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NATIONAL BANK OF THE REPUBLIC OF MACEDONIA

Working Paper No.2

POSSIBILITIES FOR INVESTING FOREIGN EXCHANGE RESERVES INTO FIXED INCOME SECURITIES

Sinisha Velkovski

Skopje, June 1998

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IV. SUMMARY

Sinisha Velkovski*

INTRODUCTION

When in early seventies and, especially, early eighties, the system of fixed foreign exchange rates fell apart, significant number of central banks in the world tended to place part of the foreign exchange reserves into fixed income securities. The reason for this practice lies in the fact that after the USA Government had suspended dollar convertibility into gold, the role of the dollar as a currency which serves as means for value maintenance, started to decrease. Therefore, the interest in investing in fixed income securities appeared as an alternative solution. These securities, and especially Government fixed income securities, are considered to be very secure placements which on a longer term would bring higher income compared with bank deposits. Also, they are liquid because it is very easy to convert them into cash, and they diversify the credit risk.

I. General information about fixed income securities

1. Definition and characteristics of fixed income securities

A fixed income security is a written confirmation which is a credit instrument with which the issuer bounds to return to the owner of the confirmation the amount which he previously withdrew under preset conditions and manner of returning.

Each fixed income security contains the following elements:

- the amount borrowed i.e. nominal value of the fixed income security. That is the amount of the security and represents the principal of the debt.
- interest rate which should be paid on the borrowed amount. It represents the amount of each coupon on the date stated on the coupon.
- schedule of due interest payment, i.e. the number of coupons of the security.
- date of maturity of the security represents the deadline at which the nominal amount of the security shall be paid to the owner of that security.
- manner of payment of the fixed income security nominal amount, i.e. whether it is going to be paid in cash or through a new series of the same kind of security.
- guarantee or a manner of securing the fixed income security, i.e. whether the issue is guaranteed by movable or immovable property.

Fixed income securities may be issued by:

- corporations, and in that case they are called Corporate Fixed Income Securities

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- governments, and in that case they are called Government Fixed Income Securities

2. Factors which determine the issuance of fixed income securities

As it was previously mentioned, central banks basically place their foreign exchange reserves into government fixed income securities mainly issued by countries with which they have extensive external trade activity. Such placements are aimed at maintaining the basic function of the foreign exchange reserves, and that is providing country's liquidity in external payments on the basis of external trade exchange. The advantages of such placement of part of the foreign exchange reserves are that these securities bring income that is often higher than the current income of deposits. Also it is certain, i.e. the issuer is committed to pay his obligation in a manner stated in the in the fixed income security, because the government itself is in the role of issuer. Another advantage of these securities is the fact that they are denominated in foreign currency, and that is the currency of the country with which there is an extensive external trade, and finally, these securities are very liquid (they can be immediately converted into cash, having in mind the risk that appears due to the interest rates' fluctuation), i.e. the secondary market for these securities is highly developed and there is a constant demand for them.

The reason why governments issue fixed income securities is the lack of financial means, which could be short-term due to the time mismatch of the inflow and spending of funds, or it is a lack caused by government investment in long-term projects in which these funds are to be engaged for a longer period of time.

When the government wants to cover for the temporary lack of financial means it issues short-term securities, i.e. securities with 180 days maturity, so called Government Bills, which are issued in large quantities and they are included in the bookkeeping, which means that physically they don't exist. Most frequent buyers of these securities are institutional investors which have large amounts of financial means at their disposal and find them difficult to place, but they don't know at which moment those funds shall be used, like for example the Insurance Companies. Except for these investors, short-term fixed income securities are attractive for private individuals which own considerable amounts of financial means and invest their wealth in these securities for the purpose of higher security. Liquidity of these securities is very large both on the primary and on the secondary market. Characteristic for these securities is that they can be sold to the issuer at a preset price at any time. These securities are at a certain name, i.e. they are the so called registered fixed income securities.

For the purpose of financing some investment projects, strengthening the financial position of the budget or mobilization of unused accumulated funds, the government issues middle-term securities, so called Government Notes with maturity from 180 days up to 10 years. These securities are not issued in such large quantities as is the case with

the Government Bills and often these securities are issued in material form, i.e. they physically exist. The issuer can not purchase these securities ahead of time, except for certain types, but there is a secondary market for them, i.e. their owners mutually buy and sell these securities.

For the purpose of financing some investment projects, as well as mobilizing unused accumulated funds, mainly from households, the government may issue long-term securities, i.e. securities with maturity from 10 up to 30 years. These securities are known as Government Bonds. The bond itself is a long-term security on which only the interest is paid on annual basis, whereas the principal, i.e. the amount borrowed at the beginning is paid in the end, i.e. the maturity date of the bond.

Each country which finances part of its needs through issuance of fixed income securities, for the purpose of better debt management and providing enough funds for financing it, tends to have one type of fixed income security prevailing. This security is called benchmark security.

