Another view of money demand and black market premium relationship: What can they say about credibility?

Altin Tanku
Editorial

On 19-21 November 2009, the Bank of Greece co-organised with the Bank of Albania the 3rd Annual South Eastern European Economic Research Workshop held at its premises in Athens. The 1st and 2nd workshops were organised by the Bank of Albania and took place in Tirana in 2007 and 2008, respectively. The main objectives of these workshops are to further economic research in South Eastern Europe (SEE) and extend knowledge of the country-specific features of the economies in the region. Moreover, the workshops enhance regional cooperation through the sharing of scientific knowledge and the provision of opportunities for cooperative research.

The 2009 workshop placed a special emphasis on three important topics for central banking in transition and small open SEE economies: financial and economic stability; banking and finance; internal and external vulnerabilities. Researchers from central banks participated, presenting and discussing their work.

The 4th Annual SEE Economic Research Workshop was organised by the Bank of Albania and took place on 18-19 November 2010 in Tirana. An emphasis was placed upon the lessons drawn from the global crisis and its effects on the SEE macroeconomic and financial sectors; adjustment of internal and external imbalances; and the new anchors for economic policy.

The papers presented, with their discussions, at the 2009 SEE Workshop are being made available to a wider audience through the Special Conference Paper Series of the Bank of Greece.

Here we present the paper by Altin Tanku (Bank of Albania).

February, 2011
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Sophia Lazaretou (Bank of Greece)
(on behalf of the organizers)
ANOTHER VIEW OF MONEY DEMAND AND BLACK MARKET PREMIUM RELATIONSHIP: WHAT CAN THEY SAY ABOUT CREDIBILITY?

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ABSTRACT
This paper examines the long-run demand for money under the assumption that exchange rates provide a measure of the cost of holding money. Using the autoregressive distributed lag (ARDL) and bound testing approach to cointegration on quarterly data for 8 emerging economies, this paper investigates the behaviour of money demand in the wake of short-run fluctuations in the foreign exchange black market premium. In this respect, it proposes a new method to test the credibility of economic policies designed and implemented by authorities in the countries of interest. The test consists in introducing the black market premium, rather than the exchange rate directly, into the money demand function, and estimating its error correction form.

Key words: money demand, foreign exchange black market premium, cointegration

JEL classification: E52, E61, F31, F41

Acknowledgements: The author would like to thank Mohsen Bahmani and Rebecca Neumann for their useful comments and suggestions in this research project as well as George Hondroyiannis for his useful comments and suggestions on future research. The views expressed in this paper are those of the author and do not necessarily reflect those of the Bank of Greece and the Bank of Albania. I alone am responsible for the remaining errors and omissions.

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1. Introduction

Credibility is a necessary precondition for the success of any economic policy or reform. It has frequently been an issue for both less developed and emerging economies and the developed ones. Every time agents in the economy perceive that the authorities pit short-run objectives against the long-run macroeconomic sustainability, they do not trust the announced policy objectives and therefore do not model their expectations on them.

The objective of this paper is to provide a measure of the credibility of economic policies, focusing on developments in money demand and volatility in the parallel or informal foreign currency markets, represented by black market premium. Whilst the results are preliminary, they show that this relationship has the potential to provide clues as to how the credibility of economic policies is perceived by agents in any economy.

The erosion in credibility usually takes the form of high inflation or rapid devaluation of the domestic currency, followed by a distortion of real economic activity. However, in extreme cases, the lack of credibility evolves into full blown currency and financial crises, which in turn damage credibility even more. After these episodes of crises, establishing credibility in economic policy is the first and most important task of the authorities. These programs propose a truce in which the government promises to depart from the old habits of policy making by setting new (easy measurable) economic anchors in an attempt to stabilize and control agents’ expectations and therefore economic activity. The fact that agents use these anchors to model their expectations is an indication that they have accepted them.

In this respect, it is reasonable to say that authorities and their policies gain credibility from their policy anchors. This is, in fact, what several central banks in developed and developing countries did when they dropped their monetary or exchange rate targets in favour of inflation targets. With the adoption of inflation targeting they provided a real and easy measure of credibility. Inflation targeting is the newest kid on the block, but it is hardly the only solution to credibility problem. Frequently economies turn to the exchange rate as an anchor by adopting fixed or managed regimes. Obstfeld and Rogoff (1995) provide a very good discussion of why fixing or pegging a domestic
currency to another currency assures both domestic and foreign agents that the authorities of this country are committed to sustainable economic policies. In other cases, these foreign exchange anchors are used as a tool to anchor domestic agents’ inflation expectations. A broader explanation, which incorporates both cases, would be to say that countries adopt fixed or pegged exchange rates regime as a way to gain credibility in their macroeconomic and financial policies.

