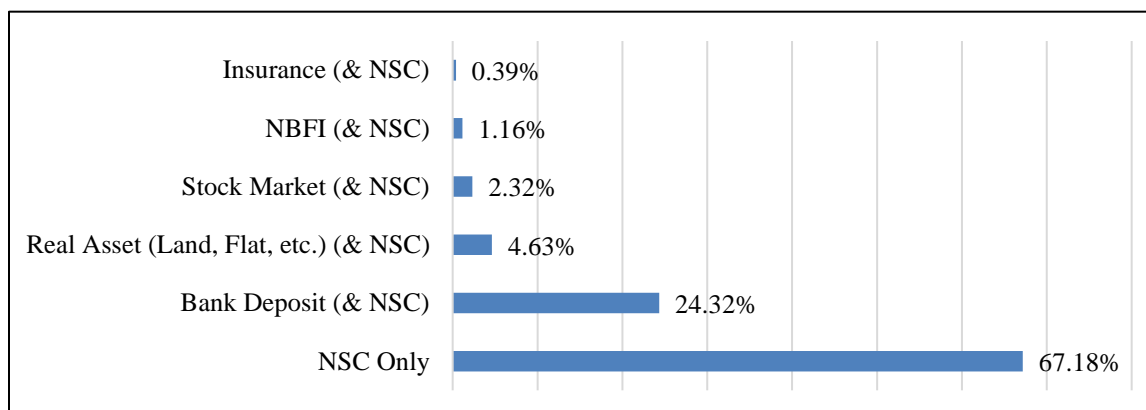


Source: Survey

### 5.3. Investment Pattern of NSCs Investors

Figure-5.5. Shows that how investors holding NSCs are investing their remaining funds in others instruments. It is found that they have invested 67.18 percent of their funds in NSC and the remaining in bank deposit, real asset, etc indicating that people investing in NSCs are also diversifying their investment in other instruments.

**Figure 5.5: Investment Pattern of NSCs Investors**

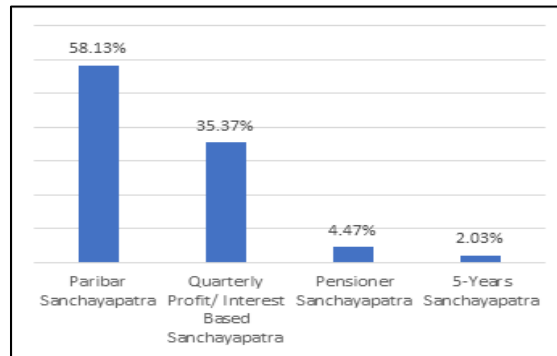


Source: Survey

#### 5.4. Categories of NSCs

The preference order of the respondents among the different types of Sanchayapatra is shown in Figure-5.6. From there, it is observed that Paribar Sanchayapatra is the most preferred type of instrument with a share of 58.13 per cent respondents followed by Quarterly Interest Rate Based Sanchayapatra (35.37 per cent). Opinion of withdrawing interest on monthly basis and higher interest rates are viewed as the main motives for the revealed preference of the NSC purchases (Figure-5.12).

**Figure 5.6: Preferred Types of NSC Instrument**

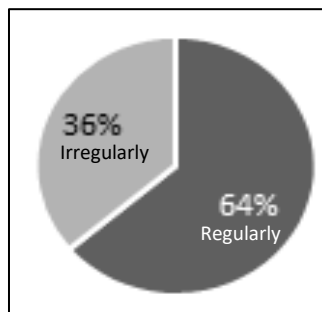


Source: Survey

#### 5.5. Frequency of Purchasing NSCs

NSCs are purchased regularly by almost 64 per cent of the sampled respondents (Figure-5.6). The remaining 36 per cent stated that they are not regular in buying NSCs.

**Figure 5.7: Frequency of Purchasing NSCs**

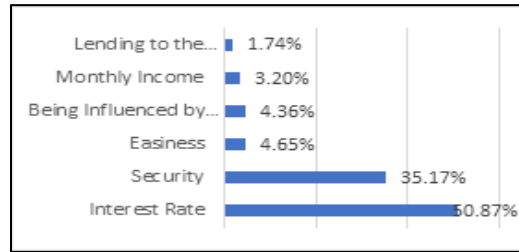


Source: Survey

#### 5.6. Reasons for Purchasing NSCs

Reasons for purchasing NSC by the investors are shown in the Figure-5.8. Interest rate and security came out as the two most important reasons with 50.87 percent and 35.17 per cent responses among the sampled group. Easiness and monthly income are also found as causes of purchasing NSCs.

**Figure 5.8: Reasons for Purchasing NSC (% of the Respondents)**



Source: Survey

**5.7. Main Purpose and Difficulties**

The main purpose of purchasing NSC has been examined in the study. Among the respondents almost 75 per cent of the sampled people purchased NSCs only for getting higher interest rates (Table-5.4). Another fact to be noted here is that very few people faced difficulties while purchasing NSCs (Table-5.5). It proves that easiness is also an important factor why people are interested to buy NSCs.

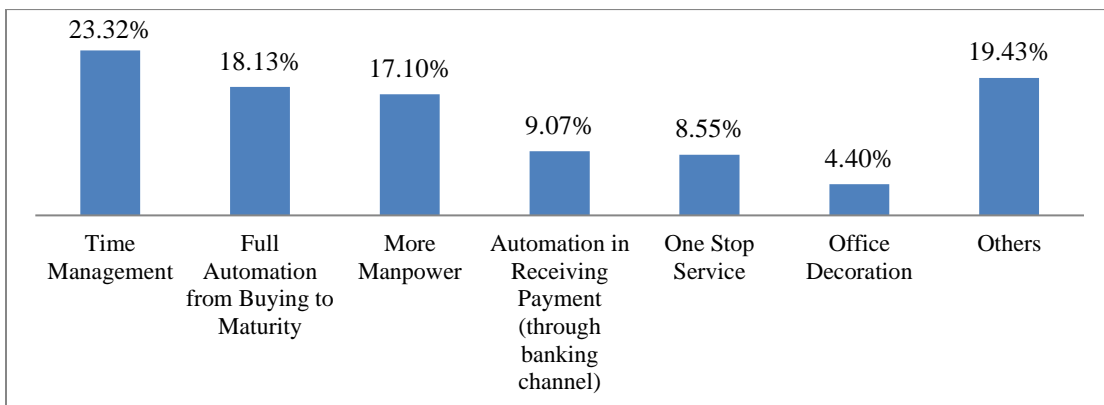
Table 5.4: Purchasing NSCs only for Higher Interest Rate		Table 5.5: Facing Difficulties in Purchasing NSCs	
Responses	%	Responses	%
Yes	74.80%	Yes	5.28%
No	25.20%	No	94.72%
Total	100%	Total	100%

