The analysis of factors that determine the level of interest rates paid on treasury bills in Slovenia

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2. THE ANALYSIS OF FACTORS THAT DETERMINE THE LEVEL OF INTEREST RATES PAID ON TREASURY BILLS IN SLOVENIA

ABSTRACT

The Slovenian ministry of finance started to issue treasury bills regularly in 1998. Above all, it has been guided by a long-term interest to develop the money market although the financing of liquidity and short-term deficit has also been important factor. A developed money market would not only be a benefit for the government in terms of providing cheaper and more flexible borrowing, but it would also help create conditions for a more transparent interest rate policy and a more effective liquidity management of all market participants. It would also provide a short-term risk-free instrument for the public to invest in.

This paper presents the econometric evidence of determinants of the interest paid on three-month treasury bills and the influence the analyzed rate plays on the bond market. The identification of these factors and formation of the proper model can be applied to forecast the three-month treasury bill rate and to improve the efficiency of the government's borrowing policy.

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1. INTRODUCTION

In January, 2001, the government auctioned its 33rd issue of three-month treasury bills. This time-series was thought long enough for some empirical analysis. The main goal of the research was to point out factors that could explain the three-month treasury bills interest rate, and to form a model for forecasting the analyzed interest rate in the future. In addition, we tried to figure out whether investors on the debt market respond to movements of this interest rate. This would serve as an indicator that the three-month treasury bill interest rate has been actively used as the benchmark for other short- and long-term debt instruments.

The results came out within theoretical expectations. The three-month treasury bill interest rate was largely influenced by the offered amount of bills set by the issuer, as well as by an estimated market demand, the mandatory bid interest rate, the revalorization factor and the interest rate paid at the previous three-month treasury bill auction. The three-month treasury bill interest rate was actively used as the benchmark for other short- and long-term debt instruments. It turned out that short- and long-term debt instruments that are statistically significant reacted to movements of the three-month treasury bill interest rate.

The government should be careful when setting its borrowing policy. Its borrowing and debt management actions do not influence only the cost of the government debt, but also have a significant impact on the broader money market. In order not to distort the money market, it should be as neutral as possible. This means that the offered amount of three-month treasury bills should not fluctuate according to the government budget liquidity needs, but should stay stable or grow steadily. If the government decides to take unexpected actions, consequences of those actions should be analyzed in advance.

After the introduction, chapter 2 brings reader up to date with relevant macroeconomic facts specific for Slovenia. The following chapter is the core of the research. It consists of regression estimates and other empirical findings. In chapter 4 the model as a whole is presented as well as post-simulation dynamics. Finally, an expected movement of the three-month treasury bill interest rate until the end of 2001 is estimated on the basis of the model.

2. SLOVENIAN MACROECONOMIC BACKGROUND

In Slovenia capital market has a very short history. It was founded at the same time the country gained its independence and intoduced a new economic system. In the former socialist system financial market had not been developed. The government had maintained a nominal budget balance, with no debt to finance through any issue of securities. Foreign reserves had been meagre; hence, the economy had been at the lower end of international liquidity. Therefore, the central bank could not use foreign assets to conduct the monetary policy. Central bank loans had been the only possible way for base money regulation. Unfortunately, the monetary policy had been subordinated to political interests.

Since the independence the price stabilization has been the primary goal of monetary policy. As a consequence, the inflation has been falling since 1994. The purpose has been to achieve a stable macroeconomic environment, which would enable the development of small businesses. In the forth quarter of 1995 monthly inflation fell bellow 10 percent on an annual level for the first time. It is necessary to bring inflation even lower if Slovenia wants to fulfill conditions for participation in the European monetary union. The falling trend in inflation was broken in July 1999 due to a tax reform. Because of a specific indexation (indexation factor is calculated as a 12-month average of the monthly inflation rates), the effect of tax reform has influenced inflation and inflation expectations for the whole year afterwards. Thus it was impossible to curb inflation any further.

The Slovenian money market is still not formally organized. It usually works as a negotiated market. Standardized financial instruments have not yet been developed. Transactions are based on bilateral contracts between interested banks. That increases uncertainty and undermines the efficiency of transactions with liquidity assets among banks. It is problematic because liquidity management is the most important reason for the existence of the market. Uncertainty mentioned earlier can be defined as information uncertainty, which also reduces the efficiency.

In this macroeconomic environment the Ministry of Finance and the Bank of Slovenia have had a leading role in development of efficient financial and money markets.

3. BUILDING THE MODEL AND EMPIRICAL RESULTS

In order to take into account as many factors that could influence on the interest rate as possible, the econometric model with exogenous and endogenous variables was formed. Table 7 (see appendix) shows definitions of variables used in the econometric analysis.

