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Da Afghanistan Bank (DAB) intervention and Macro determinants of Afghani exchange rate (2009-2018)

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Abstract
Such study is Under the Title of The DAB intervention and macro Determinants of Afghani Exchange rate during (2009-2018).Two Different Model was applied to in order to Receive a credible Findings from the Data, thus Multi collinearity, Autocorrelation & Heteroscedasticity tests are done before the Multiple Regression Model, in order the first model stated that the overall model is Significant and DAB intervention in Exchange rate is with opposite of its Monetary policy Objectives, meaning that the Foreign Exchange and Capital Notes auctions have positive relationship with Exchange rate and thus increasing the Volatility of Exchange rate and the overall second model is Significant and shown that The GDP with a Significant Negative Relation, BM with a Significant positive Relation and Real IR had insignificant positive Relation with The Exchange rate.

Keywords: exchange rate, intervention, real interest rate and broad money

Introduction
The rate of One currency in Exchange of other Currency is called Exchange rate. This price is Either of Domestic Currency Units per foreign Currency or Vice versa (Philbeam, 2006). Foreign exchange rate intervention is any announcements or transactions by an Official Agent of Government in order to influence the value of Exchange rate, the intervention is done through monetary authorities in most countries (Dominguez, 1998) [7]. After the Breakdown of Bretton woods fixed Exchange rate system in 1973, many countries adopted floating Exchange rate regime and the volatility become an inevitably fact the in these countries, and thus volatility refers to all changes or movements which has impact in Depreciation or Appreciation of a Currency (Kilicarslan, Z.,2018) [12]. The intervention in Exchange rate was left to Countries, till 1977 the IMF Executive Board provided an intervention policy Guidance: 1) Countries should not Manipulate Exchange rate in order for the Adjustments of Balance of Payment or to Gain Unfair Competitive Advantage. 2) Countries should intervene to counter Disorderly Market Conditions. 3) Countries should take into Account the interest of other countries in Exchange rate. (Dominguez, 1998) [7]. The above three principles explicitly states that in order to decrease volatility in exchange rate countries can use intervention policy.
The central banks define intervention narrowly which refers to sale or purchase of Foreign Assets against Domestic assets in Foreign exchange market (Dominguez, 1998) [7]. To Achieve Monetary Policy Objectives, the monetary authorities or Central Bank Sell and Purchase Foreign Currency against Domestic Currency (kiarie, 2012). According the motives of interventions are: to Effect the level of Exchange rate, to Effect the Speed of Currency (appreciation or Depreciation), Effect the volatility in Exchange rate and others (Adler and mora, 2011) [3].
There are two kind of intervention in Exchange rate sterilized intervention refers to when authorities in short time intervene by the same token the monetary base is not effected, it is said to be offset action, non-sterilized intervention refer to when in an intervention the monetary base is effected it is said Tobe No offset Action thus the exchange rate can be effected (sarno and Taylor, year, 2001) [1].

Materials and Method
The research is conducted based on secondary data which is collected from IMF, WDI, DAB Monetary Department directly from (2009 - 2018). According to the issue, two models are applied, the first one is DAB intervention that incurred (120) months data of Foreign Exchange Auction (USD sales) and Capital notes auction (buying Afghani) the independent variable and Exchange rate (AF/USD) dependent variable. The second model has three macro variables GDP, Broad money (M2) and Real interest rate as Independent variables and Exchange rate (AF/USD) Dependent variable. Before running the multiple Regression for credibility of findings the Stationary, Multi-collinearity, Autocorrelation and Heteroscedasticity tests are applied, The Analysis is done through Stata-14 statistical software.

