finiz
Singidunum University International Scientific Conference
Međunarodna naučna konferencija Univerziteta Singidunum

PAPERS FROM THE THEMATIC AREAS OF THE CONFERENCE
Evaluation and Risk
Original paper

INTEREST RATE PASS-THROUGH IN THE BANKING SECTOR OF SERBIA

Dražen Cvijanović*

Sinergija University,
Bijeljina, Bosnia and Herzegovina

Abstract:

This paper examines the pass-through of market interest rates to deposit and credit rates in Serbia during the period from 2015M1 to 2025M3. An appropriate econometric analysis is conducted using the error-correction model (ECM) and the ordinary least square method (OLS) to the research questions. The results presented in the paper suggest the presence of a statistically significant, but low, pass-through effect from market interest rates to bank deposit rates within the EUR and EUR-indexed deposit market as well as to loan rates within the FX (foreign-exchange) and FX-indexed credit market. The pass-through effect of changes in EURIBOR6M is somewhat stronger than the pass-through effect of changes in the Euro area yield curve spot rate for 1-year maturity. The ECM specification indicates that both bank deposit and loan interest rates are likely to adjust to market changes only after a certain time delay. This suggests that the long-run pass-through is slow, and in general, banks respond slowly to changes in interest rates, typically with a time lag.

Keywords:

interest rate pass-through, error-correction model, interest rate risk in the banking book.

1. INTRODUCTION

This paper analyses the pass-through effect of market interest rates on bank deposit and loan rates in the Serbian market, using a monthly data sample covering the period from 2015M1 to 2025M3. The main goal of the paper is to answer two research questions. The first is whether a pass-through effect of changes of market interest rates on bank deposit and loan rates. The second is to determine the strength of this effect, i.e., what portion of changes in market interest rates is likely to be passed through to bank deposit and loan rates.

To identify and measure the pass-through effect of market interest rates on bank deposit and loan rates, an error-correction model (ECM) was estimated in this paper. Additionally, the ordinary least squares (OLS) method was applied, and the results from both models were compared and critically analyzed. The findings indicate that the ECM specification is a useful tool for estimating this effect in Serbia's deposit and loan market. The econometric models revealed a statistically significant, albeit low, pass-through effect from market interest rates to bank deposit rates within the EUR and EUR-indexed deposit market. For instance, the models suggest that 40.91% of changes in the 6-month Euro Interbank Offered Rate (EURIBOR6M) are passed through to deposit interest rates, whereas the effect from the Euro area yield curve's 1-year spot rate is weaker, at 11.17%. Similar outcomes were observed in Serbia's FX and FX-indexed credit market.

Correspondence:
Dražen Cvijanović

e-mail:
dcvijanovic@sinergija.edu.ba

DOI: 10.15308/finiz-2025-95-103

Consistent with the deposit market, the ECM specification indicates that the pass-through effect of EURIBOR6M changes (38.63%) is slightly more pronounced than that of changes in the 1-year Euro area yield curve spot rate (20.89%). The ECM also indicates that both bank deposit and loan rates adjust to market changes with a time delay.

The contributions of this paper to the existing literature are twofold. First, it elucidates potential methodological tools for measuring the interest rate pass-through effect, applicable to both the banking sector as a whole and to individual institutions. Second, it provides an estimate of the interest rate pass-through effect using Serbian banking data, which offers a robust empirical foundation for future research and practical application. Considering the substantial interest rate volatility observed in recent years, the high degree of complexity involved in measuring interest rate risk in the banking book, and the implementation challenges posed by the EBA's guidelines (EBA/GL/2022/14), the results presented are valuable for risk management practitioners both in Serbia and abroad.

2. LITERATURE REVIEW

Error-correction models (ECMs) are a common methodological framework for researching the interest rate pass-through effect. For example, De Bondt (2005) used a vector error correction and a vector autoregressive model to measure the pass-through effect in the Euro area. Hristov, Hülsewig, and Wollmershäuser (2014) examined retail bank interest rate pass-through in the Euro area both before and during the global financial crisis. Other notable papers focusing on the Euro area include Holton and d'Acri (2018), Sørensen and Werner (2006), Aristei and Gallo (2014), Marotta (2009), and Von Borstel, Eickmeier, and Krippner (2016).