3.1. Modeling of the three-month treasury bill interest rate

The three-month treasury bill interest rate was affected both by 'demand' and 'supply'. Supply was presented as the volume of three-month treasury bills offered by the government to the market at each auction. Demand was reflected in the volume of three-month treasury bills that the market was willing to buy.

The issuance of three-month treasury bills has been determined yearly by the government's financing program and budget laws for every fiscal year. The government has been trying to keep the issues as stable as possible. As a result, firstly, it has not always taken current money

market conditions into account and, secondly, it has tried to prevent drastic distortions on the market. Thus the offered amount variable can be considered as exogenous, i.e. determined outside of the model.

Empirical tests showed that the interest rate was also directly affected by the following variables:

- the mandatory bid rate,
- the indexation factor and
- the three-month treasury bill interest rate achieved at the last auction.

3.1.1. Offered amount of three-month treasury bills

A positive correlation between the offered amount (supply volume) and interest rate could be expected. The higher the interest rate, the higher the portion of market demand that the issuer would have to accept. This meant that, keeping everything else fixed, it would have to accept worse bids (in terms of the interest rate) as it increased the offered amount.

3.1.2. Market demand

As noted earlier, the market demand was considered an internal variable and thus explained within the model. This is presented further on.

3.1.3. Mandatory bids

The three-month treasury bills were being channeled to the market through primary dealers, which had some privileges and obligations. One of the obligations was to offer a minimum volume of bids at prices which had been set in advance. This means that primary dealers were

obligated to 'bid' for an agreed volume of treasury bills at the interest rate set by the issuer.

The information on mandatory bids should be useful for potential investors. It has been indicated through two variables: the interest rate of mandatory bids and the volume of mandatory bids.

Empirical tests showed a statistically significant impact of the mandatory bid rate on three-month treasury bill interest rate, whereas the same cannot be said to be true for the volume of mandatory bids. The volume of mandatory bids was relatively stable and had a low explanatory power.

3.1.4. The problem of the real interest rate

Practically all the financial instruments in Slovenia are indexed to a so-called TOM index, an average of monthly consumer price indexes in the previous twelve months. In developed financial markets, interest rates reflect inflation expectations, whereas in Slovenia they are a result of historical facts. The only instruments of the Slovenian money market which are not indexed are treasury and central bank bills.

Although the inflation rate would be theoretically the most appropriate indexation factor, table 8 provides evidence that it is not so (see appendix).

If we take TOM as an inflation factor, then the three-month treasury bill interest rate can be directly compared to a banking deposit as an alternative financial investment. While investors might like that, we believe some kind of comparison is needed.

When considering the results, it must be said that the model did not include either the most suitable indexation rate (i.e. the average inflation factor in the three months following each auction) or the

average indexation factor in three months following each auction. Instead, only the current indexation factor for the month of each auction was used.

3.1.5. Three-month treasury bill interest rate at the previous auction

Similar to the mandatory bid interest rate, the three-month treasury bill rate achieved at the previous auction provided an important signal about an 'appropriate' interest rate. If market conditions did not change much in the meantime, it was very likely that the interest rate would not have changed compared to the previous one.

3.1.6. Three-month treasury bill interest rate regression function

Table 1 shows an estimated regression function of the three-month treasury bill interest rate.

Table 1
THREE-MONTH TREASURY BILL INTEREST RATE FUNCTION

OMÂVK = 0.35276 - 0.00025*POVP* + 0.18897*OMOO* + 0.00043*RE* + 3.06302*TOMM* + 0.57535*OMAVK*(-1)						
(t):	(0.828)	(-6.585)	(2.776)	(5.334)	(3.063)	(6.505)
(p):	(0.415)	(0.000)	(0.006)	(0.000)	(0.000)	(0.000)
R^2 =	0.965		$\overline{R}^2$ =	0.958	s_e =	0.28071
n =	32		B-G[1] =	5.782	B-P[2] =	8.609

[1] Breusch - Godfrey's LM test of autocorrelation.
[2] Breusch - Pagan's test for testing the presence of heteroscedasticity.

Only 3.5% of the variance of a dependent variable could not have been explained with the variability of explanatory variables. Results show that the regression function was adequate for estimating and forecasting the three-month treasury bill interest rate. This could be confirmed in a

figure that shows actual and estimated (with regression equation) values of the three-month treasury bill interest rates (figure 4 in appendix). Estimates fitted actual values of the interest rate quite well.

In the model, the variable market demand was an endogenous factor, influenced also by variables included in the regression function for the three-month treasury bill interest rate. It is therefore pointless to explain partial influence of the offered amount variable. Using only the regression function for the interest rate was not sufficient in forecasting the three-month treasury bill interest rate function either. Additionally, the market demand was also estimated. Actual influences of external factors were estimated by multipliers of the model.