These authors also observe that such constraints imposed on the market value of the domestic currency have proven hard to maintain. In several cases, these exchange rate restrictions have ended in financial or balance of payment crises. In other cases, voluntary exit from a rigid exchange system to a less rigid one have not been happy events (see Eichengreen 1999). The crises in Mexico in 1994 and Argentina in 2001 are just two examples. After almost seven years of successful policies, the fixed regime in Mexico gave way to a total financial crisis, while Argentina’s experience during 2000-2001 is a good reminder of what can really happen in a departure from a fixed-rate regime without credibility. Obsfeld and Rogoff (1995, p84) conclude that “if Mexico’s anti-inflationary policy had been more credible in the eyes of the markets, the events that threw Mexico in the crisis might never have occurred”. How can authorities understand whether their policies are credible or not?

In this paper, I propose a simple test to answer this important question. Considering price in black markets for the exchange rate as a better indicator of real economic activity, this study investigates whether individuals substitute domestic currency for foreign currency in order to alter their wealth portfolios due to an anticipated foreign exchange rate depreciation in the black market when these expectations are not matched by simultaneous and symmetric changes in the official foreign exchange market. An Autoregressive Distributed Lag (ARDL) based on the bound testing approach and introduced by Pesaran, Shin and Smith (2001), is used to test whether the demand for money responds to shocks in the black market premium using quarterly data for 8 emerging market economies.

The rest of the paper is organised as follows. Section 2 discusses the relevance of money demand as a possible indicator of credibility. Section 3 introduces a simple test of
credibility and explains the intuition behind it. Sections 4 and 5 describe respectively the empiric model and results. Section 6 concludes.

2. The representative indicator of credibility

Reinhart and Rogoff (2004) argue that if monetary policy were not consistent with maintaining the fixed rate, then the market determined rate (in our case the black market or the parallel market rate) will start to depreciate/appreciate ahead of the inevitable change in the official one. They prove that this is indeed the case by showing in a sample of developing countries that the black market rate anticipates fluctuations in official rates, using crash dummies on the parallel market premium lagged one to six months. This finding is also supported by several other studies. For example, Bahmani-Oskooe, Miteza, and Nasir (2002) use panel cointegration on a sample of 49 countries and find that the official rate systematically adjusts to the market rate in the long run. Furthermore, Bahmani-Oskooe and Tanku (2006a) conclude similarly for a group of 25 developing countries. That research shows that both rates move together in the long run and that the black market is a leading force in this relationship, with official rates eventually adjusting to black or parallel market ones.

Reinhart and Rogoff (2004) also show that in the majority of cases the black market rate is better correlated with inflation than the official one\[1\]. Despite the fact that this relationship is not the main scope of their paper, it can be interpreted as a test for the credibility of monetary policy. In other words, a better correlation could suggest evidence that the parallel market is a better indicator of the monetary policy stance. Such evidence could be interpreted as a general test of whether monetary policy, which must be in harmony with the official rate, has, or has not, gained full credibility in the eyes of the public. Reinhart and Rogoff’s results indicate that people respond to changes in black, rather than official, market rates, implying that monetary policy anchors have not yet gained full credibility in the countries in question\[2\]. However, high inflation might not necessarily reflect a lack of credibility unless a country is pursing an inflation-targeting

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\[1\] Reinhart and Rogoff (2004, p 9) show that for about three-quarters of the cases examined the changes in the market determined exchange rates have higher correlation coefficients than do changes in the official rate.

\[2\] However, the authors did not intend to use this result as a test for credibility.
monetary regime. Inflation could be an outcome of several other factors among which the exchange rate is an important factor for a small open economy.

In addition, implementation of a new monetary regime focused on exchange rate targets represents only one component of the overall reform that takes place in a country after a financial crisis. Eduards (1996) describes the exchange rate regime as an important element of a much wider structural reform, which includes more than one policy change. Reform is focused not only on the improvement of monetary policy, but also on an improvement in fiscal discipline; openness and liberalization of capital, labour and commodity markets; liberalization of the financial system; privatization and deregulation in the financial system, etc. All these changes together become a large effort to stabilize the economy, and most importantly agents’ expectations. This is a major attempt to free economic decision making from political incentives and solve the related moral hazard issues. Therefore, the interest of authorities is to understand whether their reforms have gained any credibility in the eyes of the public, not just in monetary policy but also in other elements of reform. If it does, then agents do not have incentives to respond to changes in the black market.

