CROATIAN KUNA: MONEY, OR JUST A CURRENCY? EVIDENCE FROM THE INTERBANK MARKET[1]

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Abstract

Modern sovereign money is accepted as an institution in virtue of the collective intentionality of the acceptance of the sovereign status function declaration it being the official currency of a country. A status function declaration may not create money it may only create a currency. How does one test the fact that an official currency also has all the properties of money? We propose a rather simple test based on the Granger causality of the acceptance of a currency in virtue of money if, and only if, the allocation function of its market interest rate is not rejected. This condition is fulfilled if the interest rate is its genuine allocator. This is the case if the changes in quantity cause the change in the interest rate as a price of money i.e. its true opportunity cost. We find that market interest rate changes are Granger caused by changes in quantities of traded euros on the overnight banking market but not by changes in the quantity of traded Croatian kuna. Thus, the Croatian kuna is only the domestic currency of Croatia, and the euro is its true money.

Keywords: money functions, euroization, ZIBOR, Granger causality.

Jel Classification: E31; E43; E47; E52; G17

INTRODUCTION

The fact that we call something "money" is observer relative: it only exists relative to its users and relative to the users' perspective considering something a money. Money is independent of its substance: it is functionally defined. The utility or functionality of money is based on the trust the society as a whole bestows on it. It is dependent on the

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collective trust in its status function. The status of currency is given by status function declaration, while the status of money is earned through trust and collective intentionality (Searle 2005). Thus, it is called "fiat money".

In general, money is any item used to make a payment for a good or a service i.e. whatever people are willing to accept for exchange. More specifically, money can be defined in terms of three general functions it performs: money serves as a unit of account, as a medium of exchange and as a store of wealth. Usually, a single national monetary unit fulfills all functions of money.

Being a functional currency is thus just one of the functions of money. Both fulfil the basic exchange function, so the principal difference between money and currency is an institutional one. How does one test for the difference between the two? One needs to test for the existence of elements of trust on the market, as only market provides functional expression for money. The allocative price of money is the interest rate, so one should obviously test for the functionality of the money market interest rate.

We propose a market test between well-informed and institutionalized participants, the banks, on the overnight lending market. This approach is not without problems since a small open economy is a price and interest rate taker. If the country's real interest rates are higher than in other countries, there is an inflow of capital pushing towards appreciation, and at the same time, higher interest rates slow down the economy and reduce the imports. For a small open economy, the interest rates should converge to the interest rates of its largest trading partner. In theory, a small open economy is a price and interest rate taker. In the case of money, the interest rate is its price of time usage, i.e. its true opportunity cost. Therefore, the interest rate is an adequate measure of its market allocation mechanism. We concentrate just on one single important feature of money: its allocation role in the market process, and the role of the interest rate to allocate the money between its various usages. For this purpose, we use the *Granger causality* test. If changes in the quantity of money do not *Granger cause* the changes in the interest rate, the allocative function of money is compromised and the hypothesis of a currency's money function is falsified. This is also the major contribution of our work: to employ the *Granger causality* test to test the allocative function of money.

The main hypothesis of our work is that Croatian kuna does not fulfil all three basic functions of money because of the phenomenon of euroization i.e. domestic currency substitution[3] and destroyed confidence in it decades ago. According to Brown and Stix (2014), foreign currency deposits in Eastern Europe are a "habit" and are still under influence of the 1990s financial crisis. Afterwards, CEE policy makers did not insist on financial system de-euroization owing to the assumption that euro adoption was imminent, which in turn implied that financial euroization was a temporary phenomenon. Moreover, since their banking systems were predominantly foreign owned by parent banks from the Eurozone, financial euroization was accepted as part of the financial integration process (Ivanov, Tkalec, and Vizek 2011). In Croatia, that was even more prominent by the unfavorable circumstances of war, transition process and inherited

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[3] The term euroization (or dollarisation) refers to the use of a foreign currency for different functions of money, i.e. the use of foreign currency as a medium of payment and as a medium of storing wealth.

monetary instability. Considering high euroization of Croatian economy and features of national monetary policy, one can ask if Croatian kuna performs all functions of money.

