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An Economic Evaluation of EUR/INR Exchange Rate: Autoregressive Distributed Lag (ARDL) approach

MAHIPALY. GADHAVI*

Abstract

The behaviour of exchange rate has been an imperative issue in the international financial studies. In fact, exchange rate behaviour is highly inconsistent in short term, its long-term behaviour is believed to be guided by international economic fundamental. Euro is the second largest currency used at world level for trade and for reserve purpose. Significance of the currency has been increasing year by years as the number of nations joining Euro zone kept on increasing. Here, the author had tried to check the prominent determinants of the currency pair EUR/INR.ARDL model had been applied on quarterly data of 17 years, to check the relationship between the regressor and the regressed. Monetary approach has been adopted by the author to check the determinants of the currency pair of EUR/INR. None of the variables were found to be statistically significant in determining the exchange rate. In earlier studies also, in many instances, monetary approach has failed to show any relevance, which is theoretically very appealing. In this paper no long-run and short-run relationship was observed between the macroeconomic variables and the exchange rate.

JEL Code: E01, E42, E52, F4, F47

Keywords: Monetary Policy, ARDL, Money Exchange Rate, EUR/INR

I.Introduction

UNCOVERING THE PROMINENT determinants of exchange rate has always been a challenge for academicians and market participants. There are many theoretical models developed at international level to analyse the determinants of exchange rate. Till 1970 models assumed of fixed price, with the collapse of Bretton wood monetary system, Jamaica agreement was adopted as international agreement by majority of the countries. Exchange rate were allowed to float, and rates were determined by the flow of respective currency. Flexible-price monetary model was tested and found to be significant in predicting the exchange rate. Frenkel (1976), Mussa (1976; 1979), (Nwafor, 2006) and other have contributed to systematically developing and testing the theory of Flexible-price monetary model. In later

^{*} Assistant Professor, Marwadi University, Rajkot-Morbi Road, Rajkot, Gujarat 360003, INDIA

and monetary steps. There are several occasions of RBI making buying and selling foreign currencies to normalise the movement of currency rate. Capital inflow and outflow is also playing vital role in exchange rate determination, in the recent past there has been a big surge in the capital flow in India, the flow is volatile and sentimental in nature. To sterilise the impact, RBI is taking corrective measures. In this paper, impact of RBI measures is not checked. Studies can be done on the RBI intervention into the currency pair of EUR/INR, probably the inclusive model could work better. For analysing the exchange rate, market microstructure can also be studied, where Indian rupees and Euros are traded. Indian forex market is decentralised and multiple dealers comprising of spot and derivative market are present in India.

In conclusion, monetary model is insufficient in determining the movement of EUR/INR currency pair, there is no linearity in the relationship. Variables suggested above (Central bank intervention, capital flow, market microstructure) can be included for further study. It is also possible that the behaviour of the currency movement is more consistent with the theory of random walk, a study can be done to check the form of efficiency reflected by the currency movement.

References

Abdurehman, A. A., and S. Hacilar, (2016), "The Relationship between Exchange Rate and Inflation", *International Journal of Economics and Financial Issues*, Vol. 6, No. 4, pp. 6, October 2016.

Ali Khan, R. S. (2014), "Analysis if the factors affecting exchange rate variability in Pakistan", *IOSR Journal of Business and Management*, Vol. 16, No. 6 pp. 115–121.

Ali, M. and T. Bashir, (2015), "Impact of Interest Rate, Inflation and Money Supply on Exchange Rate Volatility in Pakistan", *IDOSI Publications*, Vol. 33, No. 4, pp. 1–12.

Almekinders, G. J. (1996), "The political economy of central bank intervention" *Public Choice*, Vol. 88, No. 1-2, pp. 127-146.

Almekinders, G.J. (1995), "Foreign Exchange Intervention: Theory and Evidence," Edward Elgar.

Alquist, R. and M. Chinn (2008), "Conventional and Unconventional Approaches to Exchange Rate Modelling and Assessment," *International Journal of Finance and Economics*.

Alquist, R., and M.D. Chinn, (2008), "Conventional and unconventional approaches to exchange rate modelling and assessment", *International Journal of Finance and Economics*, Vol. 13, No. 1, pp. 2–13.

Altavilla, C., and P. De Grauwe, (2010), "Forecasting and combining competing models of exchange rate determination", *Applied Economics*, Vol. 42, No. 27, pp. 3455–3480.

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Anderson, T. G., T. Bollerslev, F.X. Diebold and C. Vega, (2003), "Micro effects of macro announcements: Real-time price discovery in foreign exchange", *American Economic Review*, Vol. 93, No. 1, pp. 38–62.