Compared to the extensive literature on the Euro area, significantly fewer papers explore the interest rate pass-through mechanism in the CESEE region. Égert, Crespo-Cuaresma, and Reininger (2007) examined this mechanism in five CESEE countries, comparing it over time and with other European countries. Horváth, Krekó, and Naszódi (2004) used an ECM to analyze the effect in Hungary, while Petrevski and Bogoev (2012) investigated it in Bulgaria, Croatia, and North Macedonia. More recently, Milišić and Dželihodžić (2024) used aggregate bank data from Bosnia and Herzegovina to examine the pass-through effect of ECB monetary policy measures on deposit rates. Miletic, Tomin, and Djordjevic (2021) researched the interest rate pass-through in Serbia, focusing on local currency lending rates. In a separate study, Simović and Šutaković (2023) explored the long-term relationship between Euribor, the country risk premium, and Serbian lending rates. The authors concluded Euribor and the country risk premium have a significant impact on lending rates in the Serbian banking sector.

3. METHODOLOGY AND DATA

This paper analyzes monthly data from the Serbian market, covering the period from 2015M1 to 2025M3. Interest rates on term deposits and interest rates on loans serve as the target variables in an econometric model that estimates the extent to which market interest rates are passed through to bank loan and deposit rates. The independent variables are alternatively EURIBOR6M rates and the Euro area yield curve spot rate, i.e., a set of variables that can be used as a market benchmark.

An overview of the data used, including a description of the data, units of measurement, frequency, and source, is presented in Table 1.

Table 1. Overview of the dataset used in the research

Data	Description	Unit	Frequency	Source
D_EUR_SVE	Interest Rates on Term Deposits from Household and Non-Financial Sectors – New Business, in EUR and EUR indexed	Per annum, in %	Monthly, 2015M1:2025M3	National Bank of Serbia; https://nbs.rs/sr_RS/drugi-nivo-navigacije/statistika/ks_stat/
K_OST_SVE	Interest Rates on Loans to Non-Financial Sector – New Business, Indexed to FX and FX Loans, Serbia	Per annum, in %	Monthly, 2015M1:2025M3	National Bank of Serbia; https://nbs.rs/sr_RS/drugi-nivo-navigacije/statistika/ks_stat/
ECB_YC_1Y	Yield curve spot rate, 1-year maturity - Government bond, nominal, all issuers whose rating is triple A - Euro area (changing composition), End of Period	Per annum, in %	Monthly, 2015M1:2025M3	ECB Data Portal, https://data.ecb.europa.eu/data/datasets/YC/YC.B.U2.EUR.4F.G_N_A.SV_C_YM.SR_1Y
EURIBOR6M	EURIBOR6M Rates – Historical close, average of observations through period	Per annum, in %	Monthly, 2015M1:2025M3	ECB Data Portal, https://data.ecb.europa.eu/data/datasets/FM/FM.M.U2.EUR.RT.MM.EURIBOR6MD_.HSTA

Source: Author

The primary descriptive statistics for the data utilized in the research are presented in Table 2.

Table 2. Descriptive statistics

Variable / Descriptive statistics	D_EUR_SVE	K_OST_SVE	ECB_YC_1Y	EURIBOR6M
min	0,41	2,19	-0,88247	-0,5446
average	1,273333	3,761712	0,324985	0,711885
max	3,6	7,13	3,51464	4,1148
std_dev	0,937614	1,623861	1,583875	1,661726
skewness	1,121977	1,040385	1,030289	1,076591
kurtosis	-0,36958	-0,57307	-0,77353	-0,65186

*Source:*Author's calculation

The main aim of this paper is to measure the pass-through effect of the market interest rate on bank loan and deposit rates in the Serbian market. To achieve this objective, two primary groups of variables are used. The first group of variables represents bank interest rates and includes the following: D_EUR_SVE and K_OST_SVE. The second group of variables includes variables such as ECB_YC_1Y and EURIBOR6M.