This paper proceeds as follow. After a brief literature review on the functions of money in a Small Open Economy, the second part of the paper offers a short description of the Croatian monetary system and the determinants of the Croatian national currency – kuna. Section 3 describes the data and the methodology, followed by the results of the empirical analysis as well as the discussion of the findings. Last section brings the concluding remarks.

1. THEORETICAL BACKGROUND

The theoretical background of our study is framed around two basic issues at hand: first, the functions of money, and second, the particular functions of money in a Croatia's monetary setting as a Small Open Economy (SMOPEC) with a pegged interest rate (Vizek 2006; Bosnjak 2018).

The functional definition of money encompasses at least three roles that money plays in an economy (Mishkin 2018):
- medium of exchange (money avoids double coincidence of wants),
- unit of account (money simplifies comparison of values),
- store of value (money fixes the value of most debts).

Usually, the same unit serves all the functions of money. According to the Mundell-Fleming theory (Mundell 1960; Fleming 1962), a SMOPEC does not have the power to influence the interest rate. Thus, Croatia, as a SMOPEC with an implicit currency peg is an interest rate taker, and the entire difference between the Croatian and the EU interest rate is due to the Croatian implicit country risk. One of the measures of financial (monetary) credibility is the degree of currency substitution within a country. A country having a high level of currency substitution such as Croatia and large number of contracts denominated in Euros and payable in the local currency (liability euroization) cannot use monetary policy as an effective tool of economic policy, and thus cannot claim the full functionality of its money. The loss of monetary independence is the greatest cost of a currency peg/board/union (Appleyard, Field, and Cobb 2008). This is not the case of Croatia as it tied its currency to its main trading partner, and thus gaining monetary stability necessary to attract Foreign Direct Investment and to incentivize and stabilize commerce. The negative effect of liability euroization is the appreciation of a domestic currency with negative impact on the country's international trade competitiveness (Coricelli 2002). Thus, positive influences gained through the capital balance are lost through the trade balance with probably a positive long-run balance. Borrowing and lending in a domestic currency should have no direct impact on the exchange rate. However, it may influence it indirectly through economic growth, rise in exports, production, etc. We have learned from the textbook theory that increasing government spending and deficits induce an increase in the domestic interest rate, which induces an inflow of short-term capital movements. The central bank purchases the excessive foreign currency. The money supply expands until the money market, the saving and investments are in equilibrium. The balance of payments equilibrium in this sense is a

zero balance in the official reserve transaction balance. Expansionary fiscal policy is thus effective in case of perfectly mobile capital. There is no offsetting crowding-out effect through the increase of the interest rate. Our textbook model tells us that flexible exchange rates constrain the effectiveness of the fiscal policy, and the currency peg with the big trading partner is the way to go. Croatia, fully committed to its EMU membership, pegged its exchange rate (Mance, Zikovic, and Mance 2015) to enhance its fiscal policy effectiveness.

Appleyard, Field, and Cobb (2008) list four major advantages of a currency board:

- convertibility of a domestic currency into a foreign currency,
- macroeconomic discipline through a balanced budget,
- a guaranteed payment adjustment mechanism, resulting in
- increased confidence in the monetary system.

As a disadvantage, the most critical is the monetary sovereignty problem, and the resulting political problem of retaining the discipline to balance the budget. Government deficits may pose several challenges to SMOPECs with relatively fixed exchange rates: a government deficit pushes up the exchange rate if it is financed on foreign markets. Borrowing does not affect directly the interest rate, as SMOPECs cannot influence the world real interest rate. The domestic nominal interest rate though, may be put under upward pressure through the country risk premium in case of excessive deficits and debt. In case of a SMOPEC and domestic borrowing, excessive deficits could crowd-out some private investments and push the interest rate up which should attract short-term portfolio capital and consequently put the currency under upward pressure under soft currency pegs. It is a more indirect adjustment mechanism than in the previous case, but with somewhat greater influence. Overall, for a SMOPEC, no significant changes in interest rates should be visible through the domestic monetary balance transaction mechanism. Just as the textbook theory states (Appleyard, Field, and Cobb 2008), we expect a SMOPEC to be an interest rate taker. The inability to use the domestic currency as a unit of account with its allocative function in the financial markets and due to euroization also as a store of wealth, is a sign of its diminished functionality. Thus, we ask the title question: is Kuna money or just a currency? To answer the question we observe the allocative function of the Kuna and the Euro on the local financial market in which only debt instruments with maturity of less than one year are traded: the money market.