Consequently, another way to think about credibility in reforms is to focus attention on a broader indicator, which better models agents’ reaction to political and economic developments. In this paper, I suggest that the demand for domestic money can be one such indicator.

A common characteristic of lost confidence in domestic policies is that agents “run away” from domestic-denominated assets and try to “find shelter” in foreign (usually US dollar) - denominated assets. This phenomenon explains the high degree of dollarization in Latin American countries and other crisis-hit regions. Therefore, understanding the behaviour of money demand could reveal information about agents’ economic behaviour. Moreover, improving the estimation method could be another way to gain a better understanding of the results reported by Reinhart and Rogoff (2004), since correlation does not necessary prove the existence of a causal relationship between two variables.
3. A simple test of credibility and the intuition behind it

In this section, I propose a model to measure this response, namely portfolio substitution in the wake of black market premium fluctuations, with the assumption that such changes will affect the demand for domestic money in the economy. Basically, the proposal is to investigate whether the domestic demand for money responds to changes in the black market premium.

For a given set of monetary restrictions and/or financial controls and/or stage of development of the financial system, the existence of a black market for foreign exchange points to restrictions and/or inefficiency in official markets[3]. Hence, with or without the intention of monetary authorities, the official exchange rate might move away from the true sustainable value, with the black market rate closer to the true equilibrium. Changes in the black market rate, which are not followed by simultaneous and symmetric changes in official markets, will therefore be reflected in the black market exchange rate premium[4].

General wisdom, similar to that implied by Reinhart and Rogoff (2004), dictates that, when the public feels confident of the monetary and financial policies implemented by the authorities, it should not have incentives to respond to changes in the black market exchange rate premium and therefore the demand for domestic money should not respond to these changes. Thus, if the economy continuously experiences portfolio adjustments when the black market premium changes, one might expect that this adjustment will be reflected in the domestic demand for money. In that case, changes in the black market premium are signals and will be related to fluctuations in money demand. Subsequently, finding evidence of this relationship in the data suggests that the agents in the economy

[3] Policy restrictions are not the only reason for the existence of a black market for foreign exchange. Frequently these markets are established as a facility to serve tax evasion or illegal trading and other activities. In this case, the black market premium reflects the cost of conducting the illegal transaction rather than the misalignment in the official exchange rate. Better enforcement of the rule of law will drive the cost of black market transactions and therefore the black market premium. Credibility becomes more important when shocks in the black market rate reflect events which are not related to developments in economic fundamentals. Assuming that agents react to shocks will mean that they are acting to undermine the positive effects of such policy.

[4] This is true regardless of the regime choice in all those cases when the official exchange rate remains unchanged or adjusts to a smaller degree relative to the black market exchange rate.
are adjusting their portfolio composition. This occurrence is considered as a good indicator of the fact that economic policy and/or structural reforms have lost credibility and, therefore, effectiveness.

Finding a relationship between money demand and changes in the black market premium can be interpreted as a sign that the market behaves in a way that does not reflect confidence in economic policies and policy anchors. To this end, the study suggests that this relationship might provide evidence that the monetary and financial reforms designed and implemented have been unsuccessful.

In fact, Bahmani-Oskooe and Tanku (2006b) in their study for money demand in a group of 25 less developing countries, indicate that the correct exchange rate issue may be more of a country specific issue rather than a general rule. Moreover, their results suggest that the effects are more in the short-run and in general do not extend to the long-run. This conclusion shows that money creation which is one of the leading sources of inflation might not necessary respond to changes in one particular rate, implying that fluctuations in the black market are not the only cause after changes in money demand and eventually inflation. Surprisingly, the authors find that, in several cases, the black market premium is a better explanation for fluctuations in money demand. Thus, if money does not always respond to the black market rate, then what is the nature of the relationship between inflation and development in the black market?