First Model

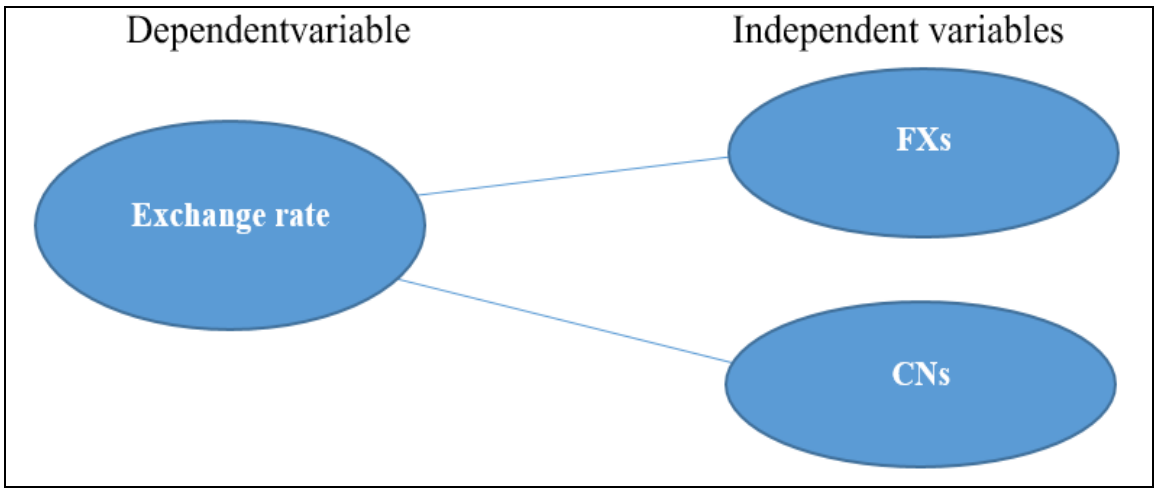

Fig 1

First Model Equation:
Ln_ERt/Ln_ERt-1 = α +Ln_FXt/Ln_ERt-1*X1+Ln_CNt/Ln_CNt-1*X2+ϵt

Second Model

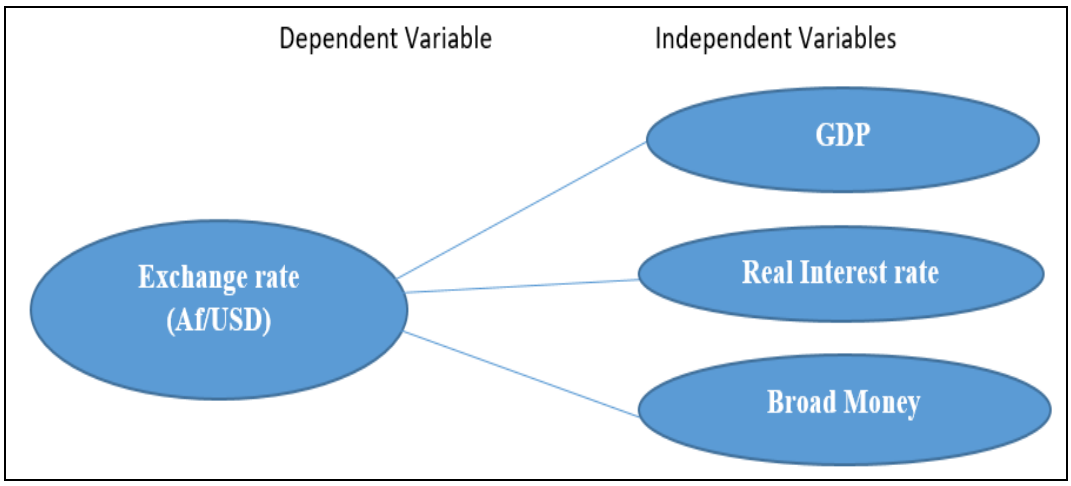

Fig 2

Equation for second Model:
Exchange rate (Af/USD) = α+ β1(GDP)+β2(Real IR)+ β3(Broad Money)+ϵt

Results and Discussion
For the analysis of the first model, the below mentioned test was applied, the Augmented Dicky fuller (ADF) test was applied for stationarity and indicated that the data is stationary in its first difference, the bruesch-pagan test for Multi-collinearity checking and the Durbin Watson test for checking Autocorrelation are shown in Table. 1.