2. CROATIAN MONETARY SYSTEM AND ITS SOVEREIGNTY

Croatian Kuna became the official Croatian monetary unit on May 30, 1994. Kuna replaced the Croatian dinar as a transitional payment instrument introduced after Croatia gained independence. However, it was much more demanding to ensure macroeconomic stability as a prerequisite for the introduction of the national currency. The condition was fulfilled by the implementation of the Stabilization Program in October 1993 (Babic 1998; Gil-Alana, Mervar, and Payne 2017). The Program successfully eliminated hyperinflation (1616% in 1993) and stabilized the exchange rate. Actually, it was the other way around: by stabilizing the exchange rate, and the government finances, the government managed to reduce inflationary expectations, ending hyperinflation. Despite

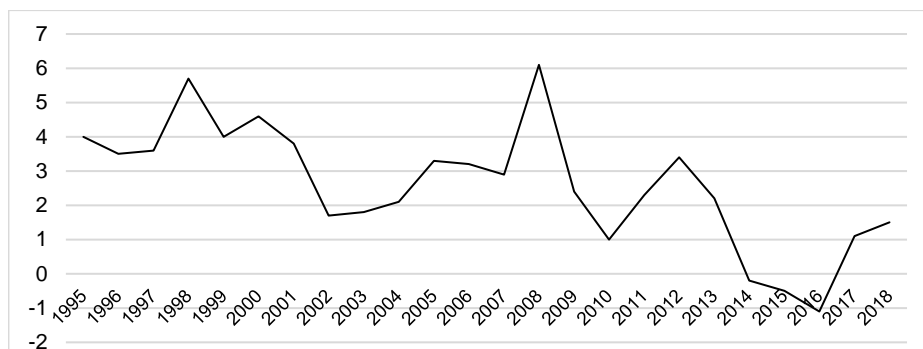low inflation rates in later years (figure 1), an overall confidence in kuna is not consensually accepted.

Figure 1. Inflation rates in Croatia (CPI): 1995–2018
Source: CNB 2019c,d.

Efforts to stabilise the inflation rate were primarily taken by pegging the kuna exchange rate to the German mark and afterwards to the euro (figure 2).
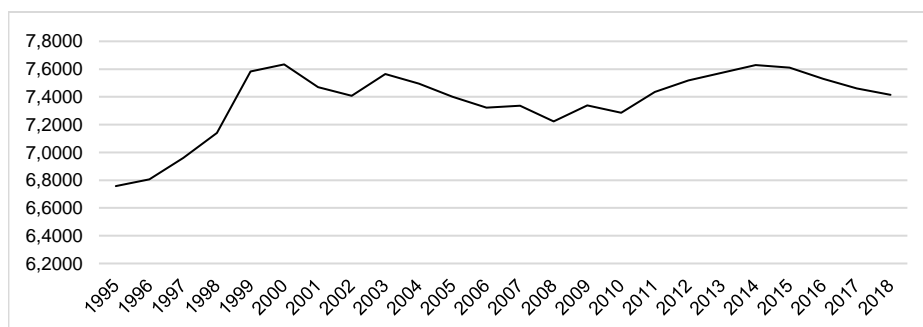

Figure 2. Average exchange rates (HRK: 1 EUR): 1995–2018
Source: CNB 2008; CNB 2019a.

A currency peg against the euro was the central bank's primary tool for the achievement of price stability. The reasons for that were: a high level of financial euroization[4], the presence of inflation expectations tied to the exchange rate movements of the national currency, and a fear of floating (Nakamura 2016). This also suggests that

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[4] The root of the problem of euroization in Croatia goes back to the 1960s. The process of euroization gained momentum in the 1970's (Faulend 2014). The episodes of sharp devaluation of the domestic currency accompanied by hyperinflation had big impact on the behaviour of domestic savers who, in an effort to preserve the value of their financial assets, converted those assets into foreign currency, most commonly the German mark. The rising share of foreign currency was additionally fuelled by economic policy, which allowed citizens to keep financial assets in foreign currency, particularly in the light of the permitted temporary work abroad and inflows from work remittances In addition, inflows of foreign currency from tourism were increasingly becoming an important factor (Faulend 2014).