3.2. Modeling the market demand

It was quite difficult to estimate the market demand for three-month treasury bills. Empirical tests showed that the market demand was influenced significantly by the offered amount and the interest rate achieved at the previous auction. Investors in three-month treasury bills were mostly banks and to a lesser extent other financial institutions. Demand by private individuals was relatively small, while that of financial institutions was merely determined by their liquidity.

3.2.1. Offered amount and three-month treasury bill rate at the previous auction

Empirical tests confirmed our presumption that the offered amount had a significant positive influence on the market demand for three-month treasury bills. Despite other factors at least a psychological factor was important here. Investors could expect that their chance to succeed in bidding at the auction would be higher as the offered amount grew. They probably knew that a larger offered amount meant on average (and provided that nothing else changes) that a higher interest rate would be achieved and were therefore additionally motivated.

We should also not forget the fact that different variables were interconnected in our model. The offered amount affected the three-month treasury bill interest rate both directly and indirectly (through market demand). The direct influence was positive, whereas the indirect impact was negative. The higher the offered amount of bills, the higher on average was the market demand and thus the interest rate was actually lowered. The double effect of the offered amount could be indicated with multipliers of the model.

3.2.2. Money market liquidity

It proved to be quite a struggle to find one variable or a group of variables, which would appropriately represent liquidity on the money market. Theoretically, this looks rather simple as few factors may be expected to represent or influence liquidity. In the tested model we focused our attention on the following variables:

- situation on the inter-bank market (the volume of transactions, the average depth of money market and the interest rate),
- response for repurchase deals involving central bank bills and achieved interest rates,
- the ratio of excess reserves of commercial banks,
- the use of Lombard and liquidity loans, and
- primary and secondary liquidity, calculated by using the Bank of Slovenia's methodology.

In the empirical test only the inter-bank market rate, of all the variables listed above, proved to have a significant impact on demand.

3.2.3. Government debt and central bank bill maturity

It was reasonable to expect both the government debt (principal and/or interest) and central bank bill maturity to influence demand for

three-month treasury bills. This dependence was expected to be especially strong if money from matured securities could not be reinvested in securities of the same kind. Empirically, we used dummy variables to test whether other the maturity of other securities had an impact on demand for three-month treasury bills.

We tested different solutions regarding the maturity of principal and the interest payments of government bonds and central bank bills relative to the offered amount of three-month treasury bills, as well as the time horizon between maturity of other securities and three-month treasury bill auctions.

Empirically, the impact that the central bank bill maturity had on demand for three-month treasury bills proved to be poor, no matter which time horizon we used. We found an explanation in the fact that the Bank of Slovenia periodically issued new central bank bills, when the old ones matured. Thus, it absorbed excess liquidity while leaving no chance for the demand for three-month treasury bills to rise.

The effect of government bond maturity and interest payments on these bonds was found to be statistically significant. The explanatory power of dummy variable was the highest if we focused on one-week time horizon before each auction, and when we took into account the fact that the total amount of principle and interest paid must be equal or greater than the offered amount.

3.2.4. The offered amount of treasury bills

Prior to October 1999, the Treasury had not been issuing six- or twelve-month treasury bills. But it has since then issued 2 billion SIT worth of six- and twelve-month treasury bills practically every month. Subsequently, the issuer has monhtly needed even higher amounts of money and drained liquidity out of the market. In that sense we expected a negative correlation between the offered amount of other

treasury bills and the demand for three-month treasury bills, but this could not be confirmed empirically.

3.2.5. *The demand for three-month treasury bills regression function*

Table 2 shows an estimated regression function of the demand for three-month treasury bills.

Table 2
THE DEMAND FOR THREE-MONTH TREASURY BILLS

$\widehat{POVP}$=5517.11 + 1.19945*RE* - 1209.50*MOM* + 345.619*OMAVK*(-1) + 1626.69*D*

(t):	(2.154)	(3.836)	(-3.828)	(5.334)	(1.989)
(p):	(0.040)	(0.001)	(0.001)	(0.000)	(0.057)

R^2 =	0.5429	$\overline{R}^2$ =	0.4752	s_e =	1208.49
n =	32	B-G =	5.345	B-P =	7.891

The regression function was found to be statistically significant, but it has low explanation power (see also figure 5 in the appendix). Several variables of money market liquidity were tested, but proved to be insignificant. In our research we focused on the liquidity of the banking sector, because banks were by far the most important investors in three-month treasury bills (their share was approximately 60 percent). Other money market participants could not be included in the regression model.

We are aware of a low explained portion of variance. We argue that demand by other money market participants cannot be modeled because of the structural changes in the financial sector (e.g. payment system reform) and poor financial data collection.

3.3. Ljubljana Stock Exchange bond index

By modeling a three-month treasury bill interest rate we tried to examine the corresponding influence of that interest rate as a benchmark in the economy. One of the primary goals of a money market development project, which the Ministry of Finance is trying to promote, has been to develop an interest rate that could be referred to as a representative money market interest rate.