Table 1: Regression of the First model

Source	SS DF MS	No of obs = 119 F(2,116) = 29.18 Prob>F = 0.0000 R-squared = 0.3347 Adj R-squared = 0.3232 Root MSE = 0.12792
Model	.954787886 2.477393943	
Residuals	1.8980908 116.016362852	
Total	2.85287869 118.024176938	
Ln-ER	Coef. Std.error. t P>|t| [95% conf. interval]	
Ln-Fxs	0.0980773 0.025438 3.86 0.000.0476942.1484604	
Ln-CNs	0.0748884 0.0154197 4.86 0.000.0443477.1054291	
Constant	0.0552747 0.5721568 0.10 0.92 -1.077954 1.188503	

Source: calculated by stata

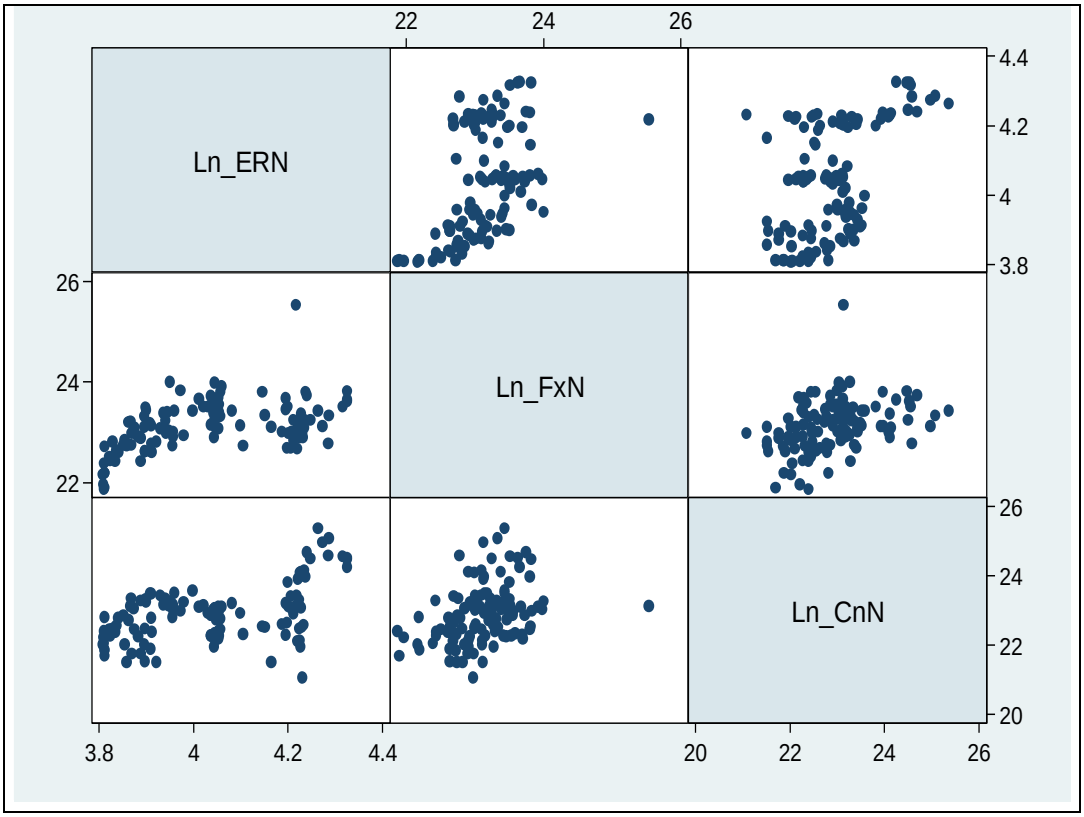

Fig 3: ER, FX & CNs

As mentioned in Table. 1, there are 119 monthly observation with the Existence of one Dependent variable (i.e= Ln-Exchange rate) and two independent variable (i.e= Ln-Foreign Exchange and Ln-Capital Notes) in which the overall test is significant in 5% significance level and R-squared is 0.3347 it means that the two dependent variable can Explain the relation with dependent variable by 33.47%, the coefficients point out that the FXs has significant positive relationship with Exchange rate meaning that a one million increase in FX auction the Exchange rate increased by 0.0980773 (Going to be Depreciated)and CNs also has significant positive relationship with Exchange rate meaning that a one million increase in CN auction the Exchange rate increased by 0.0748884 (Going to be Depreciated) the constant term show that if the overall Effect of these two variables Omitted the monthly change in Exchange rate would be 0.0552747.