In order to achieve the aim of the research, the ECM and OLS models are employed. Variables integrated of order I(1) are included in their first-difference form.

The ECM specification is presented in the following equation:

$$\Delta_{yt}=a+b_1\,(y_{t-1}-c_{01}\,x_{t-1}-c_{11})+b_2\,(y_{t-2}-c_{02}x_{t-2}-c_{12})+ +d\Delta x_{t-n}+e\Delta y_{t-1} \quad (1)$$

Similarly, the OLS model is presented with two different specifications. The first specification is represented by equation (3), while the second OLS specification is represented by equation (4):

$$\Delta yt=a+d\Delta_{xt-n}+e\Delta y_{t-1} \quad (2)$$

where variables y_t represent bank interest rates and x_t represent market benchmark interest rates, like ECB_YC_1Y and EURIBOR6M. A Wald test of coefficients for a fitted model, using a Newey-West heteroskedasticity and autocorrelation consistent (HAC) covariance matrix is used to estimate regression equations and coefficients that are robust to heteroskedasticity and autocorrelation.

As is customary, the first step in the econometric analysis was to test the stationarity of each time series. The Augmented Dickey-Fuller unit root test was employed in this paper to assess the stationarity of the time series. The test results and conclusions are presented in Table 3.

Table 3. The results of stationarity testing

Variable	ADF Unit Root test results	Order
D_EUR_SVE	Test regression with trend and intercept Test statistic = -1.67	I(1)
	Test regression with intercept, without trend Test statistic = -0.41	
	Test regression (without trend and intercept) Test statistic = 0.62	
	Test on the first difference Test statistic = -7.39	
K_OST_SVE	Test regression with trend and intercept Test statistic = -1.87	I(1)
	Test regression with intercept, without trend Test statistic = -0.45	
	Test regression (without trend and intercept) Test statistic = 0,26	
	Test on the first difference Test statistic = -6,23	
ECB_YC_1Y	Test regression with trend and intercept Test statistic = -1.47	I(1)
	Test regression with intercept, without trend Test statistic = -0.44	
	Test regression (without trend and intercept) Test statistic = -0.23	
	Test on the first difference Test statistic = -4.69	
EURIBOR6M	Test regression with trend and intercept Test statistic = -2.12	I(1)
	Test regression with intercept, without trend Test statistic = -1.44	
	Test regression (without trend and intercept) Test statistic = -1.15	
	Test on the first difference Test statistic = -2,44	

Source: Author's calculation

4. RESULTS

Before estimating the ECM model, the existence of cointegration was assessed using the Engle-Granger procedure (Engle and Granger, 1987). In the first step, a long-run regression with a constant was conducted, with the bank interest rate (D_EUR_SVE and K_OST_SVE) as the dependent variable and the market benchmark rate (ECB_YC_1Y and EURIBOR6M) as the independent variable. Further, the augmented Dickey-Fuller unit root test was then conducted to statistically assess the stationarity of the residuals. In the final step, ECM models were estimated, and the model results were compared with the OLS model results. This procedure was conducted separately for bank deposit rates and bank loan rates.

4.1. DEPOSIT PASS-THROUGH RATE

This section presents the results of the deposit pass-through rate estimation, where the target variable is the interest rate on term deposits from households and non-financial sectors for new business in EUR or with EUR indexation. Two variables were considered as independent variables, EURIBOR6M and ECB_YC_1Y, used alternatively. First, the Engle-Granger procedure (Engle and Granger, 1987) was applied to the model with EURIBOR6M as the independent variable. As mentioned, a long-run regression was conducted in the first step, and the results are presented in Table 4.