Empirically, we tested the correlation between the Ljubljana Stock Exchange bond index and a possible benchmark interest rate. Both the interest rate paid on repurchase agreements for the central bank bills and the three-month treasury rate were tested as the benchmar. Only the coefficient on three-month treasury bill interest rate was found to be significant.

Table 3 represents an estimated regression function of the Ljubljana Stock Exchange bond index.

Table 3
BOND INDEX REGRESSION FUNCTION

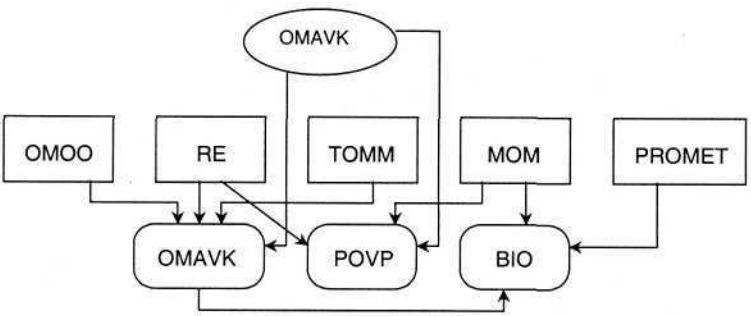
$\widehat{BIO}$ = 110.535 - 0.40983*MAVK* + 0.00023*PROMET* - 0.30737*MOM* + 0.13290*T* - 0.00210*T2*					
(*t*): (72.38)	(-3.128)	(2.772)	(-1.373)	(4.137)	(-2.219)
(*p*): (0.000)	(0.004)	(0.010)	(0.181)	(0.000)	(0.042)
R^2 =	0.6870	$\overline{R}^2$ =	0.6291	s_e =	0.8909
n =	33	B-G =	2.161	B-P =	7.142

The regression function is statistically significant but it has low explanation power (see also figure 6 in the appendix). As mentioned in the previous chapter, we were unable to model the liquidity of non-bank money market participants. Only the inter-bank market rate was used as a liquidity variable. Further research should be focused on including the liquidity of non-bank money market participants as well.

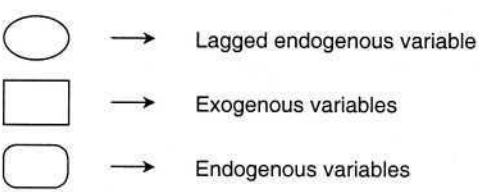
3.4. Graphic representation of the interaction between modeled variables

The interaction between variables can be systematically presented graphically, as in figure 1 below.

Figure 1
GRAPHIC REPRESENTATION OF THE INTERACTION BETWEEN MODELED VARIABLES



Legend:



4. MODEL WITH ESTIMATED COEFFICIENTS

The model can be represented with three estimated regression functions. Because of actual movements of variables in the observed time period, we added time trend into the regression function for the bond index.

$\widehat{OMAVK}$ = 0.35276 - 0.00025*POVP* + 0.18897*OMOO* + 0.00043*RE* + 3.06302*TOMM* + 0.57535*OMAVK*(-1)

$\widehat{POVP}$ = 5517.11 + 1.19945*RE* - 1209.50*MOM* + 345.619*OMAVK*(-1) + 1626.69*D*

$\widehat{BIO}$ = 110.535 - 0.409830*MAVK* + 0.00023*PROMET* - 0.30737*MOM* + 0.13290*T* - 0.00210*T*2

4.1. Model simulation

We performed a dynamic ex-post simulation (see table 4 and figures 7 to 9 in the appendix).

Table 4
MEASUREMENTS OF MODEL RELIABILITY

Variable	Correl[a]	Theil[b]
OMAVK	0.96360	0.1832
POVP	0.72526	0.1152
BIO	0.76654	0.3865

[a] Correlation coefficient between actual and estimated values of endogenous variables.
[b] Theil inequality coefficient.

On the basis of calculated reliability measures and movements of the studied endogenous variables represented graphically, we can conclude that this simple model is appropriate for explaining actual movements of the variables.

4.2. Multipliers of the model

Table 5 represents the impact and total multipliers of the model for the change in selected exogenous variables.

Table 5
INCREASE OF *TOMM* BY 0.1 PERCENTAGE POINT OR *RE* BY 100 MIO SIT

		OMAVK	*POVP*	*BIO*
TOMM	Impact	0.30630	0	-0.12553
	Total	0.59767	206.564	-0.24494
RE	Impact	0.01242	119.945	-0.00509
	Total	0.02423	128.319	-0.00993

Variables in the model were mutually interrelated. As a result, the impact of a change in one or more exogenous variables on the endogenous variables could not be established directly from structural equations of the model. This could be established only if we set up the model as a system of dependent equations. We should take into account the fact that changes in the exogenous variables, because of the interactions, had a multiplication effect on the endogenous variables.