4. The empirical model

The demand for money is a crucial component in the formulation and implementation of monetary policy and its predictability and stability are important considerations for a sound and reliable monetary policy. Following Mundell's (1963) conjecture that the exchange rate can enter money demand explanation as an opportunity cost in addition to inflation and the interest rate, many authors have shown that money demand is cointegrated with changes in the official exchange rate. However, following Bahmani-Oskooe and Tanku (2006b), the inflation rate is used as a measure of the

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[5] At this point, it is not important in which market (that is, the official or the black market) the shift takes place.
opportunity cost of holding money due to the fact that developing countries lack well developed financial markets. Bahmani-Oskooe (1996) in his study for Iran shows that the black market rate is a better predictor of the demand for money in developing countries. This conclusion is also supported by later studies for money demand for developing countries.

The hypothesis raised in this paper is that substitution of the official for the black market exchange rate in the money demand equation can reveal important information about the public’s response to monetary and financial policies undertaken by authorities. In doing this, I follow Bahmani-Oskooe (1996) and represent money demand in the following form:

\[ \log M_t = \alpha + \beta \log Y_t + \gamma \Delta \log P_t + \phi PR_t + \epsilon_t \]  

(1)

where \( M_t \) represents the demand for real cash balances measured by \( M2 \), \( Y_t \) represents a measure of real income and acts as the scale variable measured by GDP, \( P_t \) is the price level, with the inflation rate measured by \( \Delta \log P_t = \log P_t - \log P_{t-1} \), and \( PR_t \) is the black market exchange rate premium \( \equiv \frac{BEX_t - OEX_t}{OEX_t} \) with \( BEX \) and \( OEX \) being the black market and official exchange rates, respectively (defined as the domestic currency value of one US dollar).

The expected signs for the estimates of \( \beta \) and \( \gamma \) are positive and negative, respectively. The estimated sign of \( \phi \) could be negative or positive. However, the sign of \( \phi \) is not important as this study is not investigating the direction of change in money demand, but the existence of a long-run relationship with the black market premium.

Bahmani-Oskooe and Tanku (2006b) include the black market premium in the money demand specification as an alternative to the official exchange rate to account for restricted foreign exchange markets and capital account policies, and the possibility of underdeveloped financial and foreign exchange markets in developing countries.\(^6\) They find that it could also be the case that \( \phi \) is statistically insignificant, meaning that the

\(^6\) Previous studies (Bahmani-Oskooee 1996, Hassan et al. 1995, Arize, and Shwiff 1998) have included a black market exchange rate in the money demand function to investigate the issue of currency substitution in the case of closed or less developed economies with repressed or under-developed and fragmented financial and/or foreign exchange markets.
black market premium might not be related to changes in money demand in the long-run. In general, they find that the relationship between money demand and the exchange rate variable being either the official or the black market rate, is more a country specific issue rather than a general rule. They find evidence of a short-run relationship which, in general, does not extend to the long-run.

This finding should not come as a surprise. As noted in the introduction, both the official and the black market rate are bounded in a long-run cointegration relationship. This means that, in the long-run, both rates tend to converge together with one rate always adjusting to match any shock in the other. This adjustment process causes the black premium to be a short-lived phenomenon that eventually disappears as both rates converge in the long run. This convergence implies that the black market premium is a stationary variable with mean reverting properties around a constant central value. Therefore, it would not be surprising to find that it does not belong to the same convergence space with money demand and other variables. This conclusion, however, will only be true for long periods. The frequency and the symmetry of the black market premium shocks during the same period will also play a role in the characteristics of this process. Because the existence of a black market premium is more a short-lived phenomenon, I primarily focus on the short-run response of money demand to the black market shocks. Therefore, the short-run dynamics are integrated in equation 1 which is specified in the form of an error correction form in equation 2 below:

\[
\Delta M_t = \alpha_0 + \sum_{i=1}^{k} \alpha_i \Delta L_{t-i} + \sum_{i=0}^{k} \beta_i \Delta Y_{t-i} + \sum_{i=0}^{k} \gamma_i \Delta P_{t-i} + \sum_{i=0}^{k} \phi_i \Delta LEX_{t-i} + \delta_1 L_{t-1} + \delta_2 Y_{t-1} + \delta_3 P_{t-1} + \delta_4 LEX_{t-1} + \epsilon_t
\]

The cointegration relationship and the error correction model will be estimated using the bound testing approach to cointegration, introduced by Pesaran, Shin and Smith (2001). This method of estimation is very suitable for estimating money demand relationships, due to the fact that, as discussed above, the endogenous variables might have different stationarity properties.