Table 4. Long-Run Regression (D_EUR_SVE as the Dependent Variable and EURIBOR6M as the Explanatory Variable)

	Coefficients	**Std. Error**	**t-value**	**Prob.**
(Intercept)	0.88208	0.02202	40.05	<2e-16 ***
EURIBOR6M	0.54961	0.01223	44.94	<2e-16 ***
Signif. codes	"***" 0.001	"**" 0.01	"*" 0.05	"." 0.1
Residual standard error			0.2131 on 109 degrees of freedom	
Multiple R-squared:		0.9488	Adjusted R-squared:	0.9483
F-statistic:		2020 on 1 and 109 DF	p-value:	<2.2e-16

Source: Author's calculation

In the next step, the augmented Dickey-Fuller unit root test was conducted to statistically assess the stationarity of the residuals. The test results indicate that the residuals are stationary and that the variables may be cointegrated at the 1% significance level .

The same procedure was applied to the model with ECB_YC_1Y as the independent variable. The results of the long-run regression are presented in Table 5.

Table 5. Long-Run Regression (D_EUR_SVE as the Dependent Variable and ECB_YC_1Y as the Explanatory Variable)

	Coefficients	**Std. Error**	**t-value**	**Prob.**
(Intercept)	1.08722	0.02311	47.04	<2e-16 ***
EURIBOR6M	0.57269	0.01436	39.89	<2e-16 ***
Signif. codes	"***" 0.001	"**" 0.01	"*" 0.05	"." 0.1
Residual standard error			0.2385 on 109 degrees of freedom	
Multiple R-squared:		0.9359	Adjusted R-squared:	0.9353
F-statistic:		1591 on 1 and 109 DF	p-value:	<2.2e-16

Source: Author's calculation

The results of the augmented Dickey-Fuller unit root test indicate that the residuals are stationary and that the variables may be cointegrated at the 1% significance level .

According to the cointegration results, the ECM may be an appropriate model to assess the pass-through effect of market interest rates on deposit interest rates for the EUR and EUR-indexed portfolio. In addition to the ECM model, the OLS model was also assessed to compare and analyze the results. The results of the ECM and OLS specificationsthat is, models (1) and (2), are shown in Table 6.

Table 6. The ECM and OLS regression results (D_EUR_SVE as dependent variable)

Model / Variable	ECM_1	ECM_2	OLS_1	OLS_2
Intercept	0.01044	0.0026968	0.012483	0.0050494
	(0.009304)	(0.0055058)	(0.015942)	(0.0135026)
ERROR.ECM	0.7346457***	0.9156217***		
	(0.0478570)	(0.0274496)		
L1.ERROR.ECM	-0.8500004***	-0.9366183***		
	(0.0506012)	(0.0264328)		
L1.D1.D_EUR_SVE	-0.0536632	0.0039775	-0.181742*	-0.2621909***
	(0.0435236)	(0.0197331 0.13094734	(0.073926)	(0.0632084)
		(0.08586669)		
L2.D1.ECB_YC_1Y	0.1117062*		0.267594*	
	(0.051356)		(0.118467)	
L2.D1.EURIBOR6M		0.4091002***		0.6096027***
		(0.074809)		(0.1053298)
R2	0.7735	0.9221	0.08377	0.2237
R2 Adj.	0.7646	0.9191	0.06615	0.2087

+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Source: Author's calculation

The symbols have the following meanings: ERROR.ECM – error correction term, L1.ERROR.ECM – error correction term (second time lag), L1.D1.D_EUR_SVE – bank deposit rates for EUR and EUR indexed portfolio (first difference and first time lag), L2.D1.ECB_YC_1Y – Euro area yield curve spot rate for 1-year maturity (first difference and second time lag, L2.D1.EURIBOR6M – EURIBOR6M (first difference and second time lag).

The regression results suggest that the ECM models explain the pass-through effect on bank deposit rates for EUR and EUR-indexed portfolios better than the OLS models. According to the coefficients of determination, both ECM specifications explain significantly more variability than the OLS specifications. The pass-through effect is statistically significant but incomplete, i.e., only a smaller portion of changes in the market interest rates is passed through to bank deposit rates. The results of the ECM specification suggest that the pass-through effect of changes in EURIBOR6M is somewhat stronger than the pass-through effect of changes in the Euro area yield curve spot rate for 1-year maturity. The model results imply that 40.91% of changes in EURIBOR6M will be passed through to deposit interest rates for EUR and EUR-indexed portfolios. In the case of the yield curve spot rate for 1-year maturity, the pass-through effect is weaker, i.e., 11.17% of changes of the yield curve 1-year spot rate would be passed through on bank deposit rates.