Table 2: Regression for the Second model

Source	**SS DF MS**	No of obs = 11 F(2,116) = 19.14 Prob>F = 0.0009 R-squared = 0.8913 Adj R-squared = 0.8448 Root MSE = 3.9333
Model	888.268515 3 296.089505	
Residuals	108.293833 7 15.4705476	
Total	996.562348 10 99.6562348	
ER	Coef. Std.error. t P>|t| [95% conf. interval]	
GDP	-2.276252 0.8391354 -2.71 0.030 -4.26049 -.2920144	
Real-IR	0.1684747 0.2919705 0.58 0.582 -.5219259.8588753	
BM	0.1429208 0.0263913 5.42 0.001.0805153.2053263	
Constant	46.83023 9.477092 4.94 0.002 24.42046 69.2399	

Source: Calculated by stata

The above (Table. 2) there are Eleven years' observation incurred from 2008 to 2018. The overall applied regression is significance with a 0.8913 R-squared value meaning that the three independent variables such as GDP, Real interest rate and Broad money can Explain Dependent variable Exchange rate by 89.13%. the coefficients shows that the GDP has significant negative relation with Exchange rate (i.e= if one billion of GDP is increased the Exchange rate would decrease by -2.276252 indicates appreciation of Afghani against USD) the Real-IR has insignificant positive relation with Exchange rate (i.e= if one percent of Real-IR is increased the Exchange rate would Increase by 0.1684747 indicates Depreciation of Afghani against USD) and the BM has significant positive relation with Exchange rate (i.e= if one billion of Broad money supply is increased the Exchange rate would increase by 0.1429208 indicates depreciation of Afghani against USD).