3. Fixed income securities market

Government fixed income securities market is organized in two parts, i.e.:

- primary market
- secondary market

On the primary market these securities are purchased directly from the issuer. Purchase is mainly conducted through auctions, which can be competitive or non-competitive. Financial institutions which the issuer i.e. the government recognized as primary dealers may appear as buyers on the primary market. They have the exclusive right to buy and sell securities, i.e. create the market for these securities. The trade among the primary dealers is direct or through brokers, aiming at discretion in the operations and, finally, there are the clients, i.e. investors who in the purchasing process contact the primary dealers or the brokers.

The secondary market may be organized as over-the-counter market or a stock exchange. Participants in this market trade with already previously issued government securities. The trade on the secondary market is conducted through dealers or brokers who do not have to have the exclusive right to act as primary dealers. These dealers quote the buying and selling prices of the fixed income securities to their clients (investors).

4. Setting the price of the fixed income securities and determinants that define this price

The price of the fixed income securities is a sum of the discounted future inflows on the basis of interest rates, as well as the discounted value of the invested amount which shall be returned on the date of maturity of the fixed income security. The prices of these

securities, except for the short-term securities, i.e. bills (which are expressed on the basis of discount) are basically expressed through the current value of the principal which only at the moment of issuance, i.e. on the primary market is 100 (which is 100% of the current value), whereas the current value on the secondary market may be below or above 100 depending on the current movement of interest rates. As mentioned before, each bond has a part presenting the nominal value and part with the coupons. Recently, a new type of bonds appeared which do not have coupons, i.e. zero-coupon bonds which have a maturity of several years. The interest on zero-coupon bonds is not paid each year, but this bond is sold at a discount, and at the end of the maturity period the nominal value of the bond is paid. The reason for using this type of bonds lies in decreasing the costs that are incurred each year for the payment of interest, whereas the advantage for the investor is the fact that due to the interest not being paid each year, the income is not taxable (tax may only be paid on capital gain).

The price of the securities at the moment they are issued and later on during their existence, is determined by the influence of the following factors:

- political stability of the issuer, in this case the country (credit rating)
- movement of the current interest rates
- timing of the loan

Various countries appear as issuers of securities on the market, therefore it should be taken into consideration which country appears as issuer. Capability of the country to timely settle all due obligations represents the creditworthiness of that country. Each country with a higher level of creditworthiness consequently has a higher credit rating. Each entity with a lower credit rating, which means that it is an issuer of a lower credit rating, it can only get lower price for its securities on the market. That would mean that the issuer will have to pay higher interest. Investment in this type of securities may bring high risk, which can be recognized by the high interest rate paid, i.e. better opportunity to achieve higher income.

Gradually, there was a need for specialized agencies which would do the rating of each issue i.e. the degree of security of the investments in such an issue, through determining the credit rating of the issuer. According to these agencies, each issue is classified in a certain group. The best-known world agencies are IBCA, Standard & Poor's and Moody's.

Basically all issues are classified in the following categories:

Standard & Poor's	**Meaning**	**Moody's**	**Meaning**
AAA	highest quality	AAA	best quality
AA	high rating	Aa	high quality
A	upper minimum rating	A	upper medium
BBB	average rating	Baa	average rating
BB	lower average rating	Ba	possessing speculative elements
B	speculative	B	non possessing characteristics of a desirable investment
CCC-CC	unconditional speculation	Caa	in bad condition, maybe not in a condition to be repayed
C	reserved for high yield bonds	Ca	high level of speculation, often impossible to be repayed
D	not in position to be repayed	C	lowest rating

Each bond rated BBB is considered to be insecure investment with utterly speculative character, which probably bears high investment risk, but often this risk is accompanied by an opportunity for a high yield.

As previously defined, the price of the fixed income security is a sum of the discounted future inflows on the basis of interest rates, as well as the discounted value of the invested amount which shall be returned on the date of maturity of the fixed income security (the current interest rate is taken as a discounting factor). It means that the lower the interest rate, the higher the discounted value of the security, and vice versa, the higher the interest rate, the lower the discounted value and the price of the fixed income security. Thus it may be concluded that the change that occurs in the interest rate modifies the security price. Increment in the interest rates would decrease the price of the security and the other way around, a decreased interest rate would increase the price of the fixed income security.

The price of the fixed income securities depends on the length of the period for which they are issued. The price of the long-term securities is usually lower than the price of the short-term securities. Such price relation is mostly determined by the level of interest rates for different periods. Namely, due to the high uncertainty and inability to project the further movement of interest rates throughout several years, the interest rates for a period of several years are usually higher than the short-term interest rates. This automatically influences the prices of the fixed income securities.