Source: Survey

**5.8. Smoothing of NSC Operations and Availability of NSCs**

The respondents were asked to suggest the ways for improving the operations of NSC (Figure-5.9). In response to this query, the highest number of respondents emphasized on the importance of making the sales and encashment of Sanchyapatra at less time consuming. Other major recommendations include full automation of the operations and deployment of more manpower.

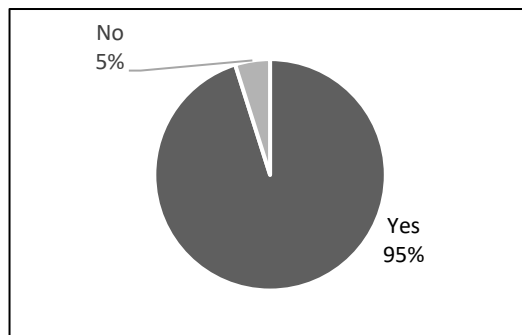
**Figure 5.9: Smoothing the Operations of NSCs**



Source: Survey

Interestingly, most of the respondents informed that they get the opportunity of buying NSC whenever they are willing to do so (95.12%). It looks contradiction with the common claim of the investors that instruments are not available (Figure-5.10).

**Figure 5.10: Availability of the NSCs**



Source: Survey

### 5.9. Relative Benefits of NSCs over Bank Deposits

The relative benefits of NSCs over bank deposit as perceived by the respondents are presented in Table-5.6. It is seen that the more than half of the respondents place weight on higher interest rate of NSC and some other feel more secured in purchasing NSC. Monthly income is also contemplated as a considerable benefit by the investors.

**Table 5.6: Relative Benefits of NSCs over Bank Deposits**

Responses	% of the Respondents
Higher Interest Rate (in NSCs)	51.60%
More Secured (in NSCs)	31.09%
Monthly Income (in NSCs)	7.69%
Fixed Interest (in NSCs)	2.56%
Poor Customer Service (in NSCs)	2.24%
Easier Encashment Process Before Maturity (in NSCs)	0.96%
Psychological Term of "Profit" (in NSCs)	0.96%
No Differences	2.88%
<b>Total</b>	<b>100%</b>

Source: Survey

### 5.10. Dependency on NSC and Expected Future Interest Rate on NSC

Nature of dependence on interest income from NSC by the respondents for their livelihood is shown in Table-5.7. There we see a large variation among the individual. The highest number of respondents meets 10-20 per cent of their expenditure from their interest income on NSCs. There are some investors having almost full dependency on NSC income for maintaining their daily living.

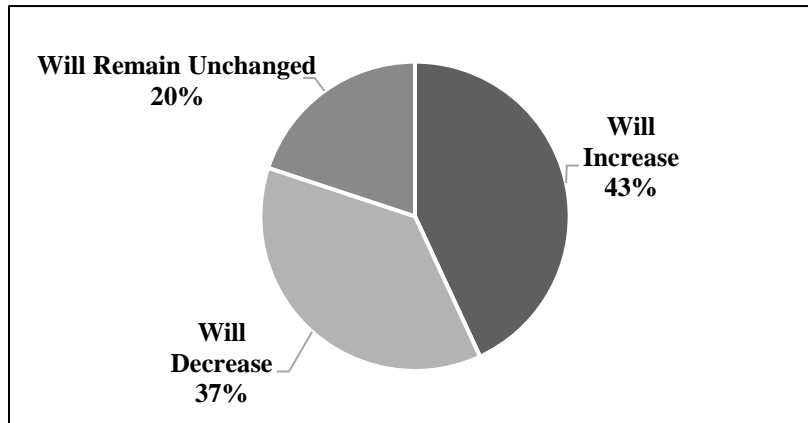
**Table 5.7: Dependency of the Respondents on NSC Income**

Range of Dependency	
Family Expenditure	%
0-10%	17.07
10-20%	20.33
20-30%	12.20
30-40%	14.23
40-50%	8.94
50-60%	4.88
60-70%	2.44
70-80%	1.63%
80-90%	8.94%
90-100%	9.35%
Total	100%

Source: Survey

Anticipated movement in the future interest rate of NSC is presented in Figure-5.13. It is evident that there are two almost equal groups divided in their expectation about the future NSC interest rates.

**Figure 5.11: Anticipated Directional Movement in NSC Interest Rate**



Source: Survey

## 6. Interest Rates on NSCs and Mismatch in the Market

### 6.1. Interest Rates on NSCs and Bank Deposits

Interest rates on NSCs which are administered rates so far apparently look more lucrative than market interest/ deposit rates. As such, the banks in Bangladesh are not able to collect deposits enough to meet their customers' demand. Hence, some banks especially of late generation having not so name & fame are becoming hungry for collecting deposits even with much higher than the market interest rates. While comparing interest rates on NSCs with bank deposits, the analysts (Economists, Researchers, and Academicians, etc.) generally focus on the weighted average interest rates of bank deposits. Again while calculating weighted average interest rates, all types of deposits, even zero interest bearing

deposits are taken into consideration. As a result, interest rate on deposits gives a small figure which is, in fact, not comparable to the interest rates on NSCs of longer maturity.

## 6.2. Comparable Savings Instruments and Current Interest Rates

### 6.2.1. Saving Instruments, Administered and Market Interest; and Monetary Policy Stance

One of the basic characteristics of the market structure of interest rates of a country is that all interest rates move together in the same direction, consistently with the monetary policy stance. Now the fundamental question arises as to whether the administered interest rates on NSCs distort the market structure of interest rates in Bangladesh. Putting it another way, whether the administered interest rates (on NSCs) impact the market rates, especially deposit interest rates in a bigger way or dominate the deposit interest rates in such a way that the monetary policy stance is not channelized properly.