exchange rate policy used to mitigate exchange rate risks in finance stabilizes macroeconomic volatility more efficiently. Furthermore, Croatia as a SMOPEC enjoys a full freedom of capital movement, with relatively high level of foreign debt. In order to preserve the exchange rate stability and low and stable inflation rates, CNB uses foreign exchange interventions as the main instrument of monetary policy. Foreign exchange interventions are conducted as auctions at the discretion of the CNB. As shown in Mance, Zikovic, and Mance (2015) the CNB interventions were timely and efficient. We consider the Croatian monetary policy to be a managed floating regime with great sensitivity to small exchange rate movements and very tight boundaries. Officially, the CNB does not have a predetermined upper and lower intervention point which it would defend (CNB 2019). Nevertheless, Mance, Zikovic, and Mance (2015) found that the kuna/euro FX rate follows a very narrow currency peg of 7.44 kuna/euro with a coefficient of variation at 1.9. Bosnjak, Bilas, and Novak (2016) also successfully modelled the Croatian kuna/euro FX rate, concluding for the existence of an effective although not explicitly publicized peg policy. Therefore, kuna/euro FX rate has been the anchor of the Croatian monetary policy. Croatian kuna usually tends to appreciate because of an increase in foreign currency supply for several reasons: foreign currency inflows from tourism, foreign borrowing and repayments of debt, significant inflow of workers remittances, foreign currency inflows from privatization and EU funds and the appreciation expectations of market participations. Consequently, the potential depreciation of the Croatian kuna can hardly provide the desired positive effects for the economy in a long – run (Bosnjak, Novak, and Kristo 2018).

According to Bosnjak (2018), financial euroization is an important motive for the CNB conducting its monetary policy and at the same time, options are limited by the sensitivity of the financial system to exchange rate volatility. That could be avoided if euroization was limited to the exchange of assets or as a reserve value and would not involve widespread indexation of the economy to the exchange rate.

Over last two decades high deposit euroization led to credit euroization, as banks hedged against the exchange rate risk. Both deposit and credit euroization remained a permanent characteristic of the Croatian financial system. 'The domestic currency has never fully assumed its account function, while store of value function was mostly reserved for Deutsche mark and later Euro' (Vizek 2006).

Respecting the great exposure of the financial system to currency risk because of euroization, the CNB continued to implement a countercyclical monetary policy. Because of that, in the pre-crisis period the monetary and macro prudential policies of the CNB were to discourage banks' foreign borrowing used to finance domestic lending activity and to provide foreign exchange liquidity and create appropriate buffers against the risk of capital outflows. The aforementioned approach of CNB has contributed to the growth of the foreign exchange liquidity reserve in the monetary system, and capital requirements (especially those related to currency-induced credit risk) increased capitalization banks, which had a positive effect on the resilience/stability of the Croatian banking system (Dumicic, Ljubaj, and Martinis 2017, 6).

3. DATA AND METODOLOGY

Causation is central for explanation of relationships. We do not wish to commit the *post hoc ergo propter hoc* error, knowing perfectly well that correlation does not mean causality. Therefore, we use the *Granger causality* test (Granger 1969) to falsify the hypotheses regarding the allocative function of money. *Granger causality* is a special measure of correlation (not causality) that tests not only how much present values of x correlate with present values of y but also whether present values of y may be explained by past values of x and y testing the direction (p-value) and strength (F-value) of these relations, without testing the sign. Although prediction in form of sequential correlation does not mean causation, this type of prediction is implied by causal arguments from economic theory. If changes in the quantity of money do not Granger cause the changes in the interest rate, we reject the hypothesis of a specific money having an allocative function. We test two market denominations: kuna and euro. Both markets are liquid. The traders are banks fully incorporated and domiciled in Croatia under full supervision of the Croatian National Bank but under foreign ownership with their mother banks having the euro as their functional currency, i.e. the primary currency in which the foreign entity, the principal, conducts its everyday business and presents its financial statements. We consider the banks to be fully rational and informed actors.

