

## ESTIMATING POTENTIAL CURRENCY CRISIS: EVIDENCE FROM SMALL AND OPEN ECONOMY

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**Abstract:** The main reason for the exchange rate sensitivity is the doubts in its credibility related to the trade, weaknesses in the financial sector, external shocks, political errors, country risk, etc. This paper discuss about potential currency crisis in the Republic of N. Macedonia for the period before pandemic and give the answer to what kind of lessons should we take into account regarding past period which is measured in the research. The paper presents the results of a possible crisis scenario in N. Macedonia and give statistical analysis of the relationship of the indicators of a currency crisis, examining two questions - are disorders in Macedonia that can cause a currency crisis and which generation currency crises would be the closest for Macedonia.

**Keywords:** currency crisis, foreign exchange market, Pearson coefficient, Linear regression analysis, exogenous shocks, Macedonia.

### 1. INTRODUCTION

The benefits from the globalization of the investment has its own price – the exchange rate risk and country risk. In the economy is well known that there are unpredictable changes in exchange rate which destroys the trust in currency. Monetary authorities must be careful in maintaining stable exchange rate regime.

Important data on the real economy, such as GDP, are usually months out of date, so waiting rarely results in a much clearer picture of the economic situation. Furthermore, "economic medicine takes a while to work, and needs to be taken earlier rather than later. This means that policymakers generally need to move in anticipation of changes in the economic situation, about which inevitably they are uncertain," (Fischer, 2013).

During the last fifteen years, with the development of a various models of currency crises, thus providing adequate explanations of disorders that occur in a financial system and collapse of the currency regime, there is an explosion of empirical analyzes that attempt to signal, predict and anticipate the possible existence of a currency crisis. Regarding this, the aim is to analyze the possibility of currency crisis occurrence in Macedonia.

The research starts with two questions:

- 1) Are disorders in Macedonia that can cause a currency crisis based on theoretical and empirical analysis?
- 2) Which generation currency crises would be the closest for Macedonia?

The paper presents the results of a possible crisis scenario in N. Macedonia and give statistical analysis of the relationship of indicators of a currency crisis. Data are sublimation of research results which demonstrates the vulnerability of the financial system of the Republic of N. Macedonia, in terms of the circumstances that could indicate possible currency crisis.

### 2. LITERATURE REVIEW

One of the most common problems when choosing an exchange rate regime is the sensitivity to attacks on the currency. The main reason for the exchange rate sensitivity is the doubts in credibility related to trade, weaknesses in the financial sector, external shocks, political errors, country risk, etc. The major role of the capital account in occurring currency crises should not be overlooked. In doing so, an assessment will have to be made as to how much a certain exchange rate regime can be defended (or the peg can be defended), or it should be abandoned.

On basis on real experiences in the world economy, a models of currency crisis generations have been generated in the literature.

The currency crisis can turn into a financial crisis, when the currency loss its stability, and thus confidence, as the amount of foreign exchange reserves is not so sufficient. Depending of the type of distortions that occur, the economic literature offers various theoretical models of currency crisis. Also, these crises reflect the distortions occurring in the financial system and the exchange rate.

Generally, the literature distinguishes three generations models of currency crisis.

**4. STATISTICAL ANALYSIS OF CURRENCY CRISIS INDICATORS' CONNECTION**

The paper applies linear correlation analysis for the degree of correlation between the exchange market pressure index and the measure of monetary openness of the country. Correlation analysis shows that the monetary measure of openness of the country is very important indicator in terms of the impact on the value of exchange market pressure index, which plays an important role in targeting potential disorders that lead to a currency crisis. This confirms the amount of the Pearson coefficient of 0.808, which indicates a high degree of quantitative agreement. Realized significance is 0.401 which means that the model is significant for the level of faults 0.05.

**Table 2. Pearson coefficient Correlations**

		Ipdt	mmoz
Ipdt	Pearson Correlation	1	.808
	Sig. (2-tailed)		.401
	N	3	3
Mmoz	Pearson Correlation	.808	1
	Sig. (2-tailed)	.401	
	N	3	3

Source:Authors' calculation

Using linear regression analysis, we followed the relationship between the exchange market pressure index as dependent variables, and monetary measures of openness of the country as independent variables. Regression analysis shows that the determination coefficient 0.653, which indicates that the model is statistically representative to explain the existence of a currency crisis and explains about 65% of the variance of the dependent variable, i.e. *ipdt*.

**Table 3. Linear regression analysis**

Model Summary(b)									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.808(a)	.653	.306	5.57810	.653	1.884	1	1	.401

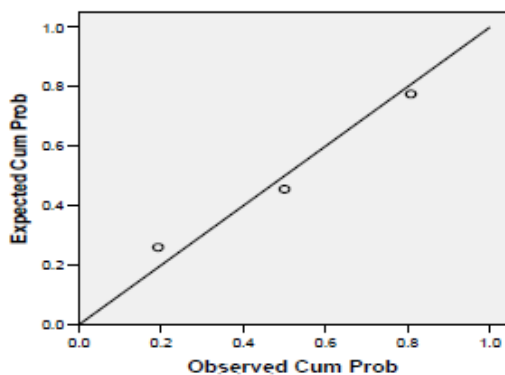
Source:Authors' calculation

**Table 4. Linear regression analysis**

Coefficients(a)								
Model		Unstandardized Coefficients		Standardized Coefficient	T	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
		1	(Constant)	-9.685			9.398	
	mio	.053	.039	.808	1.372	.401	-.438	.544

Source:Authors' calculation

*Figure 2. The values around the regression line that prove the normal distribution points*



Source: Authors' calculation

The realized level of significance is 0.401, and it's bigger than the risk of errors defined as 0.05, so the model is statistically significant. From this regression analysis results a beta coefficient of 0,808, which means that any change in monetary measures openness of the country by one unit, leads to changes in the exchange market pressure index to 0,808. From the graphical analysis, we see that the points lie roughly in the right diagonal line, indicating approximate normal distribution.

## 5. CONCLUSION

The changes that are occurring in the country and in the international environment affect the exchange rate regime. If a country has a history of high inflation, a pegged exchange rate, as in the case of the Republic of N. Macedonia, may be the most optimal solution for the country to manage expectations and quickly reduce the inflation. When the inflation is under control, the confidence in the currency returns. This create the opportunity for the country to be part of the international markets again, as the sensitivity to currency crisis will be reduced (in the best case it will be avoided). Such a situation requires better management and better supervision of the financial sector, as well capital control.

The results showed that in Macedonia for the period of 2010-2019 there is no currency crisis, and the value of the highest values of the exchange rate market pressure index suggest the potential of the first generation of the model. The results showed that there was not also possibility for currency crisis.

With high unemployment rate, the monetary authorities will be less able to defend the exchange rate with higher interest rates of speculative attacks, because this will exacerbate the problem of unemployment. The high level of public debt also increases the cost of defending the exchange rate and speculative attacks. When the devaluation expectations embedded in the nominal interest rate, the higher the interest expense on the debt will lead to an increase in maintenance costs of the exchange rate. Also, speculative attack may occur if the local currency is overvalued. An overvalued currency is the cause of a current account deficit, which is sometimes the cause of deflationary pressure. The monetary authorities in the situation always estimate the costs of defending the exchange rate are higher than the benefits. As could be seen, not only macroeconomic variables, but also the changes in the expectations of economic agents have crucial role in the model clauses outputs.

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