Fluctuation in the prices of the fixed income securities can be illustrated by the analysis of the time series of the movements in prices of securities issued by the USA Ministry of Finance. The following table presents the incomes from investments in short-term and long-term fixed income securities issued by the USA Ministry of Finance, in nominal interest rates in a time series beginning in 1226, until 1995, inflation movement

expressed through the movement of retail prices in the USA and interest rates on 3-month LIBOR dollar deposits.[1]

Table 1

Realized incomes by separate instruments compared with the inflation rate in the USA in the period 1926 - 1995

year	l-t sec.	s-t sec.	inflat.	3M
1926	7.77%	3.27%	-1.49%	-
1927	8.93%	3.12%	-2.08%	-
1928	0.10%	3.24%	0.97%	-
1929	3.42%	4.75%	0.19%	-
1930	4.66%	2.41%	-6.03%	-
1931	-5.31%	1.07%	-9.52%	-
1932	16.84%	0.96%	10.30%	-
1933	-0.08%	0.30%	0.51%	-
1934	10.02%	0.16%	2.03%	-
1935	4.98%	0.17%	2.99%	-
1936	7.51%	0.18%	1.21%	-
1937	0.23%	0.31%	3.10%	-
1938	5.53%	-0.02%	-2.78%	-
1939	5.94%	0.02%	-0.48%	-
1940	6.09%	0.00%	0.96%	-
1941	0.93%	0.06%	9.72%	-
1942	3.22%	0.27%	9.29%	-
1943	2.08%	0.35%	3.16%	-
1944	2.81%	0.33%	2.11%	-
1945	10.73%	0.33%	2.25%	-
1946	-0.10%	0.35%	18.17%	-
1947	-2.63%	0.50%	9.01%	-
1948	3.40%	0.81%	2.71%	-
1949	6.45%	1.10%	-1.80%	-
1950	0.06%	1.20%	5.79%	-
1951	-3.94%	1.49%	5.87%	-
1952	1.16%	1.66%	0.88%	-
1953	3.63%	1.82%	0.63%	-
1954	7.19%	0.86%	-0.50%	-
1955	-1.30%	1.57%	0.37%	-
1956	-5.59%	2.46%	2.86%	-
1957	7.45%	3.14%	3.02%	-
1958	-6.10%	1.54%	1.76%	-
1959	-2.26%	2.95%	1.50%	-
1960	13.78%	2.66%	1.48%	-
1961	0.97%	2.13%	0.67%	-
1962	6.89%	2.73%	1.22%	-
1963	1.21%	3.12%	1.65%	-
1964	3.51%	3.54%	1.19%	-
1965	0.71%	3.93%	1.92%	-
1966	3.65%	4.76%	3.35%	-
1967	-9.19%	4.21%	3.04%	-
1968	-0.26%	5.21%	4.72%	-
1969	-5.08%	6.58%	6.11%	-
1970	12.10%	6.53%	5.49%	-
1971	13.23%	4.39%	3.36%	-
1972	5.68%	3.84%	3.41%	-
1973	-1.11%	6.93%	8.80%	-
1974	4.35%	8.00%	12.20%	-
1975	9.19%	5.80%	7.01%	-
1976	16.75%	5.08%	4.81%	-
1977	-0.67%	5.12%	6.77%	-
1978	-1.16%	7.18%	9.03%	-
1979	-1.22%	10.38%	13.31%	-
1980	-3.95%	11.24%	12.40%	14.19%
1981	1.85%	14.71%	8.94%	16.87%
1982	40.35%	10.54%	3.87%	13.29%
1983	0.68%	8.80%	3.80%	9.72%
1984	15.43%	9.85%	3.95%	10.94%
1985	30.97%	7.72%	3.77%	8.40%
1986	24.44%	6.16%	1.13%	6.86%
1987	-2.69%	5.47%	4.41%	7.18%
1988	9.67%	6.35%	4.42%	7.98%
1989	18.11%	8.37%	4.65%	9.28%
1990	6.18%	7.81%	6.11%	8.31%
1991	19.30%	5.60%	3.06%	5.99%
1992	8.05%	3.51%	2.90%	3.86%
1993	18.24%	2.90%	2.75%	3.29%
1994	-1.63%	4.10%	2.60%	4.74%
1995	15.82%	5.35%	2.80%	0.00%

5. Market risk

Market risk is the risk from the fluctuations of fixed income securities prices. As previously defined, the price of the fixed income security is a sum of the discounted

[1] Interest rates for LIBOR deposits are shown in time series starting from 1980, because it was impossible to get access to dada regarding the movement of LIBOR interest rates in the preceding years.

future inflows on the basis of interest rates, as well as the discounted value of the invested amount which shall be returned on the date of maturity of the fixed income security (the current interest rate that prevails on the market is taken as a discounting factor). It makes the fixed income security price susceptible to influences of changes in the interest rate, when this influence of the interest rate is in negative correlation with the movements in the security price. This can be directly seen from the formula which states the fixed income security price. The negative correlation comes as a result of the possibility to reinvest and the possibility to substitute that type of security with another one which is by quality and type identical with the previous one, but has a different interest rate. Namely, latest higher interest rates, compared with the previous interest rates, provide better possibilities for reinvestment and higher income. Usually, (except in certain cases such as floating rate fixed income securities), the interest rate on the fixed income security is fixed and unchangeable, which means that the nominal income of this security on the basis of the coupons is fixed and unchangeable. This means that even if market interest rates change, the income from the fixed income security on the basis of coupons is stable. However, because of the opportunity for substitution, there is a possibility this security to be unattractive as a result of the lower interest rate that it has, i.e. this security shall be sold and a new one shall be bought, or it shall be substituted with a new security with higher interest rate. Also the other way around, in case the interest rates decrease, because of the higher interest rates on older securities, they may become more attractive than the newly-issued ones.