The standard *Granger causality* test nul hypothesis is: "The values of a time series x do not *Granger cause* the values of a time series y." The time series of both x and y need to be stationary. Firstly, we need to decide upon the time lag period l coinciding with the longest reasonable period in the autoregression (Eviews 9):

$$y_t = a_0 + a_1 y_{t-1} + \cdots + a_1 y_{t-1} + \varepsilon_t \tag{1}$$

We subsequently complement it with lagged values of x (Eviews 9):

$$y_t = a_0 + a_1 y_{t-1} + \cdots + a_i y_{t-l} + b_1 x_{t-1} + \cdots + b_i x_{t-l} + \varepsilon_t \tag{2}$$

For all possible pairs of x and y, ε_t are the residuals. The residuals also need to be stationary for the *Granger causality* test to be unbiased and consistent. With the statement: *"values of a time series* y *are Granger caused by time series values* x*"* it is not understood that y is the result or effect of x. If the results show no falsification of the null hypothesis, we do not claim the opposite.

It is our goal, to find out whether the quantity of money traded between well-informed and liquid traders, such as banks, does influence the changes of underlying interest rates. In other words, we inquire whether the interest rates quoted on the overnight interbank market serve their allocative purposes for both kuna and euro on the interbank markets. Zagreb Interbank Offered Rates (ZIBOR) indices are benchmark interest rates on the Croatian interbank market. We use monthly series derived from the overnight interbank lending market denominated in euros and kuna found in Table G7b of the Croatian National Bank's statistical depository. It contains monthly averages of daily values of the ZIBOR interest rate indices calculated between eight largest Croatian banks. We additionally subdivide the interest rates by the maturity period: INT – overnight maturity,

1W – 1-week maturity, 2W – 2-week maturity, 1M – 1-month maturity, 3M – 3 months maturity, and 6M – 6 months maturity.

Method wise, we proceed by testing the time series for stationarity using the Augmented Dickey-Fuller test. We achieve stationarity by differencing. Then, we test for Granger (non-)causality of stationary time series. Lastly, we test the residuals for stationarity too. The first null hypothesis conjectures the absence of causality between the change in the quantity of traded euros (EUR) at the overnight interbank lending market and the change in the underlying market interest rate. The second null hypothesis conjectures the absence of causality between the change in the quantity of traded kuna (HRK) at the overnight interbank lending market and the change in the underlying market interest rate. We proceed now with test results and comments.

4. RESULTS AND DISCUSSION

Since Granger causality requires stationary inputs, we test for stationarity of the EUR, HRK, and INT time series with the Augmented Dickey-Fuller (ADF) test (table 1, own calculation, E-views 9.0).

Table 1. ADF test of the EUR, HRK, and INT time series

		t-Statistic	Prob.*
Null Hypothesis: EUR has a unit root			
Augmented Dickey-Fuller test statistic		-2.822723	0.1915
Test critical values:	1% level	-4.018748	
	5% level	-3.439267	
	10% level	-3.143999	
Null Hypothesis: INT has a unit root			
Augmented Dickey-Fuller test statistic		-3.056689	0.1207
Test critical values:	1% level	-4.019151	
	5% level	-3.439461	
	10% level	-3.144113	
Null Hypothesis: HRK has a unit root			
Augmented Dickey-Fuller test statistic		-2.209582	0.4805
Test critical values:	1% level	-4.019151	
	5% level	-3.439461	
	10% level	-3.144113	

Results of ADF tests (Table 1) show the time series are not stationary. Existence of the unit-root process in level and trend requires differencing. We proceed by first differencing the time series, and then test for stationarity again (Table 2, own calculation, E-views 9.0).

Table 2. ADF test of first differenced EUR, HRK, and INT time series

		t-Statistic	Prob.*
Null Hypothesis: D(EUR) has a unit root			
Augmented Dickey-Fuller test statistic		-6.183116	0.0000
Test critical values:	1% level	-4.018748	
	5% level	-3.439267	
	10% level	-3.143999	
Null Hypothesis: D(INT) has a unit root			
Augmented Dickey-Fuller test statistic		-15.15118	0.0000
Test critical values:	1% level	-4.019151	
	5% level	-3.439461	
	10% level	-3.144113	
Null Hypothesis: D(HRK) has a unit root			
Augmented Dickey-Fuller test statistic		-8.971601	0.0000
Test critical values:	1% level	-4.019151	
	5% level	-3.439461	
	10% level	-3.144113	

The ADF test statistic shows that differentiated time series (Table 2) are stationary in both level and trend. We proceed with the pairwise Granger Causality test attempting to falsify the null hypotheses stating that money traded at the overnight interbank market does not cause a change in the market interest rates without prejudicing the sign of the change.