### 6.2.2. Current Interest Rates

Addressing the above question discussion on major five national savings out of existing eleven, which cover above 94 percent of the net sales of NSCs in FY18 will be focused. However, while talking about interest rates on National Saving Certificates (NSCs), it is essential to know different types of instruments with different maturity and the interest rates thereon. Moreover, some instruments are specified for certain group where others are not eligible to invest. So, higher interest rates on those saving instruments appear to have a little effect on the interest rates of other instruments. In addition, there is some conditionality imposed upon the purchase of NSCs like maturity period, minimum denomination of investment, income tax remission, tax at sources, and lack of borrowing facility mortgaging instruments in case of emergency. Therefore, all these features/ characteristics of NSCs along with interest rates need to be considered while comparing interest rates on NSCs with the existing interest rates in the market and government securities. Basically there are three types of savings/investment instruments, such as a) national savings instruments, b) government securities (Treasury Bills & Treasury Bonds), and c) Bank deposits, especially fixed deposits. A structure of interest rates on NSCs, Treasury securities (Bills and Bonds), and Fixed Deposits at the end of June 2018 is given below.

**Table 6.1: Existing Interest Rates on Different Savings Instruments**

Name of the Instruments	Interest Rates
<b>1. NSCs</b>	
a. 5- yr. paribar Sanchayapatra	11.52
b. 5- yr. Pensioner Sanchayapatra (3-monthly profit)	11.76
c. 5- yr. Bangladesh Sanchayapatra	11.28
d. 3- yr. 3-monthly profit bearing Sanchayapatra	11.04
e. P/O savings bank (ordinary deposit)	7.50

Name of the Instruments	Interest Rates
f. 3- yr. P/O savings bank (Fixed deposit)	11.28
g. 5-yr.or multiple Postal Life Insurance i) Life	4.20
ii) Fixed	3.30
h. 5-yr. Wage Earner Development Bond ( in taka)	12.00
i. 3-yr. US Dollar Premium Bond	7.50
j. 3-yr. US Dollar Investment Bond	6.50
k. Prize Bond	
<b>2. Government Securities</b>	
a. 1-yr. (Government) Treasury Bills	4.27
B. 5-yr. (Government) Treasury Bonds	5.98
<b>3. 3-year and above FDR</b>	10.17

Sources: DNS, MOF, Bangladesh and MEIs & *Scheduled Bank Statistics*, BB

**A) National Savings Instruments (NSCs):** Majority of the NSCs mentioned above are long-term and specified for various groups of people. The people generally (irrespective of their sex, office identity, residence) can purchase 3-year Three Monthly Profit Bearing Sanchayapatra and 5-year Bangladesh Sanchayapatra. Table-6.1 demonstrates that interest rates on most of the NSCs are well above 11 percent while the interest rate on mostly comparable NSC with bank deposits i.e. 3-year Three Monthly Profit Bearing Sanchayapatra is 11.04 percent.

**B) Government Securities:** It is noteworthy that interest rates on government securities (T-bills and T- bonds) are, in fact, not market based. Because, holding government securities for banks and financial institutions are mandatory as these securities are used for maintaining their SLR (Statutory Liquidity Requirement). Bangladesh Bank, on behalf of the Government, sells T-bills of different maturity at the auction, offering from higher to lower prices associated with lower to higher amount of taka demanded by the Government gradually in the bid for a particular valued T-bill, say a T-bill of Tk. 100.00. As and when the Government requires less money from T-bills, BB offers higher prices for T-bills. As a result, banks and financial institutions get less discounted amount or lower rate of interest since they use these securities for maintaining SLR. Interest rate on 1-year T-bills (short-term) stood at 4.27 percent at the end of FY2018.

On the other hand, BB offers different interest rates of Treasury bonds of different maturity. Generally what happens is that “the higher the maturity period, the higher the interest rates”-based principle is followed. In case of bond auction, BB offers interest rate associated with specified amount of bond, starting from lower to higher. Banks and non-bank financial institutions take part in the bid and purchase bonds of their required amount for maintaining SLR. If any amount of bonds be excess which the Government needed but the banks and financial institutions did not purchase then this part will be devolved to either BB itself or banks and financial institutions proportionately

predetermined by BB. In addition, BB on behalf of the Government is the only seller of T-bills and T-bonds, and its requirement depends on the uncontrolled borrowings from public through NSCs. So, despite the Government securities are sold through one specific type of market mechanism (which does not satisfy the market condition), interest rates could not be said market based because of the conditionality/ facility of usage of securities in SLR and of special nature. Interest rate of 5-year T-bonds stood at 5.98 percent at the end of June 2018.

**C) Bank Deposits:** The rest bank deposit could be considered as alternative schemes to NSCs for mobilizing savings from the public. Again there are basically two types of deposits viz. demand deposits and time deposits. Demand deposits do not match with NSCs because of its nature of instant encashability, and in fact have no interest. On the other hand, time deposits have different maturity periods like 3-month, 6-month, 1-year, 3-year & above while NSCs have only two maturity periods i.e. 3-year and 5-year. So, deposits have shorter maturity; hence investors remain concerned or uncertain regarding what could be the profit/ interest rates after the maturity whereas investors in NSCs having longer maturity remain certain up to the maturity. Given the dissimilarities between fixed deposits and NSCs, interest rates on fixed deposits of 3-year & above and NSCs could be comparable to some extent. Table-6.1 shows that Interest rate on fixed deposits of 3-year & above was 10.17 percent.

### 6.3. Interest Rates on Some Mostly Sold NSCs and FDR (3-year & above)

The changes of interest rates on NSCs and FDR of 3-year & above are shown in Table-6.2 which seem to have comparability. It has been seen that interest rates on NSCs of 3-year Three Monthly Profit Bearing Sanchayapatra and FDR of 3-year & above are close.