For the purpose of eliminating these irregularities, it is an intention to adjust the prices of the fixed income securities aiming at achieving same income of all fixed income securities with same quality and different interest rates. Modifications in prices of fixed income securities with same quality and different interest rates shall generate same income of these securities. This adjustment of prices is conducted through increasing the interest rates, when the prices of the already issued fixed income securities decrease, and the other way around, i.e. decreasing the interest rates, when the prices of these securities increase. Long-term securities that mostly have higher interest rates and larger number of discounting periods, face larger price adjustments, i.e. have larger fluctuations in prices. This automatically means that the market risk of the long-term securities is larger when compared with the short-term fixed income securities. Nevertheless, this risk would, on the other hand, bring opportunities for higher income.

Table 1 shows that the income rate[2] for certain types of short-term securities by different years is smaller than the income rate of long-term securities. This is due to the fact that long-term securities bear much higher risk of price fluctuation, as a consequence of further movements of interest rates.[3]

[2] Income rate is the income that a security brings on the basis of interest and capital gain (gain which derives from fluctuations in prices of these securities - the difference between the purchasing price and the selling price of this security on the secondary market) compared with the purchasing price of this security.
[3] Prices of fixed income securities are in negative correlation with the movements of the interest rates.

This is supported by Table 2, where the risk from oscillations in prices of bonds is measured through the standard deviation[4] of price movement. It may be concluded that the risk from fluctuation (oscillations) in prices is really higher in the case of investments in long-term securities, and it is in direct proportion. The risk is in direct proportion to the maturity of fixed income securities.

Table2

Comparison of incomes and risk level of certain instruments and the inflation rate in the USA

Series	Average income	Standard Deviation
Sh-t sec.	3.70%	3.30%
Long-t sec.	5.40%	8.70%
Inflation	3.20%	4.60%
*3M LIBOR /**	8.18%	3.84%

*/ Standard deviation for LIBOR rates is calculated for the period 1980 - 1994 and should not be taken into consideration in the comparison, it is presented on the table solely as an illustration.

With this, the danger of decreasing the invested value is much higher with the long-term securities, because price fluctuations of these securities are much larger, but at the same time there is an increased possibility for higher income.

Table 1 also shows that the income of both short-term and long-term securities by different years varies, and to a large extent depends on the stage of the economic cycle of USA economy in the appropriate year.

Since there are available data for LIBOR from 1980 - 1994, it is necessary to make a comparison of incomes and risks which characterize certain instruments, and present it on a separate table.

Table 3

Realized incomes by separate instruments compared with the inflation rate in the USA in the period 1980 - 1995

[4] Standard deviation is a statistical value which measures average deviation of random values (in this case securities prices by years) from the average value of all prices which is considered to be future expected price.

Year	Long-t sec.	Sh-t sec.	Inflation	3 M LIBOR
1980	-3.95%	11.24%	12.40%	14.19%
1981	1.85%	14.71%	8.94%	16.87%
1982	40.35%	10.54%	3.87%	13.29%
1983	0.68%	8.80%	3.80%	9.72%
1984	15.43%	9.85%	3.95%	10.94%
1985	30.97%	7.72%	3.77%	8.40%
1986	24.44%	6.16%	1.13%	6.86%
1987	-2.69%	5.47%	4.41%	7.18%
1988	9.67%	6.35%	4.42%	7.98%
1989	18.11%	8.37%	4.65%	9.28%
1990	6.18%	7.81%	6.11%	8.31%
1991	19.30%	5.60%	3.06%	5.99%
1992	8.05%	3.51%	2.90%	3.86%
1993	18.24%	2.90%	2.75%	3.29%
1994	-1.63%	4.10%	2.60%	4.74%
1995	15.82%	5.35%	2.80%	0.00%

Table 4 shows calculated average incomes of separate instruments and risks on the basis of Table 3.

Table 4

Comparison of incomes and risk level of separate instruments and the inflation rate in the USA

for the period 80 - 94

Series	Average income	Standard deviation
Long-t sec.	12.55%	12.68%
Sh-t sec.	7.41%	2.48%
Inflation	4.47%	2.73%
3M LIBOR	8.18%	3.84%

For a time series from 1990 until the end of 1994 in periods of 5, 3, and 1 year the following performances have been noticed:

Table 5

Annual incomes of the USA Treasury securities

for the period 1990 - 1994

Type of investment	Income in the whole period	Income in the last three years	Income in the last year
3M LIBOR	5.11%	4.08%	5.43%
Long-t securities	7.18%	5.16%	4.46%

When the movement of prices of fixed income securities is monitored throughout a longer period, a conclusion may arise that higher income is accomplished, but the risk of fluctuations (increase or decrease) in the invested value is much higher, because the uncertainty regarding future interest rate movements is[5] significant. Performances

[5] Since the interest rate is in inverse proportion to the fixed income security price

accomplished by investing in long-term fixed income securities are presented on the basis of how large were the capital gains in the prices of the securities and how large was the interest income of those securities. However, if the movement of prices is monitored each year separately, it is obvious that from year to year income rates vary to a large extent. In some years there are even negative values, when actually no invested amount was returned. Such incomes are mainly determined by the interest rate movement risk in the USA.