Impact multiplier *TOMM-OMAVK* represents the immediate effect of a change in the indexation factor by 0,1 percentage point on the three-month treasury bill interest rate - resulting in the rise of the three-month treasury bill rate by 0.306 percentage points. The total multiplier, the value of which is 0.598, represents the overall impact of the indexation factor change on the three-month treasury bill rate.

5. EXPECTED MOVEMENT OF THE THREE-MONTH TREASURY BILL RATE UNTIL THE END OF 2001

Predicting future values of variables over a longer time horizon can be problematic. If we know some facts about the movements of exogenous variables by the end of a prediction horizon, the forecasts are easier and more accurate. Despite the fact that we could make assumptions about the exogenous variables, we must be aware of the error that occurs. In the simulation we estimate the values of endogenous variables in every iteration. These estimates include some sample error, which unfortunately multiplies along the iterations.

If the model includes exogenous variables, for which future values cannot be predicted, the forecasting is even harder. In this case, we have to estimate the values of exogenous explanatory variables and only then can we simulate the values of target endogenous variable.

The model includes some explanatory variables (such as the inter-bank market rate, offered amount), whose future values should be estimated separately with a separate function. Unavoidably, this would enlarge and complicate a simple model of three-month treasury bill interest rate. As a result, the model would be less understandable and too complex to be used for the purpose it was built for (i.e. the estimation of the three-month treasury bill interest rate and demand at auctions a month in advance).

Taking this into account, we simulated the movement of the three-month treasury bill interest rate until the end of 2001. The offered amount cannot be estimated in advance, but we made a realistic assumption that the issuer would increase the volume of each issue, because the offered amounts so far have been relatively small. We speculated that the issued volume would rise by 100 Mio SIT every month.

The government econometric institute has predicted the inflation would reach 7.8% in 2001. We assumed that the variability of monthly inflation rates in 2001 would be the same as in previous years, so we predicted monthly values of the indexation factor. Average inter-bank market interest rate were harder to forecast. We used a simple model and estimated inter-bank interest rates with trend extrapolation.

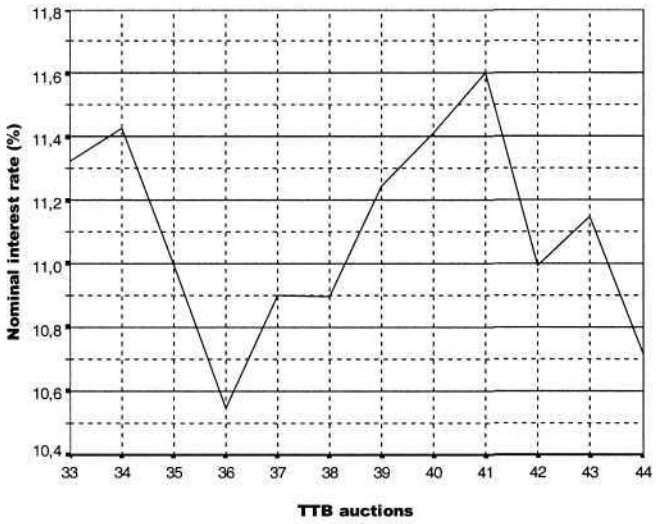
Assumptions about the values of exogenous variables and predictions about the movement of the three-month treasury bill interest rate for 2001 are presented in table 6.

Table 6
THREE-MONTH TREASURY BILL INTEREST RATE PREDICTIONS ON THE BASIS OF ASSUMPTIONS AND THE MODEL

	TTB auctions	MOM	TOMM	RE	D	POVP	OMAVK
Feb.01	34	7,48	0,7	3.200	0	4.220	11,43
Mar.01	35	7,04	0,7	3.300	1	6.536	11,00
Apr.01	36	7,22	0,6	3.400	1	6.296	10,54
May.01	37	6,77	0,7	3.500	0	5.165	10,90
Jun.01	38	6,32	0,7	3.600	0	5.960	10,90
Jul.01	39	6,51	0,8	3.700	0	5.848	11,24
Avg.01	40	6,47	0,8	3.800	0	6.133	11,41
Sept.01	41	6,65	0,8	3.900	0	6.091	11,60
Oct.01	42	6,52	0,7	4.000	1	8.065	10,99
Nov.01	43	6,50	0,7	4.100	0	6.376	11,15
Dec.01	44	5,84	0,6	4.200	0	7.338	10,71

Figure 2 shows simulated values of the three-month treasury bill interest rate until the end of 2001 taking in account the assumptions made above.