What is unusual for the ECM is that both estimated error-correction specifications include an error-correction term at two time lags. The coefficients on the error-correction term are statistically significant. The coefficient on the ECT at the first time lag has a positive value, while the coefficient at the second time lag has a negative value. Although this is unusual for ECM specifications, it has an economic interpretation. In the short run, bank deposit rates can move further away from market interest rates, and show delayed adjustment in the direction of changes in market rates. This is not unexpected given monetary policy measures or interest rate pass-through because of the effect of policy lags or pricing inertia. Therefore, according to the results obtained, interest rates can be expected to begin adjusting to market changes only after a time delay. This means that long-run pass-through is slow, and in general banks react slowly to interest rate changes and with a time delay.

4.2. LOAN PASS-THROUGH RATE

The same procedure used for bank deposit rates for EUR and EUR-indexed portfolios is applied to bank loan rates. Interest rates on loans to the non-financial sector – new business, indexed to FX and FX loans were used as the target variable. First, the Engle-Granger procedure was applied for the model with EURIBOR6M as the independent variable. A long-run regression was performed in the first step, and the results are presented in Table 7.

Table 7. Long-Run Regression (K_OST_SVE as the Dependent Variable and EURIBOR6M as the Explanatory Variable)

	Coefficients	**Std. Error**	**t-value**	**Prob.**
(Intercept)	3.08054	0.03423	90.00	<2e-16 ***
EURIBOR6M	0.95686	0.01901	50.34	<2e-16 ***
Signif. codes	"***" 0.001	"**" 0.01	"*" 0.05	"." 0.1
Residual standard error			0.3312 on 109 degrees of freedom	
Multiple R-squared:		0.9588	Adjusted R-squared:	0.9584
F-statistic:		2535 on 1 and 109 DF	p-value:	<2.2e-16

Source: Author's calculation

The results of the augmented Dickey-Fuller unit root test indicate that the residuals are stationary and that the variables may be cointegrated at the 1% significance level.

The same procedure was applied to the model with ECB_YC_1Y as the independent variable. The results of the long-run regression are presented in Table 8.

Table 8. Long-Run Regression (K_OST_SVE as the Dependent Variable and ECB_YC_1Y as the Explanatory Variable)

	Coefficients	**Std. Error**	**t-value**	**Prob.**
(Intercept)	3.44017	0.04143	83.03	<2e-16 ***
ECB_YC_1Y	0.98941	0.02574	38.45	<2e-16 ***
Signif. codes	"***" 0.001	"**" 0.01	"*" 0.05	"." 0.1
Residual standard error			0.4275 on 109 degrees of freedom	
Multiple R-squared:		0.9313	Adjusted R-squared:	0.9307
F-statistic:		1478 on 1 and 109 DF	p-value:	<2.2e-16

Source: Author's calculation

The results of the augmented Dickey-Fuller unit root test indicate that the residuals are stationary and that the variables may be cointegrated at the 1% significance level .

Cointegration results suggest that the ECM could be an appropriate model to assess the pass-through effect of market interest rates on loan interest rates for FX and FX-indexed portfolios, similarly to the case of deposit interest rates. In addition to the ECM model, the OLS model was assessed in order to compare and analyze the results. The results of the ECM and OLS specifications, i.e., models (1) and (2), are shown in Table 9.