Nevertheless, from the above mentioned one may conclude that investment in short-term securities is with lowest standard deviation, i.e. small risk, but on the other hand, it brings lowest income from investment. Investment in long-term securities is characterized with highest standard deviation, i.e. high risk, but here we also have higher income, depending on which period is being monitored.

6. Settlement of transactions connected with trade with fixed income securities

Regarding this trade, it is necessary to take into consideration the fact that these securities are very liquid and are often bought and sold on the market, i.e. they are very often changing hands. It often happens on the international market also, where the process of mutual settlement is conducted through specialized institutions which perform simultaneous settlement (the delivery versus payments principle) among the participants. Best known institution in Europe are Euroclear and CEDEL.

7. Fixed income securities issued by multilateral financial institutions

Besides Governments, issuers of fixed income securities may be multilateral institutions such as The World Bank, European Investment Bank, Asian Investment Bank, EUROFIMA, etc. These institutions issue long-term securities, usually bonds known as Supranational Bonds, with which they refinance the funds extended in the form of long term credits for project financing. These institutions' securities have an AAA credit rating.

8. Techniques of trading fixed income securities

Each active participant in the fixed income securities market, basically uses two trading techniques:

- the active technique of managing the investment tends to maximize the income on the basis of movements in prices of the securities. This strategy includes different analyses of movements in prices of the securities, interest rates on a macro level, as well as on the level of sectors. It is a technique of using the current situation on the market and the projected future movements of prices, and purchasing securities when they are cheapest, and selling them when they achieve higher prices, thus gaining income on the basis of realized difference in prices.

- in the passive technique of managing the investment, market prices are taken as real prices. Passive management uses the opportunity given by the relation between risk and income, and on the basis of that, an income with waiting is acquired, until the maturity of the security. With this strategy the analysis of movements in prices of the securities is avoided. Special part of this strategy is the, so called, immunization, i.e. strategy with which net value is created that is not influenced by any movements of interest rates. It is a technique of achieving higher income, i.e. technique that gives the possibility to invest in securities which bring higher income, by maintaining them until the end of their maturity, as well as to achieve time and currency match of placements with sources of funds.

II. Fixed income securities issued by certain countries

In the following part, an overview of fixed income securities issued by the US Government and the Government of Federal Republic of Germany will be given.

1. Fixed income securities issued by the US Treasury Department or guaranteed by the US Government

The US Government issues several types of marketable and nonmarketable fixed income securities. Marketable securities are bills, notes and bonds, whereas nonmarketable securities are mainly based on savings bonds sold to citizens of the USA and special issues sold to foreign and international monetary authorities. The secondary market of those securities is the most active debt market in the world. The average daily turnover is around USD 100 billion.

1.1. United States Treasury Bills

These securities are in a bookkeeping form with original terms of maturity of 13, 26 and 52 weeks (also known as 3 month, 6 month, 12 month or 1 year bills). These bills are issued on competitive and noncompetitive basis, and are issued and traded on the basis of discount and not on basis of nominal value. Since these securities are short-term instruments which mature every week and as such are obligations of the US Government, there is always a market for them. Therefore, foreign monetary authorities consider them as a suitable instrument for investing of their funds. Bills with three and six month maturity are sold at weekly auctions, whereas bills with one year maturity are sold each four weeks. They are issued at the nominal value of USD 5.000, but with minimum purchasing amount of USD10.000.

It is a common practice on the market, such transactions to be executed in amounts not smaller than USD 100.000. These securities can be purchased either as a new issue at the regular weekly auction of the US Treasury, or at the active secondary market.

1.2. United States Treasury Notes and Bonds

The US Treasury Notes and Bonds are instruments with fixed interest rates, medium or long-term maturity, and semi-annual interest payments. They are issued in a bookkeeping form. These securities are obligation of the US Government and they have an active secondary market. These securities are mainly purchased by foreign monetary authorities in order to improve the rate of return of their portfolios, and at the same time to provide enough liquid assets to meet their seasonal needs. These securitries are considered to be secondary reserve, which can be used to cover unexpected cyclical outflow of funds, having in mind the fact that there is a market where they will be immediately sold. Both notes and bonds are issued through auctions which can be with both competitive and noncompetitive bids.

Notes are with maturity from two to ten years. US Treasury auctions for each new tew-year issue are held each month, whereas for four-year issues, at the end of each quarter. Recently, the US Treasury for the refinancing at the end of February, May, August and November usually at the same time includes the issuances of 3 year notes, 10 years notes and 30 years bonds. The US Treasury intends to have the dominance of 10 year notes and 30 years bonds among all the types of securities that it issues.

The announcement of the following auction is usually one week prior to the auction itself, whereas delivery and payment occur one or two weeks after the auction.