Figure 2
SIMULATED VALUES OF THE THREE-MONTH TREASURY BILL INTEREST RATE UNTIL THE END OF YEAR 2001.



The model was estimated on the basis of 33 observations made up to January 2001. We compared predicted and actual auction results since February 2001. The difference between predicted and actual three-month treasury bill interest rate was always less than 0,1 percentage points. The estimation of the market demand for three-month treasury bills was slightly worse, but still precise enough for the Ministry of Finance internal needs. The maximum error was less than 10 percent.

6. CONCLUSION

In this article the factors that influence the three-month treasury bill interest rate were indicated. The three-months treasury bill interest rate was significantly influenced by the offered amount, set by the issuer, an estimated market demand, the mandatory bid rate, the indexation factor and the three-month treasury bill rate achieved at the previous auction.

Market demand could not be determined prior to the auction. But since it was expected to have a strong impact on the interest rate, it was estimated. The factors that influence the market demand were: the offered amount, the interest rate on the inter-bank market, the three-month treasury bills interest rate at the previous auction as well as the maturity of the government debt (other than treasury bills) and interest payments on the government debt.

In the article the fact that the three-month treasury bill interest rate was actively used as the benchmark for other short- and long-term debt instruments is clearly shown.

The dynamic model of the interest rate paid on three-month treasury bills has been formed and multipliers calculated.

Regarding the results, the government should be careful in setting its borrowing policy. Its borrowing and debt management actions do not

influence only the costs of the government debt but they also have a significant impact on the broader financial market.

We suggest that further research be focused on the liquidity of non-bank money market participants. This might be possible after the reform of the payment system is completed and this is expected to happen in June 2002.

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8. APPENDIX

Table 7
DEFINITIONS OF VARIABLES USED IN THE MODEL

	DEFINITION OF VARIABLE, UNIT
OMAVK	Nominal TTB interest rate, %
POVP	Demand at the auction, Mio SIT
OMOO	Interest rate on mandatory bids, %
RE	Offered amount, Mio SIT
TOMM	Revalorization variable, %
MOM	Inter-bank market nominal interest rate, %
BIO	Ljubljana Stock Exchange bond index
PROMET	Volume of bond transactions, Mio SIT
D	Dummy variable for maturity
Variable(-1)	Variable, lagged for one period

Table 8
CORRELATION COEFFICIENTS BETWEEN THE THREE-MONTH TREASURY BILL INTEREST RATE AND DEFLATION FACTORS

	Inflation rate	Revalorization factor
m-3[a]	0.375	0.871
m-2[b]	0.264	0.889
m-1[c]	0.121	0.887
m[d]	-0.029	0.873
m+1[e]	-0.238	0.756
m+2[f]	-0.346	0.727
m+3[g]	-0.389	0.665

[a] Average inflation rate and revalorization factor in the month of the auction and previous two months.
[b] Average inflation rate and revalorization factor in the month of the auction and previous month.
[c] Average inflation rate and revalorization factor in the month before the auction.
[d] Average inflation rate and revalorization factor in the month of the auction.
[e] Average inflation rate and revalorization factor in the month following the auction.
[f] Average inflation rate and revalorization factor in the two months following the auction.
[g] Average inflation rate and revalorization factor in the three months following the auction.

Figure 3

REAL INTEREST RATE PAID ON THREE-MONTH TREASURY BILLS AND BANKING DEPOSIT INTEREST RATE

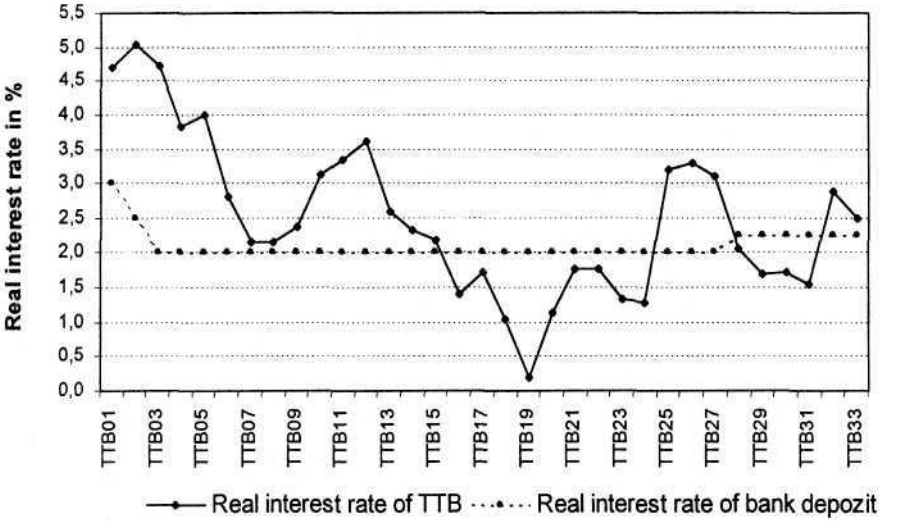


Figure 4

ACTUAL VALUES OF THE THREE-MONTH TREASURY BILL INTEREST RATE (OMAVK) AND VALUES ESTIMATED WITH REGRESSION EQUATION (Y_OMAVK) IN %