- Bacchetta, P., and E. van Wincoop, (2013), "On the unstable relationship between exchange rates and macroeconomic fundamentals", *Journal of International Economics*, Vol. 91, no. 1, pp. 18–26.
- Backus, D., (1984), "Empirical models of the exchange rate: Separating the wheat from the chaff", *The Canadian Journal of Economics / Revue Canadienne d'Economique*, Vol. 17, No. 4, pp. 824–846.
- Berkowitz, J., and L. Giorgianni, (2001), "Long-Horizon Exchange Rate Predictability?", *Review of Economics and Statistics*, Vol. 83, pp. 81–91.
- Bjønnes, G. H. and D. Rime (2003), "Dealer Behavior and Trading Systems in Foreign Exchange Markets," Norges Bank, Working Paper, Research Department, November 2003.
- Bilson, J. F. O., (1978), "The Monetary Approach to the Exchange Rate: Some Empirical Evidence (La theoriemonetaire du taux de change: preuvesempiriques) (El enfoquemonetario del tipo de cambio: Algunaspruebas empiricas)", IMF Staff Papers, International Monetary Fund, Vol. 25, No. 1, pp. 48.
- Bollerslev, T., (1990), "Modeling the Coherence in Short-Run Nominal Exchange Rates: a Multivariate Generalized ARCH Model", *Review of Economics and Statistics*, Vol. 72, pp. 498–505.
- Branson, W. H., H. Halttunen and P. Masson, (1977), "Exchange Rates in the Short Run: The Dollar-Deutschemark Rate," *European Economic Review*, Vol. 10, pp. 303-24
- Chao, J.C., V. Corradi and N. Swanson (2001), "An Out of Sample Test for Granger Causality", *Macroeconomic Dynamics*, Vol. 5, No. 4, pp. 598-620.
- Cheung, Y.-W., and M.D. Chinn, (2001), "Currency traders and exchange rate dynamics: A survey of the US market", *Journal of International Money and Finance*, Vol. 20, No. 4, pp. 439–471.
- Chiu, I.-M., (2008), "An Empirical Study on the Long-Run Determinants of Exchange Rate", *Review of Pacific Basin Financial Markets and Policies*, Vol. 11, No. 03, pp. 389-409.
- Christopher. J. and L. Sarno, (2002), "How well do monetary fundamentals forecast exchange rates?", *Review*, Vol. 84, No. 5.
- Della Corte, P., L. Sarno, and I. Tsiakas (2007), "An Economic Evaluation of Empirical Exchange Rate Models," CEPR Discussion Paper 6598.
- Della Corte, P., L. Sarno and I. Tsiakas, (2009), "An Economic Evaluation of Empirical Exchange Rate Models", *Review of Financial Studies*, Vol. 22, No. 9, pp. 3491–3530.
- Diebold, F. X., (1998), "The Past, Present and Future of Macroeconomic Forecasting", *Journal of Economic Perspectives*, Vol. 12, pp. 175–92.
- Dornbusch, R., (1990), "Real Exchange Rates and Macroeconomics: A Selective Survey," NBER Working Paper 2775, National Bureau of Economic Research.
- Dua, P. and S.C. Ray (1995), "A BVAR Model for the Connecticut Economy," *Journal of Forecasting*, Vol. 14, pp. 217-227.