Table 9. The ECM and OLS regression results (K_OST_SVE as dependent variable)

Model / Variable	ECM_3	ECM_4	OLS_3	OLS_4
Intercept	0.0079372	-0.00037675	0.0081696	-0.0047038
	(0.0130048)	(0.01427012)	(0.0243493)	(0.0209552)
ERROR.ECM	0.6813048***	0.87203481***		
	(0.0564065)	(0.07072328)		
L1.ERROR.ECM	-0.8681696***	-1.0911752***		
	(0.041983)	(0.0546487)		
L1.D1.K_OST_SVE	0.0511101	0.13094734	-0.2233721*	-0.3208143***
	(0.0705984)	(0.08586669)	(0.1098914)	(0.0884905)
L4.D1.ECB_YC_1Y	0.2089309**		0.4885181 **	
	(0.0747554)		(0.1467255)	
L4.D1.EURIBOR6M		0.38631874***		0.9829994***
		(0.08280252)		(0.1581568)
R2	0.7621	0.8995	0.106	0.2162
R2 Adj.	0.7525	0.8955	0.08848	0.2008

+ p<0.1, * p<0.05, ** p<0.01, *** p<0.001

Source: Author's calculation

The symbols have the following meanings: ERROR.ECM – error correction term, L1.ERROR.ECM – error correction term (second time lag), L1.D1.K_OST_SVE – bank loan rates for FX and FX indexed portfolio (first difference and first time lag), L4.D1.ECB_YC_1Y – Euro area yield curve spot rate for 1-year maturity (first difference and fourth time lag, L4.D1.EURIBOR6M – EURIBOR6M (first difference and fourth time lag).

The regression results indicate that ECMs explain the pass-through effect on bank credit rates for FX and FX-indexed portfolios more effectively than OLS models. Similar to bank deposit rates, the pass-through effect is statistically significant but incomplete, meaning only a smaller portion of market interest rate changes is reflected in bank loan rates. The error-correction specification results suggest that the immediate pass-through effect of changes in EURIBOR6M is slightly stronger than that of the Euro area yield curve spot rate for 1-year maturity. The model implies that 38.63% of changes in EURIBOR6M will be passed through to loan interest rates for FX and FX-indexed portfolios. For the yield curve spot rate (1-year maturity), the pass-through effect is weaker, with only 20.89% of its changes expected to be transmitted to bank loan rates.

Consistent with previously estimated models, both error-correction specifications include an error-correction term at two time lags. The coefficient on the error correction term (ECT) at the first lag is positive, while the coefficient at the second lag is negative. The economic interpretation remains the same as for bank deposit interest rates: bank loan interest rates are expected to begin adjusting to market changes only with a time delay. This implies a slow long-run pass-through, indicating that banks generally react slowly and with a time lag to interest rate fluctuations.

5. CONCLUSION

The results presented in this paper are useful not only for further research in the field of interest rate risk management in the banking book, but also for all practitioners involved in the management and measurement of this type of risk on a daily basis. Pass-through of market interest rates to bank deposit and loan rates is a key issue when studying and managing interest rate risk in the banking book.

To determine whether the pass-through effect exists, the appropriate econometric models were developed and assessed, i.e., ECM and OLS regressions were estimated. The research was conducted using bank deposit and loan interest rate data collected from the National Bank of Serbia and market interest rate data (Euribor and Euro area yield curve). Data were collected for the period from 2015M1 to 2025M3 on a monthly basis.

The results showed a statistically significant presence of the pass-through effect of market interest rates on deposit interest rates for the EUR and EUR-indexed portfolio. However, the strength of the pass-through effect is relatively low.

The error-correction specification results indicate that 40.91% changes in EURIBOR6M would be passed through on deposit interest rates for EUR and EUR-indexed portfolio. In the case of the Euro area yield curve spot rate for 1-year maturity, the pass-through effect is even weaker, i.e., 11.17% of changes of the yield curve 1-year spot rate would be passed through on bank deposit rates. The similar results are obtained for the FX and the FX-indexed credit market. The results of error-correction specification suggest that the pass-through effect of changes in EURIBOR6M is a bit stronger than the pass-through effect of changes in the Euro area yield curve spot rate for 1-year maturity. The model results imply that 38.63% of changes in EURIBOR6M will be passed through to loan interest rates for the FX and FX-indexed portfolio. In the case of the Euro area yield curve spot rate for 1-year maturity, the pass-through effect is weaker, i.e., 20.89% of changes in the yield curve 1-year spot rate would be passed through to bank loan rates. Furthermore, the ECM specification showed that both bank deposit and loan interest rates can be expected to begin to adjust to market changes only with a time delay, i.e., long-run pass-through is slow, and banks generally react slowly to interest rate changes, with a time delay.