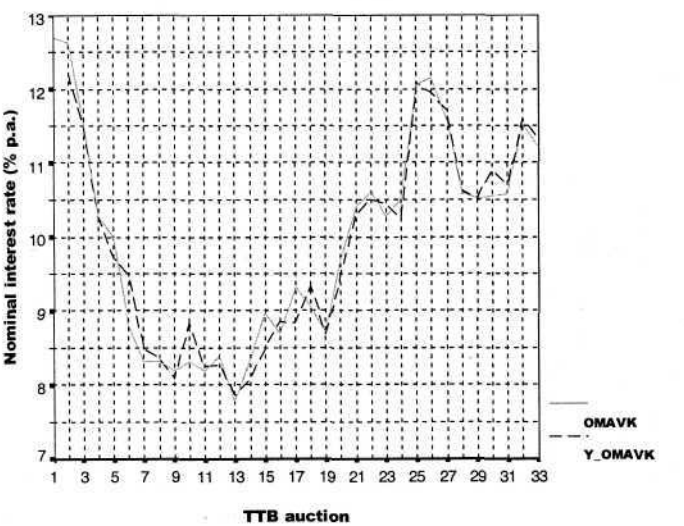


Figure 5

ACTUAL DEMAND FOR THREE-MONTH TREASURY BILLS (POVP) AND DEMAND ESTIMATED WITH REGRESSION MODEL (Y_POVP) IN MIO SIT

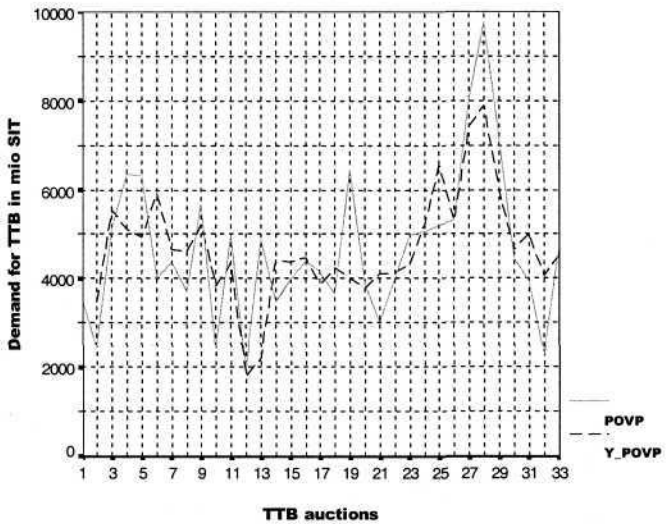


Figure 6

ACTUAL VALUES OF THE LJUBLJANA STOCK EXCHANGE BOND INDEX (BIO) AND VALUES ESTIMATED WITH REGRESSION MODEL (Y_BIO)