Within this setup, following Pesaran, Shin and Smith (2001), the first step is to test for the existence of a long-run relationship between the variables of interest by testing the
null of no cointegration against the existence of a long-run relationship, using the familiar Wald or F-statistic. Accordingly, the null hypothesis of no cointegration \( H_0 : \delta_1 = \delta_2 = \delta_3 = \delta_4 = 0 \) is tested against the alternative \( H_1 : \delta_1 \neq 0; \delta_2 \neq 0; \delta_3 \neq 0; \delta_4 \neq 0 \) using the F-test for the joint significance of all coefficients together using a bound testing approach and the critical values tabulated by Pesaran, Shin and Smith (2001).

If the computed F–test statistic exceeds the upper bound of the critical value, the null hypothesis of no cointegration is rejected confirming the existence of a cointegrating relationship between the variables of interest. If the F–test statistic falls below the lower bound, the null hypothesis of no cointegration cannot be rejected.

Once the cointegration relationship is established, the second stage is to estimate the long run coefficients of the money demand function and the associated ARDL error correction model. The error correction mechanism (ECM) and the short-run dynamics are simultaneously estimated using the ARDL approach. The order of the optimal lag length is chosen according to standard criteria such as the AIC information or SBC criteria. For the purpose of this study, the AIC criterion is chosen to define the optimal lag length.

However, in contrast to Bahmani-Oskooe and Tanku (2006b), in this paper all variables that are insignificant in the long-run relationship are dropped from the specification of equation 1, as long as this does not affect the cointegration properties of the money demand. As a result, the black market premium is excluded from the specification of money demand in all but one case (Pakistan). In addition, the official exchange rate was included in the specification in two cases that of Argentina and India as an alternative opportunity cost of holding domestic assets, and to improve the cointegration properties of the money demand equations, respectively. ARDL simultaneously estimates the long- and the short-run coefficients providing estimates for both equations 1 and 2, but the exclusion of the black market premium results in the loss of the short-run coefficients for the black market premium in the error correction equation 2.

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[7] The asymptotic distributions of the F-statistic are non-standard. In the bound testing procedure, two sets of critical value bounds for these tests are computed by Pesaran et al. (2001) for different numbers of regressors K and depending on whether the ARDL model contains an intercept and/or trend.
Therefore, the final step is to test whether the short-run dynamics of the black market premium cause short-run fluctuations in money demand. For this, the error correction mechanism, i.e. equation (2) is re-estimated at optimum lags, including the error correction term one period ahead and up to four lagged differences in the black market premium. The results are reported in Table 1 in appendix A. Finding a significant short-run coefficient of the black market premium shows that money demand responds to changes in the black market premium. This finding is interpreted as a sign of questionable credibility in the authorities and their policy. Additionally, finding a negative and statistically significant coefficient on the ECM is interpreted as further confirmation of cointegration between money demand and its determinants. All data are quarterly and are collected from the following sources: IFS (IMF) http://www.puaf.umd.edu/faculty/reinhart/OFFICIAL_PARALLEL_DATABASE1.xls.

5. Empirical results

This section presents the empirical results of the long- and short-run relationships as represented by the error correction model in equation 2. As mentioned above, the first step was to establish the cointegration relationship via the joint significance of the lagged level variables using the F-test and bound values calculated by Pesaran, Shin and Smith (2001). The test is carried out by imposing a maximum of 4 lags on each of the differenced variables, while the AIC criterion is used to estimate the optimum lags. Following Bahmani-Oskooe and Tanku (2006b), I replicate the F-test using the optimal lag structure chosen by AIC. The results are shown in Table 1 in appendix A. They show that, at the 5% level of confidence, the calculated $F$-statistic is above the upper bound indicating the existence of cointegration. This is also confirmed by the existence of a negative and statistically significant error correction term in the estimation of equation 2.

The results of the ARDL estimation for the short- and long-run coefficients are reported in the same table. The estimation of the long-run coefficients of the error correction mechanism (see equation 2) for the black market premium proved significant only in the case of Pakistan, indicating that only in this case money demand is cointegrated with the black market premium. For the rest of the sample, I repeated the
procedure estimating a nested model after dropping the lagged level of the black market premium (and adding the official exchange rate in the case of Argentina, Mexico and India) from equation 2. In 5 out of 7 cases under study, the estimated $F$ statistic and other diagnostics improved indicating that the black market premium does not necessarily enter into the long-run specification of money demand for the rest of the sample. This is the case for Argentina, Mexico, Paraguay, India and Malaysia. In contrast, the results for Brazil and Thailand suggest that the black market premium is part of the cointegrating relationship. In this case, dropping the black market premium from the specification of money demand causes the properties of the estimated results to deteriorate.