**Table 6.2: Interest Rates on Some Mostly Sold NSCs and FDR**

Savings Instruments	June 2000	June 2006	July 2010	June 2012	June 2018
1. 5-yr. Family Sanchayapatra	-	-	11.04	13.45	11.52
2. 3-yr. 3-monthly profit bearing Sanchayapatra	13.50	11.50	10.00	12.59	11.04
3. P/O-Savings bank (3-yr. Fixed Deposits)	12.50	11.50	11.50	13.24	11.28
4. 5-yr. Pensioner Sanchayapatra	-	12.50	11.00	13.19	11.76
5. 5-yr. Bangladesh Sanchayapatra	14.50	12.00	10.50	13.19	11.28
<b>6. FDR in Banks (3-yr. and above)</b>	-	<b>9.40</b>	<b>10.23*</b>	<b>11.73</b>	<b>10.17</b>

**Sources:** *Economic Trends and Scheduled Bank Statistics*, Bangladesh Bank

**Notes:** Nil \* June 2010; Data are on the date. Rates are considered after the maturity period.

Sometimes, FDR rates were higher than NSCs rates such as FDR rate stood 10.23 percent in June 2010 while the Government fixed interest rate on 3-year Sanchayapatra at 10 percent in July 2010. In addition, post office fixed deposits rates are always well above the

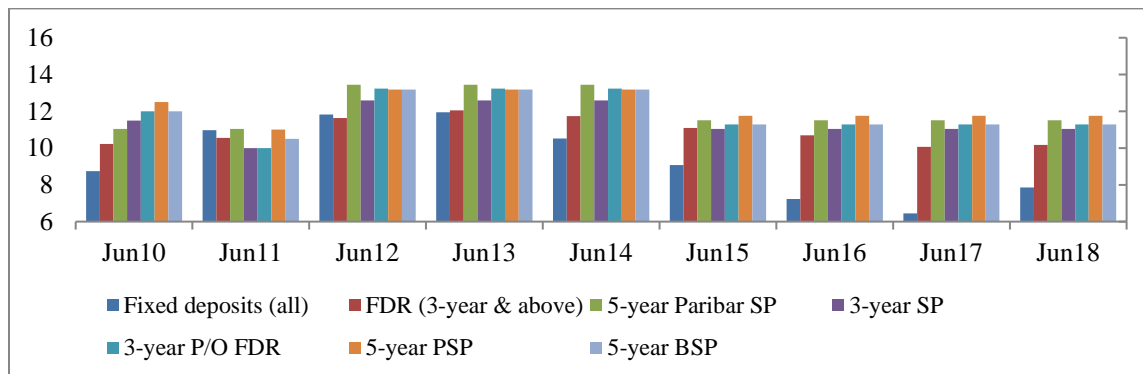


deposit rates in banks, diverting deposits from money market; and thereby hindering money supply process.

#### 6.4. Interest Rates of FDR and NSCs: A Comparative Analysis

A comparative picture of interest rates on FDR and NSCs associated with deposits/ sales is given in the following figures. Figure-6.1 shows the interest rates movements of FDR altogether, FDR of 3-year & above, and mostly sold NSCs from June 2010 to June 2018.

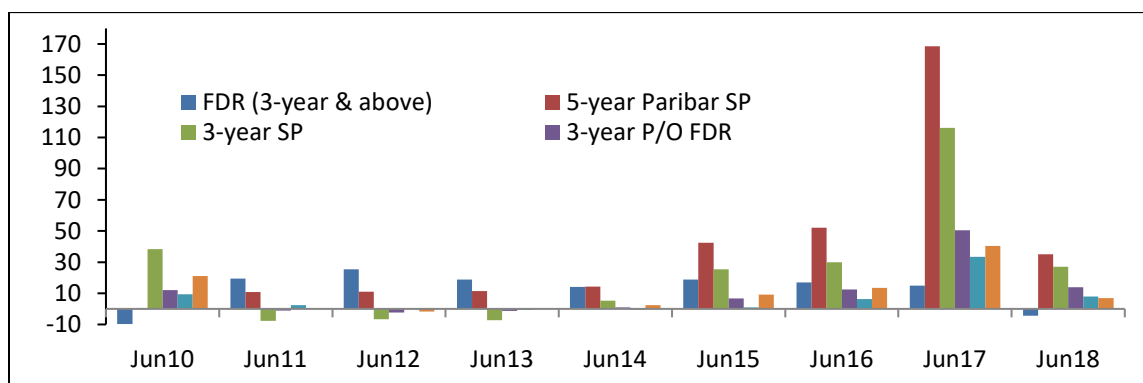
**Figure 6.1: Trends of Interest Rates on Different Saving Instruments**



**Source:** *Scheduled Bank Statistics*, Bangladesh Bank, and DNS, MOF, Bangladesh

The figure broadly points to the fluctuations of interest rates on FDR (all). But the interest rates of FDR of 3-year & above remained closer to the interest rates of NSCs. Moreover, it is sometimes noticed that banks offer higher interest rates on FDR with lower maturities depending on their demand for deposit collection while rates on NSCs hardly follow the rule, and generally remain constant for a long time; hence mismatch happens between deposit rates and NSCs rates. For instance, interest rates on FDR (all) were higher at 10.97 percent and 11.82 percent in FY11 and FY12, respectively compared with 10.56 percent and 11.63 percent on FDR of 3-year & above.