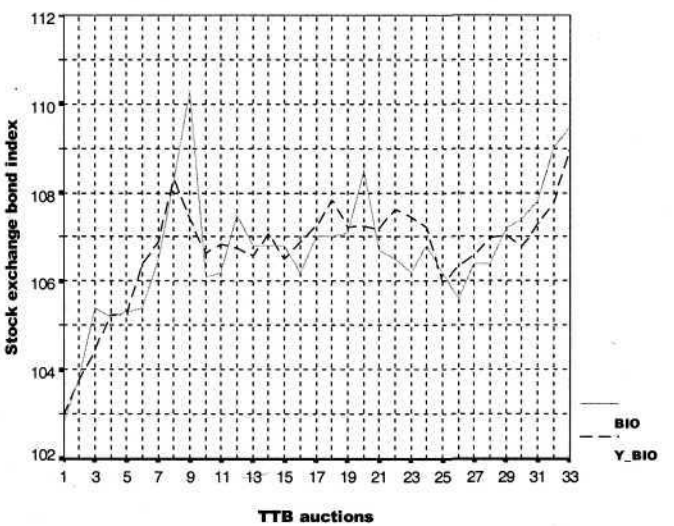


Figure 7

ACTUAL (OMAVK) AND SIMULATED (S_OMAVK) VALUES OF THREE-MONTH TREASURY BILLS INTEREST RATE IN %

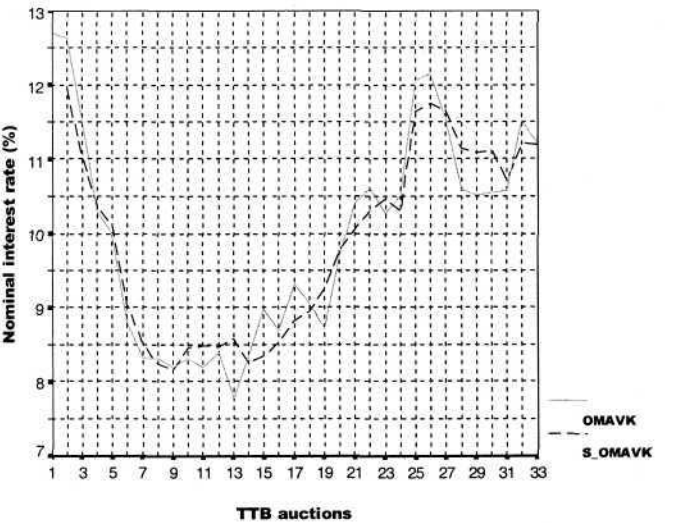


Figure 8

ACTUAL (POVP) AND SIMULATED (S_POVP) VALUES OF DEMAND FOR THREE-MONTH TREASURY BILLS IN MIO SIT

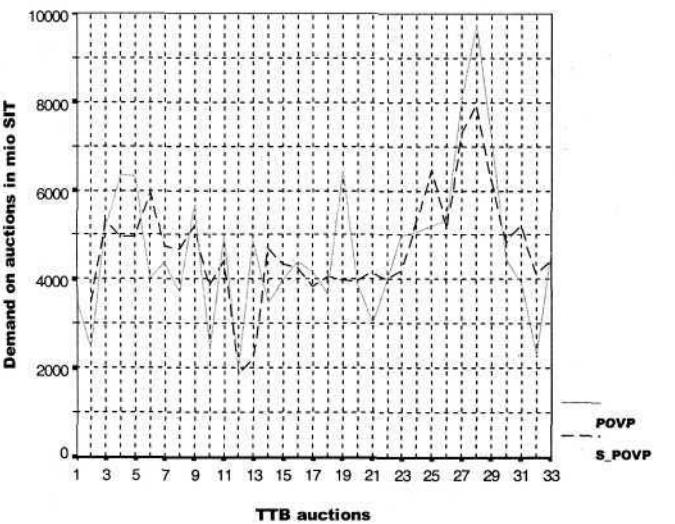
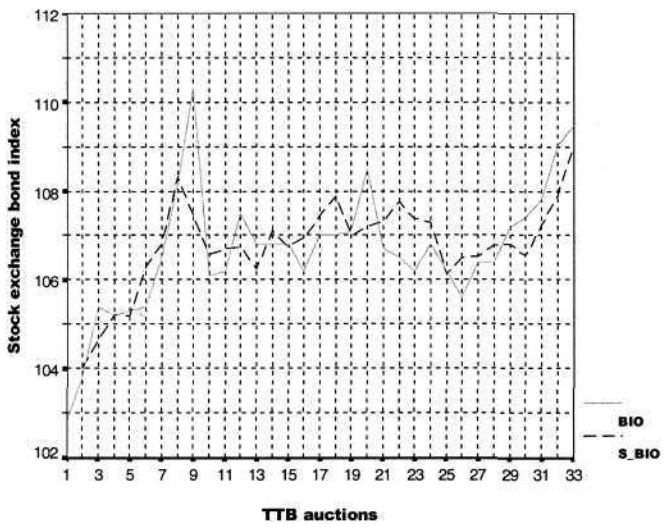


Figure 9
ACTUAL (BIO) AND SIMULATED (S_BIO) VALUES OF THE LJUBLJANA STOCK EXCHANGE BOND INDEX



SAŽETAK

Ministarstvo financija Republike Slovenije počelo je redovito izdavati trezorske zapise 1998. godine. Prije svega, razlog je bio u dugoročnom interesu da se razvije tržište novca iako su se važni dodatni faktori odnosili i na financiranje likvidnosti i kratkoročnog deficita. Razvijeno tržište novca ne bi djelovalo blagotvorno samo za osiguravanje jeftinijeg i fleksibilnijeg oblika zaduživanja državnog sektora, nego bi pomoglo stvoriti uvjete za transparentniju politiku kamatnih stopa i efikasnije upravljanje likvidnošću svih sudionika na tržištu. To bi također osiguralo javnosti nerizični kratkoročni instrument u koji ona može investirati.

Ovaj rad istražuje, kroz ekonometrijsku analizu, determinante kamatne stope na tromjesečne trezorske zapise i analizira utjecaj te kamatne stope na tržište obveznica. Identificiranje tih faktora i izgradnja odgovarajućeg modela može se primijeniti u predviđanju kamatne stope na tromjesečne trezorske zapise i time unaprijediti efikasnost politike zaduživanja države.