Short-run coefficients are also reported in Table 1. They show that at the 5% level of significance there are 4 countries for which there is at least one lagged coefficient estimate of the black market premium that is statistically significant. These countries are Brazil, Mexico, Thailand, and Paraguay (however the coefficient in the case of Paraguay is very close to 0). In addition to these cases, there is at least one significant short-run coefficient at 10% level of confidence, i.e. Malaysia. Overall, six out of eight countries in the sample have at least one significant long-run or short-run statistically significant coefficient for the black market premium. Surprisingly, however, in some cases this coefficient turned out positive, indicating by this way the presence of a wealth effect rather than a substitution effect in response to devaluation; the latter would be more normal in the case of a gain of confidence. Argentina and India are the two cases in our country sample where the black market premium variable does not exert influence on money demand, either in the long-run or the short-run.

Last but not least, the diagnostic statistics reported in Table 1 are the Lagrange Multiplier statistic (distributed as $\chi^2$ with four degrees of freedom) testing for serial correlation, and the Ramsey’s RESET test (distributed as $\chi^2$ with one degree of freedom) testing for misspecification of the functional form. Both tests reveal problems with the specification of money demand in some countries. There exists serial correlation in the

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[8] This was necessary to find cointegration and improve results. In addition, in the case of Argentina and Mexico, inflation was dropped from the model for the same reason.

[9] Please see the shaded results reported for Argentina, Brazil, Mexico and Thailand and compare them with the results reported in the text.
case of Paraguay, and specification problems in the case of Argentina and Brazil, which the author could not address by changing the lag structure or altering the specification of money demand.

In conclusion, following the intuition of the test presented in this paper, one might hold these findings as evidence that economic agents in the countries examined lost confidence in the effectiveness of the economic policies and reforms. This would also imply that policy anchors in these countries lost their credibility. In general, one could say that the evidence that money demand responds to shocks in the black market rate is an encouraging result. However, the finding that both positive short- and long-run elasticities are uncovered still remains a puzzling fact.

6. Summary and conclusions

The economic literature has observed that credibility is an important precondition for the success of monetary policy and economic reforms in general. Frequently, the authorities have tried to address the issue of credibility by adopting policy anchors as a tool for the control of expectations and to convey credibility. This paper discusses the issue of credibility in economic policy and economic anchors. It proposes a new test to examine the credibility and the effectiveness of monetary and financial policies in developing countries. This test is based on the investigating the response of the demand for domestic money to changes in the disparity between official and black market exchange rates. The empirical results presented provide considerable evidence supporting the view that money demand does respond to shocks in the premium of the black market exchange rate. All together, in six of the eight cases considered, money demand is either cointegrated in the long-run or responds to short-run fluctuations in the black market premium. This result is interpreted as evidence that monetary and financial policies in these four countries faced credibility issues. Therefore, beyond the academic interest of this result, this practical test might provide useful information for the monetary authorities in day-to-day policy-making. It could also be useful as a tool to evaluate credibility when considering shifts in policy orientation or policy anchors. However, the results also indicate that there are statistical problems in the properties of the model for
specific countries, which must be dealt with. Therefore, further investigation and research in this topic using either sub-periods of the sample and investigating the possibility of omitted variables or time varying coefficients could prove to be more informative. This will be the focus of future research.
References


### Appendix A

#### Table 1

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<td>(2.32)</td>
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<td>(2.95)</td>
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**Notes**

Figures in brackets below coefficients represent the t-statistic

*\(\ast\) indicates that coefficients are significant at better than 10% but less than 5% level of significance

Lagrange Multiplier critical value at 5% level is 9.48
RESET critical value at 5% level is 3.48
Special Conference Papers

3rd South-Eastern European Economic Research Workshop
Bank of Albania-Bank of Greece
Athens, 19-21 November, 2009


7. Shijaku, Hilda and Kliti Ceca “A Credit Risk Model for Albania” including discussion by Faidon Kalfaoglou, February 2011.


12. Luçi, Erjon and Ilir Vika “The Equilibrium Real Exchange Rate of Lek Vis-À-Vis Euro: Is It Much Misaligned?”, including discussion by Dimitrios Maroulis, February 2011.