**Figure 6.2: Yearly Investments in NSCs and 3-year FDR: As Percentage of FDR (all)**



**Source:** *Scheduled Bank Statistics*, Bangladesh Bank, and DNS, MOF, Bangladesh and Author's Own Calculation

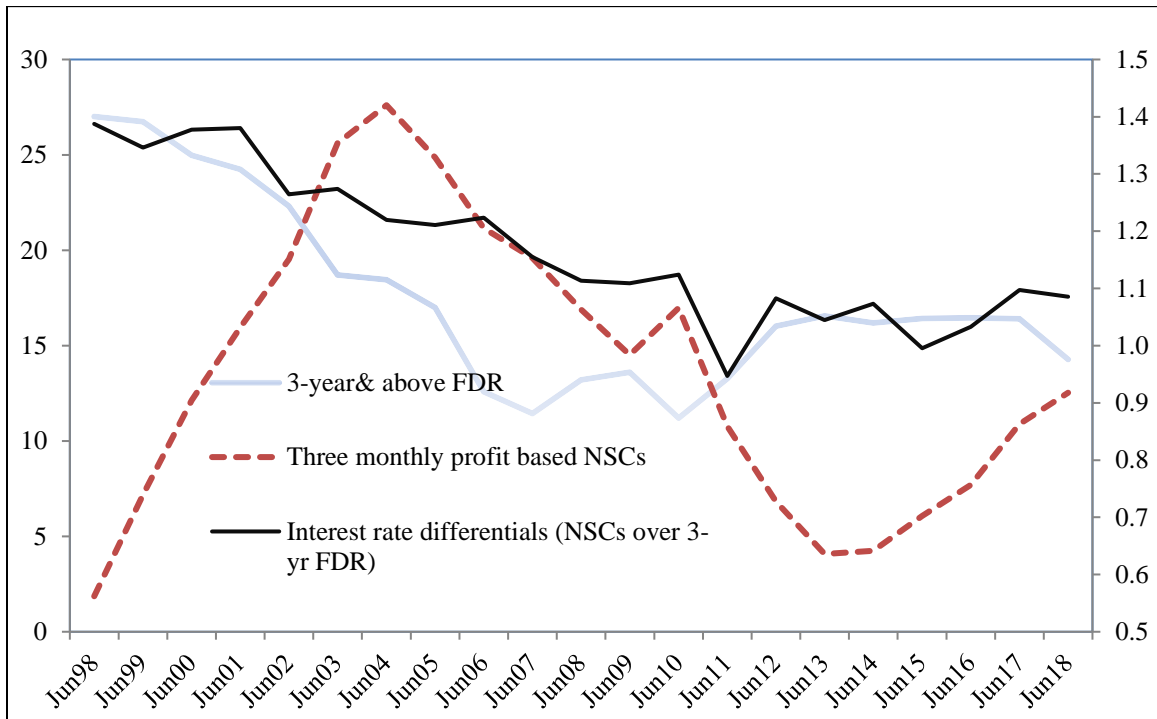
Looking at Figures-6.1 and 6.2 simultaneously broadly suggests that there is interest rate sensitivity to sales of NSCs and FDR. It is obvious from the figures that when interest rates on FDR become much less than that of NSCs, sales of NSCs as per cent of FDR boost up and vice versa. For instance Figure- 6.1 shows that FDR (all) rate was only 8.7 percent against 11.5 percent of 3-year SP in April-June 2010, people rush on to NSCs and deposits become even negative. Similarly, in April-June 2011 interest rates on FDR goes up to 11.0 percent induced by banks' demand for deposits, and NSCs rates are downward revised to 10.0 percent (3-year SP) then deposit increased and sales of NSCs stood negative. Other way round, in April- June 2010 interest rates on FDR start to go up, following some tightened policy measures taken by Bangladesh Bank to give a signal to stock market, and later on banks' hunger for deposit collection to meet liquidity requirement. But, relaxation in policy measures along with moral persuasion by BB in 2013 and 2016 under a comfortable inflationary situation does not work well to reduce FDR rates, may be due to persistence of interest rates on NSCs for a long time. Interest rates on NSCs were re-fixed in May 2015, and these are being continued till to date. Actually, banks adjust their rates with NSCs when they think to do to meet their requirement but it takes time. Administered interest rates on NSCs, therefore, sometimes impact market interest rates unfavorably; and inconsistently with monetary policy stance.

However, currently the interest rate on FDR (3-year & above) is not much less than NSCs rates but banks are collecting more short term deposits at lower rates, though increased the rates to 7.9 percent in April- June 2018 from only 6.5 percent of the same period of 2017. Hence, investment in FDR (all) increased; and FDR (3-year & above) as well as NSCs, especially 5-year Paribar Sanchayapatra as percentage of FDR (all) appears to have declined in FY2018.

#### **6.5. Interest Rates Differentials of NSCs and FDR 3-year & Above**

It is noteworthy that interest rates differentials, instead of interest rate individually can better explain the trends of FDR and NSCs. Perception is that the people consider relative interest rates of alternative investment tools, ceteris paribus while investing fund for future earnings. The following figure is the manifestation of the perception.

**Figure 6.3: Interest Rates Differentials and Movements of FDR and NSCs**



Source: Authors' Calculation

The right hand side indicates interest rates differentials of 3-year NSCs over FDR (3-year & above) while left hand side shows investments in those instruments as per cent of FDR (all). Here, it is likely proper to clear one thing that 3-year Three Monthly Profit Bearing Sanchayapatra was introduced in 1998. That is why, investment in this Sanchayapatra was very low in spite of higher interest rates differentials in that year. Later on, investment follows the above perception. Another important thing highlighted from the Figure is that interest rates differentials remain largely constant around 10 percent since FY2012. Once in May 2015 interest rates on NSCs were downward revised, hence bankers also concurrently reduce their deposit rates, indicating influence of NSCs rates on deposit/market interest rate which seems to be undesirable.

### 6.6. Concluding Points

Currently interest rate on comparable NSCs i.e. 3-year Three Monthly Profit Bearing Sanchayapatra is not much above that of FDR (3-year & above). However, the interest rates differentials remained sensitive to the investment. Bankers seem to be not so interested to collect FDR of 3-year & above, rather than they collect deposit at shorter maturity with lower interest rates. Interest rates on NSCs remain constant generally for a long time. Consequently, interest rates mismatch happens in the money market. Hence fixed interest rates on NSCs have adverse effect on the deposit rates, especially protect deposit rates from bringing down when loose monetary policy stance is taken to implement.

## 7. Impact of Interest Rate Differential, Gross National Income, Market Return and Income Tax Rate on Investment in NSCs: An Empirical Analysis

### 7.1. Unit Root Tests (ADF)

First, the results of the ADF test with orders of integration of all five variables are reported in Table-7.1. Two variables namely Lnind (log of interest rate differential) and Lnmar (log of market return) are found stationary at level. The remaining three variables namely Lnsc (log of outstanding amount of national saving certificate), Lngni (log of gross national income) and Lnict (log of income tax rate) are showing the order of integration in different levels. The haziness of the order of integration for variables suggests for applying Auto Regressive Distributed Lag Model (ARDL) for finding out the cointegration relationship.