The US Treasury bonds are with maturity of over 10 years from the day of issuance. Lately, bonds with maturity of over 30 years are regularly offered on quarterly basis.

The so called STRIP (Separate Trading of Registered Interest and Principal of Securities), creates an opportunity for the investors to have a securities account with the Federal Reserves System where securities can be divided into their constituent parts, i.e. interest and principal. Once these parts are separated, each of them is identified with a different number. Each part is traded separately on the secondary market, on a discount basis, as a zero coupon. Payment of each constituent part is a direct obligation of the US Government.

1.3. Treasury Inflation Protected Securities - TIPS

In the beginning of 1997, the US Treasury Department introduced a new type of long-term fixed income securities, so called Treasury Inflation Protected Securities - TIPS. These fixed income securities have a variable interest rate and they are index-linked. Interest on these securities is determined when a margin established at an auction, is added on the consumer price index. The total amount of the margin and the consumer price index represents the total nominal income that this security bears. At the beginning, the US Treasury issued only 10-year securities, but due to the unexpectedly high interest for these securities, as well as to the favorable results that were achieved (regarding the

decreased value of the coupon of these securities, which is a real expense for the client), in the beginning of 1998 it started issuing 30-years securities. They are issued in a bookkeeping form.

1.4.Fixed income securities issued by agencies established and guaranteed by the US Federal Government

Besides the above mentioned fixed income securities, there are other types of securities, the so called securities of the agencies established by the US Federal Government. On the financial market in the USA these securities are considered as instruments with highest quality (rating), AAA. They are traded in large quantities, although this market is not as active as the securities market of the US Treasury.

These securities include the obligations of the Federal Farm Credit Banks - FFCB, Federal Home Loan Banks - FHLB, Federal National Mortgage Association - FNMA, Federal Home Loan Association - FHLMC and Student Loan Marketing Association - SLMA.

Although the securities of these agencies usually bear higher income than the government securities, the difference between them depends on the market conditions. These securities also have a higher spread between the bid and ask price in the quotation, in comparison with the notes and bonds issued by the US Treasury Department. Securities issued at a discount are with maturity of 1 week up to 180 days. The coupon issues are with different maturities, whereas securities guaranteed with a mortgage (real estate) are with maturity of 30 years. Placement of these securities is usually conducted through intermediaries called sales agents.

2. Fixed income securities issued or guaranteed by the Government of the Federal Republic of Germany

For the purpose of financing its needs, German Federal Government issues several types of short-term and long-term fixed income securities. The issuance of these securities is conducted through bank consortium or tender.

2.1. Financing bills and Discount bills of the Ministry of Finance (Finanzierungsshatze und Univerzinliche Schatzanweisungen - U Schatze)

Financing bills and Discount bills of the Ministry of Finance are securities traded on the short-term money market. They are with maturity of up to 2 years. Since 1991 they have been sold also to foreign investors and the smallest denomination on whch they can be issued is DEM 100.000. They are issued on a discount basis, and at the end of the maturity the nominal value is paid.

2.2. Notes of the Ministry of Finance (Kassenobligationen/Schatzanweisungen)

Notes of the Ministry of Finance are middle-term securities with maturity up to 4 years. They are sold on the basis of nominal value with coupons bearing fixed interest rates. They are issued in a nominal value of DEM 5.000.The Federal Government most often uses these securities for the purpose of financing its needs. They are issued by quarterly tenders. The lowest trading value is DEM 1.000.000. The average value of each tender is between DEM 5 - 6 billion. They are issued in a bookkeeping form and are mostly designed for the institutional investors, usually insurance companies and banks.

2.3. Federal Bonds
(Bundesobligationen - Bobls)

Federal bonds are obligation-bonds of the Federal Government with maturity of 5 years. They are second most important means of financing the needs of the federal government. They have fixed nominal interest rate. These bonds exist only in a bookkeeping form, but are registered in the Federal Register of debts. Lately they have been issued through tenders, on competitive basis. Their smallest nominal amount is DEM 100, whereas the minimum trading amount is DEM 1.000.000.

2.4. Federal Bonds
(Bundesanleihen - Bunds)

Federal bonds are bonds of the Federal Government with maturity of 10 years, and are issued in the form of classic bonds with annually paid interest. They are issued in a bookkeeping form, just as the Bobls. The price of the bond is determined according to current market conditions. This type of security is also registered in the Federal Register of debts. Minimum trading amount is DEM 1.000. The issuance of these securities is through the method of placing the issue to the investors. For taht purpose, a federal syndicate for securities consisted of German commercial banks is established, so the placement of these securities is conducted through the commercial banks, members of this syndicate. However, since 1990, for the purpose of faster distribution and lower costs, this traditional way of issuance has been combined with tenders. They are issued in a bearer form and the lowest denomination is DEM 100.

Besides these securities issued by the Federal Government, there are other fixed income securities issued by public companies owned by the Federal Sate or the Federal Counties. Federal counties and municipalities also issue fixed income securities. It is characteristic for Germany that these securities have the same credit rating as the Government securities.