According to the pairwise Granger Causality tests (Table 3, own calculation, E-views 9.0) the null hypothesis of a change in the quantities of euros exchanged on the Zagreb interbank exchange not "Granger causing" the change in the ZIBOR may be rejected, while the same hypothesis for the kuna may not be rejected.

Table 3. Pairwise Granger Causality Tests

Null Hypothesis:	Obs	t-Statistic	Prob.
D(HRK) does not Granger Cause D(EUR)	153	0.35312	0.7031
D(EUR) does not Granger Cause D(HRK)		0.08621	0.9174
D(INT) does not Granger Cause D(EUR)	153	2.22032	0.1122
D(EUR) does not Granger Cause D(INT)		8.95869	0.0002
D(INT) does not Granger Cause D(HRK)	153	0.41770	0.6593
D(HRK) does not Granger Cause D(INT)		0.37714	0.6865

Sample: 2002M09 – 2015M08, Lags: 2.

Endogeneity might pose a problem in the context of Granger causality. If the independent variable is correlated with the error term in a regression model then the estimate of the regression might be biased. Thus, we test the residuals for stationarity. If the residuals are strongly or at least weakly stationary, we may conclude the condition of independence is not violated (Table 4, own calculation, E-views 9.0).

Table 4. Augmented Dickey-Fuller stationarity test of the residuals

Null Hypothesis: RESIDEUR has a unit root		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.05162	0.0000
Test critical values:	1% level	-4.019151	
	5% level	-3.439461	
	10% level	-3.144113	

The residuals are stationary in level and trend, and thus the variables are independent. We proceed with the Jarque-Bera test for normal distribution (Figure 3, own calculation, E-views 9.0).
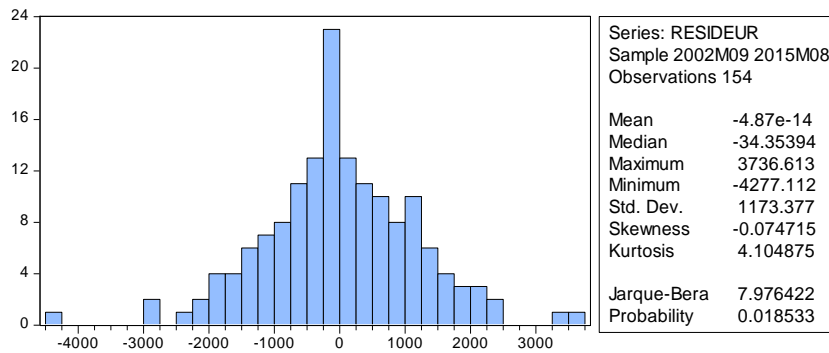

Figure 3. Jarque-Bera test of normal distribution

Since the Jarque-Bera statistic is near 7, the residuals show a statistically significant (p=0,0185) almost normal distribution with slight fat tales on both sides. The residuals are thus weakly stationary. We may confirm that the variables are independent.

We proceed with the pairwise "Granger Causality" tests of other maturities (Table 5, own calculation, E-views 9.0).

Table 5. Pairwise Granger Causality Tests of other maturities

Null Hypothesis:	Obs	t-Statistic	Prob.*
D(2W) does not Granger Cause D(1W)	153	4.62191	0.0113
D(1W) does not Granger Cause D(2W)		4.10358	0.0184
D(2W) does not Granger Cause D(1M)	153	5.12479	0.0070
D(1M) does not Granger Cause D(2W)		0.54512	0.5809
D(3M) does not Granger Cause D(1M)	153	4.54399	0.0122
D(1M) does not Granger Cause D(3M)		0.99910	0.3707
D(3M) does not Granger Cause D(1W)	153	7.37207	0.0009
D(1W) does not Granger Cause D(3M)		0.13724	0.8719
D(3M) does not Granger Cause D(2W)	153	5.49904	0.0050
D(2W) does not Granger Cause D(3M)		0.11640	0.8902