**Table 7.1: Unit Root Tests (ADF)**

Variables	Level	First Difference	Second Difference	Results
Lnsc	-1.299278	-2.282791	-5.220068**	Stationary at second difference
Lnind	-2.947528**			Stationary at level
Lngni	-1.482616	-5.640527**		Stationary at first difference
Lnmar	-6.548611***			Stationary at Level
Lnict	-1.281629	-5.679603**		Stationary at first difference

**Source:** Authors' Calculation.

**Notes:** \*The MacKinnon (1996) ADF critical values are  $-3.752946$  and  $-2.998064$  at 1 per cent and 5 per cent levels of significance, respectively.

### 7.2. F-statistics for Co-integration Relationship

As shown above table, different order of integration for variables used in equation 1, where relationship between investment in National Saving Certificates, interest rate differential, share market return, gross national income and income tax rate is investigated, lends support to the use of Auto Regressive Distributed Lag Model (ARDL) bounds approach for examining cointegration relationship. None of the coefficients of the one-period lagged variables in natural log form as in Equations (1) is zero confirming cointegration. Additionally, calculated F-statistics is 4.640954 which is higher than the upper value of 4.01 at the 5 per cent level of significance (Table-7.2). This implies that the alternative hypothesis of co-integration may be accepted. Hence, there prevails a co-integration relationship among the variables considered in the Equation-1. Given the above information about the presence of cointegration, we can examine long run association and ECM version under ARDL procedures. (see, Pesaran *et al.*, 2001; Pesaran and Shin, 1999 for details).

**Table 7.2: F-Statistics under Autoregressive Distributed Lag  
Model Estimates for Co-integration**

Variables	Coefficients	Standard Error	T-Value	Significance Level
Lnsc(-1)	-0.083719	0.066193	-1.264783	0.2252
Lind(-1)	-0.207864	0.304371	-0.682929	0.5051
Lngni(-1)	0.018783	0.108940	0.172414	0.8654
Lnmar(-1)	-0.072203	0.097613	-0.739682	0.4709
LNICTR(-1)	0.793534	0.699162	1.134979	0.2742
<b>F-statistic</b>	<b>4.640954</b>	<b>Durbin-Watson Stat</b>		2.137720
<b>Prob(F-statistic)</b>	<b>0.001</b>			

Source: Authors' Calculation

### 7.3. ARDL Long-run Estimation

Table-7.3 confirms that the significant long run positive association between gross national income and investment in NSC of the country. The literature on the role of GNI in promoting investment also points to income leads to investment. It indicates that low and middle pay people with income from local as well as foreign sources are putting their lion amount of saving in against of NSC, a safe investment avenue. Particularly increasing of safety net programs to multiple groups along with growing aging persons also contributes in parking the huge amount of investment in NSCs. A similar inference can also be made for empirical relationship between rate of income tax and investment in NSC, as co-efficient shows positive sign with significant t-value. It reveals that rich people with high tax bracket invest a substantial amount of their savings in NSC growingly. With the increasing rate of income tax, rich people tend to invest more money in this instrument. Contrary, we do not find significant impact of interest rate differential between NSCs and FDR, a commonly discussed issue for augmenting investment on NSCs, on investment in this area. However, it shows a positive impact without any statistical significance meaning that subdued impact does exist between these variables. In other words, it can be concluded that administered interest rates on NSCs is not the strong determinant of investment in NSCs. This can be explained in that way that some banks offer attractive interest rates on FDR although analyst generally make comment based on weighted average interest of deposits of all banks in which even zero interest bearing deposits are also included. Finally, share market return is showing statistically insignificant positive impact on NSC investment which is not matching with the theory. As per theory, if secondary market return is attractive, people supposed to rush to invest in share market consequently investment in other financial instruments like in NSCs is believed to be decreased.

**Table 7.3: ARDL Long-run Estimation of Lnsc (3,1,0,0)**

Variables	Coefficients	Prob.
C	-11.38070	0.0030
Lnird	0.777404	0.2239
Lngni	1.526688	0.0000
Lnmr	0.018428	0.9247
Lnict	2.975965	0.0191
Adjusted R-squared	0.907125	-
F-statistic	69.37013	0.000000

Source: Authors' Calculation

#### 7.4. ARDL Vector Error-correction Model

Table-7.4 reports that the estimated coefficients of error correction term are negative, but statistically insignificant. It means that long run causal flows from interest rate differential, share market return, gross national income and income tax rate to investment in National Saving Certificates have been evident. However, this flow of relationship is weak as  $t$  value is less than 2 meaning that collectively aforesaid variables are not the strong determinants of NSC investment in terms of long term consideration, although variables like GNI and income tax are robustly associated with investment in saving certificates as we have seen earlier. In case of short term interactive relationship, almost the same type of inference can be made. It is evident that income tax in contemporaneous level shows a robust short-term positive causal effect to economic growth at 5 per cent level. On the other hand, GNI is showing positive impact at almost 10 per cent significance level. The adjusted-R2 discloses a moderately significant explanatory power of the model. The F-statistic is also quite significant. The DW value shows near no-autocorrelation.

**Table 7.4: ARDL (2,3,1,0,0) Vector Error-correction Model of Lnsc**

Variables	Coefficient	t-Statistic	Prob.
C	0.040904	1.114274	0.2839
RES(-1)	-0.115301	-1.492038	0.1579
D(Lnsc(-1))	0.536890	3.361689	0.0047
D(Inird)	-0.066574	-1.601001	0.1317
D(Inird (-1))	0.183679	-0.827860	0.4216
D(Inird (-2))	0.084842	-1.183629	0.2563
D(Inird (-3))	0.270072	0.056322	0.9559
D(Lgni)	0.194120	1.746287	0.1027
D(Lgni(-1))	0.086917	0.839206	0.4155
D(MR)	0.032902	1.156349	0.2645
D(Lnict)	0.762719	2.257211	0.0383
<b>Adjusted R-squared</b>	<b>0.573373</b>	<b>Durbin-Watson Stat</b>	<b>1.713387</b>
<b>F-statistic</b>	<b>3.791314</b>		
<b>Prob(F-statistic)</b>	<b>0.009472</b>		

Source: Authors' Calculation

## **8. Findings and Concluding Remarks**

### **8.1. Findings**

**8.1.1.** National Savings Certificate encompasses various types of savings schemes. This is supervised by Internal Resources Division of Ministry of Finance, Government of Bangladesh and operated by National Savings Department. A 5 percent source tax is cut off from the profit margin by the authority. The schemes are sold to the public through NSD Bureaus, Post Offices, Bangladesh Bank and Commercial Banks.