LITERATURE

Aristei, D., & Gallo, M. (2014). Interest rate pass-through in the Euro area during the financial crisis: A multivariate regime-switching approach. *Journal of Policy Modeling, 36*(2), 273-295.

De Bondt, G. J. (2005). Interest rate pass-through: empirical results for the Euro Area. *German Economic Review, 6*(1), 37-78.

ECB Data Portal, Yield curve spot rate, 1-year maturity - Government bond, nominal, all issuers whose rating is triple A - Euro area (changing composition), End of Period, downloaded from: https://data.ecb.europa.eu/data/datasets/YC/YC.B.U2.EUR.4F.G_N_A.SV_C_YM.SR_1Y

ECB Data Portal, EURIBOR6M Rates – Historical close, average of observations through period, downloaded from: https://data.ecb.europa.eu/data/datasets/FM/FM.M.U2.EUR.RT.MM.EURIBOR6MD_.HSTA

Égert, B., Crespo-Cuaresma, J., & Reininger, T. (2007). Interest rate pass-through in central and Eastern Europe: Reborn from ashes merely to pass away?. *Journal of Policy Modeling, 29*(2), 209-225.

Engle, R. F., and Granger, C. W. J. (1987). Co-Integration and Error Correction: Representation, Estimation, and Testing. *Econometrica, 55*(2), 251–276. https://doi.org/10.2307/1913236

European Banking Authority (EBA), Guidelines on IRRBB and CSRBB (EBA/GL/2022/14), 20 October 2022

Holton, S., & d'Acri, C. R. (2018). Interest rate pass-through since the euro area crisis. *Journal of Banking & Finance, 96*, 277-291.

Horváth, C., Krekó, J., & Naszódi, A. (2004). Interest rate pass-through: the case of Hungary. *National Bank of Hungary Working Paper, 8*.

Hristov, N., Hülsewig, O., & Wollmershäuser, T. (2014). The interest rate pass-through in the Euro area during the global financial crisis. *Journal of Banking & Finance, 48,* 104-119.

Marotta, G. (2009). Structural breaks in the lending interest rate pass-through and the euro. *Economic Modelling, 26*(1), 191-205.

Miletic, M., Tomin, A., & Djordjevic, A. (2021). *Interest rate pass-through in Serbia: evidence from individual bank data* (No. 4). National Bank of Serbia.

Milišić, E., & Dželihodžić, E. Ž. (2024). *Interest rate pass-through under a currency board regime: Evidence from Bosnia & Herzegovina* (No. HEIDWP10-2024). Graduate Institute of International and Development Studies Working Paper.

National Bank of Serbia, Interest Rates on Term Deposits from Household and Non-Financial Sectors – New Business, in EUR and EUR indexed, downloaded from: https://nbs.rs/sr_RS/drugi-nivo-navigacije/statistika/ks_stat/

National Bank of Serbia, Interest Rates on Loans to Non-Financial Sector – New Business, Indexed to FX and FX Loans, Serbia, downloaded from: https://nbs.rs/sr_RS/drugi-nivo-navigacije/statistika/ks_stat/

Petrevski, G., & Bogoev, J. (2012). Interest rate pass-through in South East Europe: An empirical analysis. *Economic systems, 36*(4), 571-593.

Simović, D., & Šutaković, T. (2023). Influence of Euribor on interest rates on new loans granted to corporates and households: The case of Serbia. *Ekonomika preduzeća, 71*(3-4), 192-201.

Sørensen, C. K., & Werner, T. (2006). *Bank interest rate pass-through in the euro area: a cross country comparison* (No. 580). ECB working paper.

Von Borstel, J., Eickmeier, S., & Krippner, L. (2016). The interest rate pass-through in the euro area during the sovereign debt crisis. *Journal of International Money and Finance, 68,* 386-402.