All activities regarding issuance, placement and creation of the secondary market for these securities are carried out by the Bundesbank.

The secondary market in Germany consists of official exchange trading (Amtlicher Borsenhandel), trading on the regulated market (Geregelter Markt) and at the

end trading on the unofficial market (Freiverkehr). While the official trading and the regulated market are restricted only to the official exchanges, the unofficial trading is conducted through telephone throughout the whole country and abroad.

III. The need part of the foreign exchange reserves of the Republic of Macedonia to be invested in fixed income securities

Foreign exchange reserves of the Republic of Macedonia handled by the National Bank of the Republic of Macedonia serve the purpose of maintaining the overall liquidity of payments abroad through interventions on the domestic foreign exchange market, as well as for executing payments on behalf of the Government. The foreign exchange reserves handled by the National Bank consist of monetary gold, Claims of the National Bank on foreign financial institutions, securities issued abroad and cash currency. However, due to the past circumstances, foreign exchange reserves were created only in monetary gold, foreign exchange and cash currency.

So far, the practice of investing part of the foreign exchange reserves of the Republic of Macedonia handled by the National Bank has been characterized by investing the foreign exchange reserves in short-term deposits with commercial banks abroad, in deposits with maturity of 90 days. However, for the purpose of continuous functioning of the foreign exchange reserves, and aiming at securing the necessary liquidity of payments abroad, it is necessary to invest in fixed income securities which are liquid and of a high rating, in order to be used in extraordinary circumstances as collateral for receiving loans from foreign financial institutions.

Also, for the purpose of securing diversification of investments of the foreign exchange reserves, thus lowering the risk of loss of the funds invested with certain commercial banks, as well as providing more balanced and more stable inflow or utilization of the funds as collateral for receiving loans, there is an urgent need to invest part of the reserves into fixed income securities issued by governments, bearing AAA credit rating. Due to their high rating, almost all commercial banks in the countries where those securities were issued accept them as a guarantee, and on that basis they can grant short-term loans, aiming at lower risk of decreased liquidity.

According to the legal regulations, the National Bank of the Republic of Macedonia handles the reserves of the Republic of Macedonia, and according to the Decision on handling and investing foreign exchange reserves, it is obliged to invest these foreign exchange reserves with financial institutions abroad. However, due to the low level of foreign exchange reserve, the unsettled situation in repaying mature but unsettled obligations towards abroad, there was a need to invest these reserves mostly in deposits with maturity up to 3 months with commercial banks abroad. In that way, bank deposits were basic instrument in managing foreign exchange reserves with one type of institution. This manner of investing was expected to provide optimum liquidity of funds, and at the same time, by increased maturity, to achieve higher income, having in mind the fact that

the scope and structure of the reserves ought to be in a position to meet the current and all other due obligations at any time.

Unfortunately, this policy does not provide diversification of risk regarding the instruments, because they are invested only in the form of bank deposits. Namely, due to the short-term maturity of the deposits, income from the investment of these foreign exchange reserves is to a large extent determined by the interest rates movements for individual currencies. From the above given explanation, and in accordance with our needs, it may be concluded that the use of fixed income securities as an instrument in managing the foreign exchange reserves, has become a necessity. This necessity originates form the current situation where for the purpose of managing the foreign exchange reserves only short-term deposits are used. Namely, due to the short-term maturity of the deposits, income from the investment of these foreign exchange reserves is to a large extent determined by the interest rates movements for individual currencies. In such situation, the largest part of foreign exchange reserves is in the form of assets sensitive to fluctuations in the interest rates. This means that in such situation, fluctuations in the interest rates can, to a large extent, influence the income coming from the use of this instrument. By investing in fixed income securities, there is a possibility to isolate (i.e. protect from the influences caused by the fluctuations in the interest rate) a part of the foreign exchange reserves for a certain period of time (from 1 to 3 years).

In the current situation there is also no diversification regarding the type of institution. At this moment foreign exchange reserves are exposed only to one type of institution, i.e. they are placed only with one type of institution - commercial banks (excluding 4 central banks), which means that there is an exposure of the foreign exchange reserves only to the private sector i.e. the commercial banks. Such exposure means that in the operations with these partners - regardless of the fact that these institutions are first-rate financial institutions and are the largest in the world, the National Bank of the Republic of Macedonia has only the guarantees of the owners of these financial institutions, which are mostly private legal entities - companies or natural persons, where such guarantees are limited by the amount of their share in the equity. By investing in fixed income securities issued by the government, such exposure of the foreign exchange reserves shall be decreased or completely eliminated, because the government is guarantor of these securities, and in most cases the central bank is in charge of their servicing.

The increase of the foreign exchange reserves to the present level, as well as the regulated relations with the Paris and London Club of Creditors in respect of rescheduling the obligations of the Republic of Macedonia, there is a possibility to use other instruments rather than deposits in managing the foreign exchange reserves, and also to invest them for a longer period of time. Due to the above mentioned reasons, other instrument can be used, without breaking the principles of optimality and liquidity. There are various instruments on the market, such as securities (shares and fixed income securities, options, futures, swaps, repurchase agreements etc.) However, it should be

emphasized that these instruments bear a significant degree of risk, and are also very costly.