**8.1.2.** Among the 17 saving instruments available in the country, investment is concentrated into a few instruments namely family saving certificate, 3-monthly profit bearing saving certificate, pensioner saving certificate, 5-year saving certificate and post office fixed deposit account. Investment in these saving certificates is increasing steadily year on year basis especially in the last few years which is evident from CAGR. Although government fixes a target of borrowing directly from the public through saving certificates, actual borrowing exceeded in most of the years during 2003-2018 resulting in excess interest payment of Government on these instruments.

**8.1.3.** In examining the FDR of 3-year with NSCs either 3-year term or 5-year term, it is found that interest rates of 3-year FDR relative to NSCs affect the sale of NSCs, though not significantly. However, it is found that *ceteris paribus*, the higher the interest rate differentials of NSCs over 3-year FDR, the larger the sales of NSCs; and vice versa. Another important thing is observed that the interest rates of NSCs remain fixed for a long time as they are administered. Consequently banks sometimes have to adjust their rates with NSCs for collecting deposits to meet their requirements, even ignoring sometimes monetary policy stance. Moreover, they become interested strategically to collect deposits at shorter maturity with lower interest rates. Interest rates mismatch, thus, happens in the money market. Hence, fixed interest rates on NSCs have contrary effect on the deposit rates, especially to protect deposit rates from bringing down when loose monetary policy stance is taken to implement. However, presently interest rate differential of NSCs over 3-year FDR rate is not as much as it is claimed to be. The interest rate on NSC of 3-year Three Monthly Profit Bearing Sanchayapatra and FDR of 3-year & above were 11.04 percent and 10.17 per cent, respectively at the end of June 2018.

**8.1.4.** For knowing anatomy of investors, it is manifested that the majority of the investors (65 per cent) are well educated having the level of undergraduate or above with 53 per cent of them belonging to the age group from 30-50 years. Housewives, service holders (private and public), and retired employee constitute the major occupational groups among the purchasers of NSC. Major sources of income for purchasing sanchayapatra are found as salary income, previous savings, business income, house rent, and transfer income. Higher interest rate and the feeling of safety by the investors have been found as the two major

factors affecting buyers' decision of the NSC purchasers. Bank deposit ranks the top of the list of alternatives form of saving as viewed by the NSC holders followed by investing in business and physical asset. 'Paribar Sanchayapatra' and Quarterly Profit/ Interest Based Sanchayapatra have been found as the most popular instrument among all other types of NSC because of getting the highest interest rate and the facility of withdrawal of interest on monthly basis. A large variation among the individual investors has been found in their dependence on sanchayapatra income for maintaining their livelihood. About 20per cent of NSC holders depend heavily on NSC income to the extent of 80per cent-90per cent of their total family expenditure. It was hard to get the real expectation of the people about the future movement of sanchayapatra interest rate because of their unwillingness to accept a lower interest rate in the future than the current level.

**8.1.5.** A significant long run positive association between gross national income and investment in NSC of the country is found. It indicates that low and middle pay people with income from local as well as foreign sources are putting their substantial amount of saving in against of NSC, a safe investment avenue. Particularly increasing of safety net programs to multiple groups along with growing aging persons also attributes to park the huge amount of investment in NSCs. A similar inference is also found between rate of income tax and investment in NSC, as co-efficient shows positive sign with significant t-value. It reveals that rich people with high tax bracket invest a substantial amount of their savings in NSC growingly. With the increasing rate of income tax, rich people tend to invest more money in this instrument. In contrast, no significant impact was found of interest rate differential between NSCs and FDR, a commonly discussed issue for augmenting investment on NSCs, with investment in this area. However, it shows a positive impact without any statistical significance meaning that subdued impact does exist between these variables. In other words, it can be said that administered interest rates on NSCs is not the strong determinant of investment in NSCs. Finally, share market return is showing statistically insignificant positive impact on NSC investment which is not matching with the theory. As per theory, if secondary market return is attractive, people supposed to rush to invest in share market consequently investment in other financial instruments like in NSCs is believed to be decreased.

## **8.2. Concluding Remarks**

NSC serves two important objectives of Government. It acts as a stable source of funds for the government and also meets the social objectives of making prioritized saving instruments available for the target group of people such as low and middle income family, retired employees and senior citizens. But, the recent rapid growth of NSC is causing concern among the policy makers, fiscal authorities and the bankers. High volume of NSCs with an above market interest rate is increasing the interest cost of the government and may make the borrowing unsustainable in the absence of intervention measures. Many banks



opine that well above market rate offered by the national saving schemes is impacting the growth of bank deposit as well that in turn may create liquidity problem for the banking sector. Also is the finding that gradually the rich people are taking the advantage of putting their saving in these schemes to get relatively higher return as well as to reduce their tax burden. However, there is counterargument supported by findings that the interest rate differential does not matter for the bank deposit because of (i) imperfect substitutability between the NSC and bank deposit and (ii) nonexistence of strong relationship between the NSCs and money market that determines the interest rate. However, a consensus is found about the necessity of these schemes for the marginal savers with a sensible rate of interest rate. In this connection, firstly an analysis is necessary to learn as to how and what extent target investor groups are benefitted from investing their hardcore money, or benefits are going to the pocket of influential groups of the society. A thorough study can therefore be undertaken in this area. Additionally, a definition of marginal savers is also required to be developed. Afterwards, a higher interest rate can be applied for marginal savers and relatively lower or market interest rate might be followed for the richer people. Excess expenses for giving higher interest rate to marginal savers can be treated as an expense for social safety net program. However, any initiative for changing interest rate might be done at different phases. A floating rate basing on average interest rate of Government securities along with some additional basis points could also be applied for NSCs. Of course, joint initiative of fiscal and monetary authority is sine qua non for streamlining this saving and investment scheme. However, without a strong database under a full digitalization system, it is almost impossible to rationalize this process. Digitalization is foremost important for retaining investors' investment under the predetermined ceiling; checking accuracy of sale, profit distribution and encashment; linking between outlet of selling NSCs and relevant departments and reconciliation of data ; detecting fraud, forgeries and errors through proper monitoring and digging out impermissible funds invested in NSCs. Government may also create a system for continuously devolving excess amount collected by issuing NSCs to a separate fund and invest this fund under a set of regulations in risk free as well as risky securities through forming an efficient portfolio management. This initiative will act to inject more money in the money market, hence to play a supportive role in the liquidity management in the money market. Government debt management will also be strong in this manner. Additionally, earning through this portfolio management could be used in paying subsidy to the marginal savers too. However, the results could be made more robust by increasing the sample size of the respondents on the one and by estimating the model in different forms for different sample periods on the other. So, it can be safely concluded that the impact of NSC apart from its problem relating to fiscal management on the financial sector is not that much (if any) as it is thought out.