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Table 5. (*continued*)

Null Hypothesis:	Obs	t-Statistic	Prob.*
D(EUR) does not Granger Cause D(1W)	153	11.4019	0.0000
D(1W) does not Granger Cause D(EUR)		1.49643	0.2273
D(HRK) does not Granger Cause D(1W)	153	0.49258	0.6120
D(1W) does not Granger Cause D(HRK)		0.36301	0.6962
D(EUR) does not Granger Cause D(2W)	153	12.7173	0.0000
D(2W) does not Granger Cause D(EUR)		0.82765	0.4391
D(HRK) does not Granger Cause D(2W)	153	0.36461	0.6951
D(2W) does not Granger Cause D(HRK)		0.37144	0.6904
D(EUR) does not Granger Cause D(3M)	153	8.01832	0.0005
D(3M) does not Granger Cause D(EUR)		0.38399	0.6818
D(HRK) does not Granger Cause D(3M)	153	0.16049	0.8519
D(3M) does not Granger Cause D(HRK)		0.30819	0.7352
D(EUR) does not Granger Cause D(6M)	153	6.88233	0.0014
D(6M) does not Granger Cause D(EUR)		0.35284	0.7033
D(HRK) does not Granger Cause D(6M)	153	0.17205	0.8421
D(6M) does not Granger Cause D(HRK)		0.32792	0.7209
D(EUR) does not Granger Cause D(6M)	153	6.88233	0.0014
D(6M) does not Granger Cause D(EUR)		0.35284	0.7033
D(HRK) does not Granger Cause D(6M)	153	0.17205	0.8421
D(6M) does not Granger Cause D(HRK)		0.32792	0.7209

Data source: CNBb. *Sample*: 2002M09 – 2015M08, Lags: 2.
Explanation: 1W – 1 week maturity, 2W – 2 week maturity, 1M – 1 month maturity, 3M – 3 months maturity, and 6M – 6 months maturity, EUR – traded quantities denominated in euros, HRK – traded quantities denominated in kuna

Table 5 shows the standard textbook relations between interest rates of different maturities also apply in the case of Croatia. The shorter-term interest rates are influenced by longer termed interest rates, and all interest rates, irrespective of their maturity, are influenced by the traded quantities denominated in euros. As we may have suspected, during the analyzed period between September 2002 and August 2015, the quantities of traded interbank loans denominated in kuna had no statistically significant impact on the change of the interest rate of any maturity.

CONCLUSION

We tested the functional part of the definition of money on the example of the Croatian Kuna by testing the responsiveness of the kuna denominated interest rates to the changes in traded quantities on well-informed interbank markets. We compared the results to the euro denominated part of the market. At the same time, we tested if the Mundell-Fleming hypothesis for Small Open Economies (SMOPEC) holds for Croatia.

The results of the Granger Causality tests for the two conjectures derived from the Mundell-Fleming that a SMOPEC cannot influence the market interest rate are as follows. The pairwise Granger Causality test failed to falsify the conjectured first null hypothesis that the change in the quantity of traded kuna at the overnight interbank lending market does not cause the change in the market interest rate. The pairwise Granger Causality test succeeded to falsify the conjectured second null hypothesis that the change in the quantity of traded euros at the overnight interbank lending market does not cause the change in the market interest rate.

Combined with other notions about the share of the kuna on the financial market and debt structure, we may conclude that kuna does not have all the required elements of a fully functional "money" although it has all the functional elements of a currency on the domestic market.

Kuna serves the function of a medium of exchange but only partly serves as a measure of value. Unfortunately, it still has a limited function of storing value because of high asset substitution. Reasons for that could be: fear of devaluation, significant inflow of remittances and tourist receipts, but also predominantly foreign owned banking system. Croatia as a small and open economy, not only imputes the euro interest rate, it seems that the interest rates are completely under the control of the euro market, even locally, on the overnight interbank market. It is therefore our conclusion that the kuna functions only as a currency with no other useful functions.

This research is of a preliminary nature, and it is our aim to repeat it as new data are coming along.

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