Therefore, investment in fixed income securities is considered to be an instrument which will meet these objectives. Investing in fixed income securities shall create a possibility to invest for a longer period, because those are instruments with maturity up to 30 years. These securities are characterized with high level of liquidity, because there is always a very functional secondary market for them, and also, the credit risk with these securities is pulled down to zero. This would enable investment of foreign exchange reserves for a longer period, which would, to a large extent, immunize the influence that the interest rates fluctuations on the international market have on the management of the foreign exchange reserves of the Republic of Macedonia.

However, it must be emphasized that the investment of foreign exchange reserves in fixed income securities, i.e. the so called portfolio management, has its own characteristics and specifics. First of all, it is the manner of trading, custody, valuation of fixed income securities in statements, determining the current price, altering the invested amount depending on the interest rates movements, etc.

For this purpose, it is necessary to take a specific approach in managing these securities. In practice, the most frequent and widely accepted options for portfolio management that the central banks use are the following:

- hiring an independent, highly specialized portfolio manager, who will, against certain charges, manage the portfolio and provide professional expertise and analysis of the current portfolio management;

- independent purchase of securities and creation of individual independent portfolio, which means independent creation of organizational structure, staff, strategy and technology in creating and managing the portfolio.

From these two options it may be concluded that the option of hiring an independent portfolio manager, apart from the usefulness of the expert assistance, there is no other use and it can even incur certain high expenses, which sometimes can't be justified. However, if it is an expert manager with long-term experience and long tradition, his knowledge could help achieving higher income than that acquired from investment in deposits. It should be emphasized that this type of investment is applied by institutions with sufficient funds but lack of staff, material and organizational means, as well as little time to be occupied with investing in this type of instruments. This is a characteristics of the countries in the Middle East.

The second option of creation and management of individual independent portfolio is, in most cases, used by financial institutions including central banks.

Having in mind the situation with the foreign exchange reserves, expertise and desire for improvement, as well as the possible saving that may occur, it is estimated that the second option meets the needs of the National Bank of the Republic of Macedonia. Namely, as a central bank of the Republic of Macedonia, the National Bank of the Republic of Macedonia has an access to certain instruments under favorable conditions with the Federal Reserve System of the USA, other central banks, and the Bank for International Settlements from Basle. The National Bank of the Republic of Macedonia has a custody account with the of Federal Reserve System of the USA, i.e. Federal Reserve Bank of New York. It is also possible for the National Bank of the Republic of Macedonia through this bank to participate in the primary and secondary fixed income securities market, under privileged conditions and without restraints in the amount. Also, for a long term, the second option of independent portfolio management is the best choice, because that would offer the necessary knowledge, experience and expertise in the operations with securities, which could later on be used for other purposes, as well as for the needs of the domestic financial system. Also, the material side of choosing the second option must not be neglected, because one-time investment in personnel, software, hardware and organizational structure, means an investment which is an investment which is definitely lower than the fees charged by foreign financial institutions.[6]

IV. SUMMARY

Fixed income securities represent an obligatory written document, unconditionally confirming the obligation of the issuer to repay his debt under previously established terms and conditions. Due to such nature of these securities, they are very convenient investment instrument. This is due to the fact that the issuer must meet all the terms and conditions stated in the security, without having a discretionary right to alter them.

This is the main reason why a significant number of governments use fixed income securities as an instrument for attracting foreign accumulation for financing their deficits.

Each fixed income security has its own price, which is determined mainly by the period of maturity and movement of interest rates, where the price movement of the security is in inverse relation with the period of maturity and market interest rates. These instrument are used because they can provide funds at lower prices - interest rates, which means that costs of borrowing are lower than normal long-term commercial loans.

On the other hand, due to such character of the fixed income securities, and due to the fact that the governments appear as issuers as well, all liabilities connected with these securities are guaranteed by a certain government, which makes the credit risk lower in comparison with other investment instruments which can be used on capital markets (long-term deposits, investments in shares, derivatives, etc.)

[6] There are current contacts with certain information houses, particularly Bloomberg regarding the price of their information packages which, according to most of the investment institutions, provide best market coverage.

Long-term investments are accompanied by a risk of need for liquid funds at a certain period, due to the gap between maturities of assets and liabilities. But the fact that these invested assets are tied in a long period, it can lead to a situation of deteriorated liquidity. However, this risk can be minimized because these government fixed income securities have a well developed and liquid secondary market, where the owners can obtain liquid funds. Moreover, these securities can be placed as collateral for the purpose of obtaining short-term liquidity bridging facilities from the financial institutions.

Since investment in fixed income securities secure long term stability of inflows from interest, if the security is kept until the final day of maturity, the effect of the change in interest rates on the rates of return can be immunized.

However, it should be taken into consideration that such immunization shall not occur, in the case of obtaining liquid funds by selling these securities on the secondary market. In that case the investment is accompanied by the risk of changing the total returns of the investments influenced by the risk of price changing.