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## **Appendix 1: Discussion Summary of the Seminar on "Sale of National Savings Certificate: Beneficiaries and Interest Rate Mismatch"**

Bangladesh Institute of Bank Management (BIBM) arranged a seminar on “Sale of National Savings Certificate: Beneficiaries and Interest Rate Mismatch” on April 16, 2019. Mr. S. M. Moniruzzaman, the then Chairman, BIBM Executive Committee and Deputy Governor, Bangladesh Bank was present in the seminar as the chief guest. Besides, Mr. Barkat-e-Khuda, Ph.D., Dr. Muzaffer Ahmad Chair Professor, BIBM; Mr. S.A. Chowdhury, Former A. K. Gangopadhaya Chair Professor, BIBM; Mr. Helal Ahmed Chowdhury, the then Supernumerary Professor, BIBM; Mr. Md. Yasin Ali, former Supernumerary Professor, BIBM; Mr. Md. Ali Hossain Prodhania, Managing Director, Bangladesh Krishi Bank; and Professor Dr. Mahmood Osman Imam, Department of Finance, University of Dhaka, were present in the seminar as designated discussants. Mr. Barkat-e-Khuda, Ph.D., Dr. Muzaffer Ahmad Chair Professor, BIBM chaired the first part of the seminar and the second part was chaired by Mr. S. A. Chowdhury, Former A. K. Gangopadhaya Chair Professor, BIBM. A large number of participants including senior executives, high officials of different banks, academicians and faculty members and students of BIBM participated in the seminar. The summary of seminar discussion is as follows:

### **Observations of the Chief Guest**

**Mr. S. M. Moniruzzaman**, the then Deputy Governor, Bangladesh Bank said that National Savings Scheme was introduced primarily as a tool of mobilizing the savings of small savers and utilizing the funds for national interest. The difference between the interest rate of NSC and other instruments is obviously a cause of concern for the policy makers, he added. But the objectives of social security cannot be ignored. Growth of NSC has implications for fiscal and monetary management. Continuation of the scheme is necessary for the marginal people at a sensible rate of interest. He suggests to introduce different interest rates at different phases for the interest of general investors. Creating a strong database linked with NID is important for the authority. Government has undertaken a project to issue NSCs online. Bangladesh Bank is playing a complementary role in this regard. Coordination between fiscal and monetary issues is necessary for smooth functioning of the scheme.

### **Comments of the Discussants**

**Mr. Helal Ahmed Chowdhury**, the then Supernumerary Professor, BIBM said that national saving certificates and FDR are not substitutes. There are differences among groups of buyers of these instruments. There are specific conditions and limits of purchasing saving certificates of different types. It is important to monitor whether these conditions and limits are followed in selling the saving certificates. Automation of the

process will be very much helpful in this regard. It will ensure the fulfilment of proper objectives of issuing saving certificates. Besides, our bond market and security market should be developed as alternative sources of investment.

**Mr. Yasin Ali**, Former Supernumerary Professor, BIBM pointed out that national saving certificates for supporting particular section of the society is alright. It is also needed as a part of safety net program. But it should not be misused. There is little scope for changing interest rates. Rather the ceilings can be adjusted. TIN should be made mandatory after a certain ceiling. Deposit rate should not be lower than inflation rate. This will not be encouraging for the people's habit of savings. Loanable fund is not unlimited. So deposit and lending should be managed properly. Target groups of bank deposit and NSC are different. Bond market should be developed and government should come forward for developing this market.

**Professor Dr. Mahmood Osman Imam**, Department of Finance, University of Dhaka said that it is difficult to generalize the findings of the paper because of having a small sample. It is important to check whether the ceilings are exceeded in case of the sale of NSC. Any change in policy or any sort of reform should ensure that social safety net or serving of the specific target group should not be disturbed at all. And the interest rates should be inflation adjusted in true sense.

**Mr. Md. Ali Hossain Prodhania**, Managing Director, Bangladesh Krishi Bank, stated that there are different rates for different instruments in the same market. It is necessary to find out whether there is any abuse of high interest rate of NSC. We need a base rate for interest rate like LIBOR. Asset-Liability transformation may occur for not maintaining the ceilings for deposit and loan rates by the banks. Above all it is very important to see whether the current system is being abused or not. Because it may create distortion in the market.

**Mr. Barkat-e-Khuda**, *Ph.D.*, Dr. Muzaffer Ahmad Chair Professor, BIBM emphasized on the sample size of the study. According to him, sample size is small to generalize the study findings. We need to keep in mind that NSC and FDR are not substitutes. In case of NSC, stipulated limits must be maintained and misuse or abuse should be strictly controlled.

**Mr. S. A. Chowdhury**, Former A.K. Gangopadhaya Chair Professor, BIBM stated that there are positive sides of NSC. It contributes to asset creation for women and neglected section of the society. It also has positive impact on money supply and liquidity. NSC ensures forced savings. Government needs fund for various purposes. So NSC is needed.

### **Key Points Highlighted by Participants**

- It is necessary to identify the group of savers who are largely benefitted from NSCs.
- TIN should be mandatory for the purchase of NSC.
- NSC has important implications for social safety.
- Interest rate of NSC should be comparable with other sources of borrowing by the government.
- Separate guideline should be there for wage earners along with taxes.
- Bond market should be developed.
- NSC should be allowed to be bought by the target group of the society.

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