- Engel, C., and K.D. West, (2005), "Exchange Rates and Fundamentals", *Journal of Political Economy*, Vol. 113, No. 3, pp. 485–517.
- Frenkel, J. A., (1976), "A Monetary Approach to the Exchange Rate: Doctrinal Aspects and Empirical Evidence", *The Scandinavian Journal of Economics*, Vol. 78, No. 2, pp. 200–224.
- Gantman, E. R. and M.P. Dabós, (2017), "Does trade openness influence the real effective exchange rate? New evidence from panel time-series", *SERIEs*, Vol. 9, No. 1, pp. 91–113.
- Granger, C.W.J. and P. Newbold (1974), "Spurious Regressions in Econometrics," *Journal of Econometrics*, Vol. 2, pp. 111-20.
- Huy, C. L., and H.L.H. Ba, (2020), "The monetary approach to exchange rate determination: Empirical observations from the Pacific Basin economies", *Decision Science Letters*, pp. 453–463.
- Kim, B. J. C., and S. Mo, (1995), "Cointegration and the long-run forecast of exchange rates", *Economics Letters*, Vol. 48, No. 3–4,pp. 353–359.
- Korteweg, P., (1980), "Exchange-rate policy, monetary policy, and real exchange-rate variability", *Essay of International Buisiness*, No. 140, pp. 36.
- Kwofie, C., and R.K. Ansah, (2018), "A Study of the Effect of Inflation and Exchange Rate on Stock Market Returns in Ghana", *International Journal of Mathematics and Mathematical Sciences*, 2018, pp. 1–8.
- Lam, L., L. Fung and I.W. Yu (2008), "Comparing Forecast Performance of Exchange Rate Models," Working Paper, Hong Kong Monetary Authority.
- Li, J., Tsiakas, I., and W. Wang, (2018), "Predicting Exchange Rates Out of Sample: Can Economic Fundamentals Beat the Random Walk?", *Journal of Financial Econometrics*, Vol. 49.
- Mark, N. C., "Changing Monetary Policy Rules, Learning", Real Exchange Rate Dynamics, Vol. 24.
- Martens M. (2001), "Forecasting Daily Exchange Rate Volatility using Intraday Returns," *Journal of International Money and Finance*, Vol. 20, pp. 1–23.
- Matebejana, G., G. Motlaleng and J. Juana, (2017), "Foreign Exchange Market Efficiency in Botswana", *Review of Economic and Business Studies*, Vol. 10, No. 1, pp. 103–125.
- Medeiros O. R. de, (2005), "Order Flow and Exchange Rate Dynamics in Brazil", Universidade de Brasília, Brazil, manuscript.
- Molodtsova, T., and D.H. Papell, (2009), "Out-of-sample exchange rate predictability with Taylor rule fundamentals", *Journal of International Economics*, Vol. 77, No. 2, pp. 167–180.
- Mussa, M. (1976), "The Exchange Rate, The Balance of Payments and Monetary and Fiscal Policy Under a Regime of Controlled Floating," *Scandinavian Journal of Economics*, Vol. 78, pp. 229-48.
- Neely, C. J., and L. Sarno, (2002), "How well do monetary fundamentals forecast exchange rates?", Federal Reserve bank of St. Louis Review, Vol. 84, No. 5.

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Nwafor, F.C., (2006), "The naira-dollar exchange rate determination: a monetary perspective", *International Research Journal of Finance and Economics*, Vol. 5, pp. 130–135.

- Nwude, E. C. (2012), "A survey of foreign exchange rate determinants in Nigeria", *European Journal of Business and Management*, Vol. 4, pp. 8.
- OECD, (1983), "The Determinants of Exchange Rate Movements" (OECD Economics Department Working Papers No. 7 OECD, Paris, France
- Ozkan, I., and L. Erden, (2015), "Time-varying nature and macroeconomic determinants of exchange rate pass-through", *International Review of Economics and Finance*, Vol. 38, pp. 56–66.
- Ozkan, Ibrahim, and Lutfi Erden, (2015), "Time-Varying Nature and Macroeconomic Determinants of Exchange Rate Pass-Through." *International Review of Economics and Finance*, Vol. 38, pp. 56–66.
- Pesaran, M. H., Y. Shin and R. J. Smith, (2001), "Bounds testing approaches to the analysis of level relationships", *Journal of Applied Econometrics*, Vol. 16, No. 3, pp. 289–326
- Rossi, B. (2006), "Are exchange rates random walks? Some evidence robust to parameter instability", *Macroeconomic Dynamics*, Vol. 10, No. 1,pp. 20–38.
- Saraç, T. B., and K. Karagöz, (2016), "Impact of Short-term Interest Rate on Exchange Rate: The Case of Turkey", *Procedia Economics and Finance*, Vol. 38, pp. 195–202.
- Siregar, R. Y., and W.C. Walker, (2000), "Monetary Shocks and the Fundamental Determinants of the Real Exchange Rate under the Hong Kong Currency Board", *Asian Economic Journal*, Vol. 14, No. 1, pp. 1–21.
- Stock, J. H., and M. W. Watson (1996), "Evidence on Structural Instability in Macroeconomic Time Series Relations", *Journal of Business and Economic Statistics*, Vol. 14, No. 1, pp. 11-30.
- Venkatesan, T., and M.S. Ponnamma, (2017), "An Analysis of Macroeconomic Factors Affecting Foreign Exchange Rate", *SDMIMD Journal of Management*, Vol. 8, No. 1, pp. 21.
- Wolû, C. (1987), "Time-varying Parameters and Out-of-sample Forecasting Performance of Structural Exchange Rate Models", *Journal of Business and Economic Statistics*, Vol. 5, pp. 87-97.
- Ventzislav, I. and L. Kilian, (2005), "A practitioner's guide to lag order selection for var impulse response analysis", *Studies in Nonlinear Dynamics & Econometrics*, Vol. 9, No. 1, pp. 1–36.
- Zita, S., and Gupta, R. (2007), "Modelling and forecasting the metical-rand exchange rate", No. 200702; Working Papers, University of Pretoria, Department of Economics.