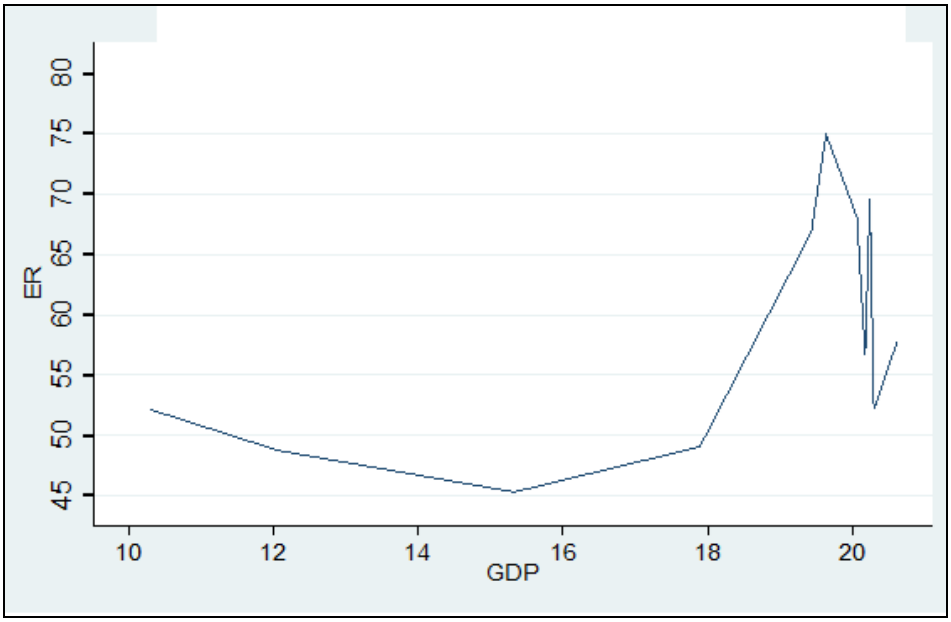

Fig 4: Exchange rate and GDP relation

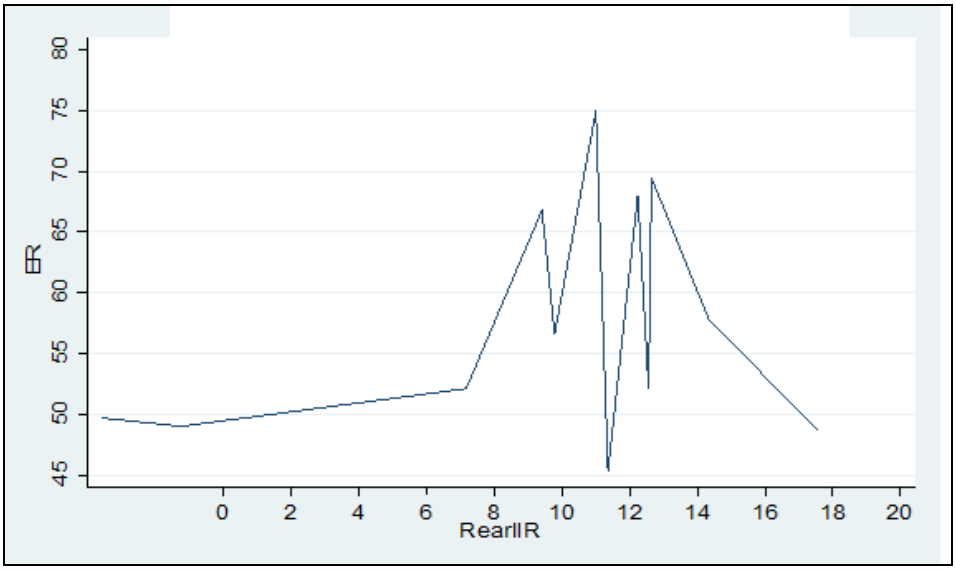

Fig 5: Exchange rate and RIR relation

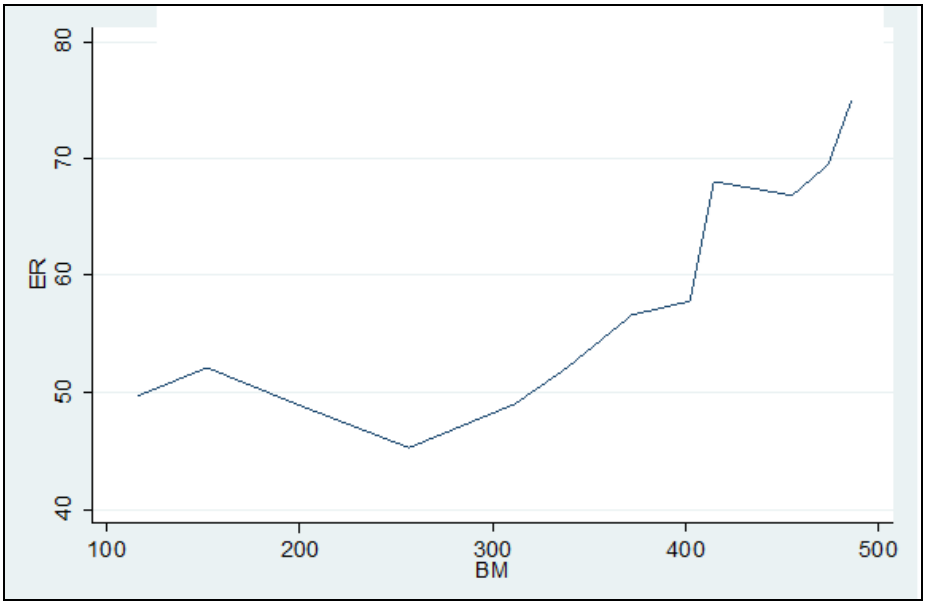

Fig 6: Exchange rate and board money relation

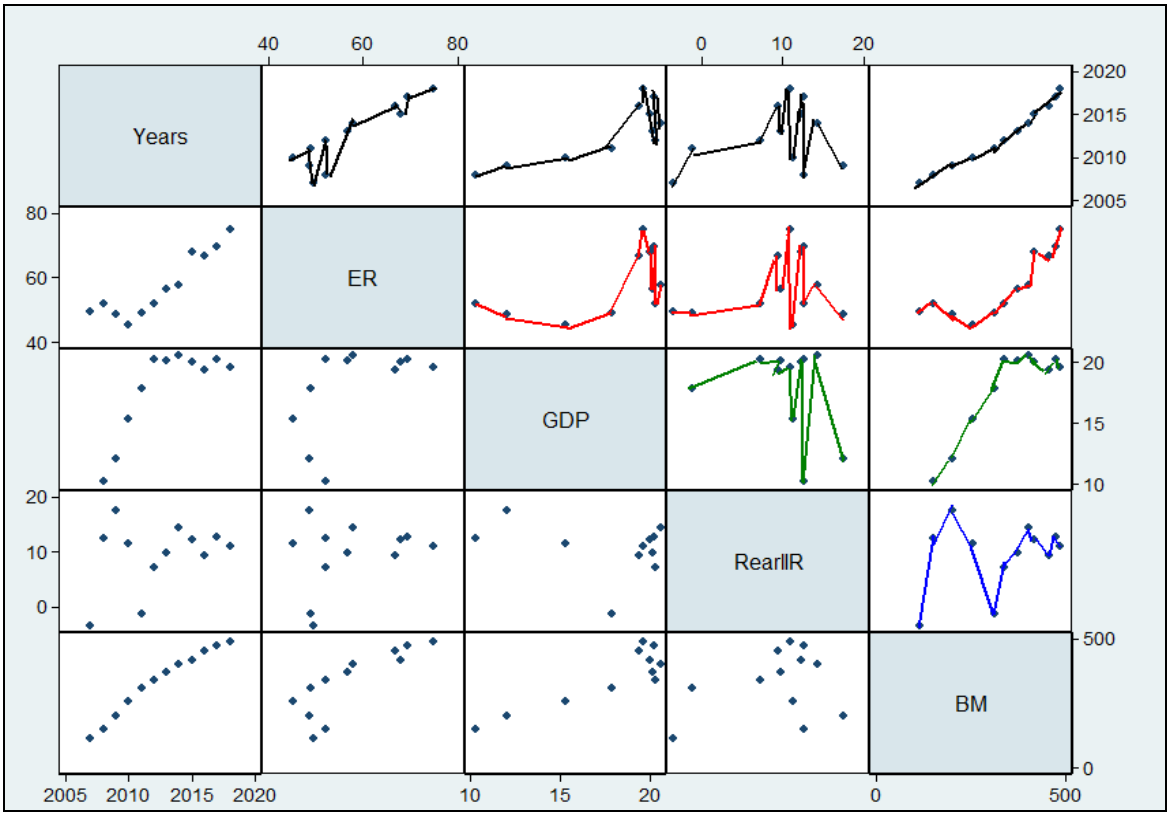

Fig 7: Scatterplot Matrix of the second model

Scatterplot Matrix of the second model

Conclusion

1. There was a significant positive relation of DAB intervention by Foreign Exchange with Exchange rate, it means that the Foreign Exchange auction is Depreciating Afghani Exchange rate, and this non sterilized intervention at the mentioned period was ineffective regarding DAB monetary policy objective.
2. There was a significant positive relation of DAB intervention by Capital notes with Exchange rate, which means that the Capital notes auction is Depreciating Afghani Exchange rate, and this non sterilized intervention at the mentioned period was ineffective regarding DAB monetary policy objective.
3. The study found a significant positive relation between BM and Afghani Exchange rate, that means the increase in the supply of BM Depreciating Afghanis/USD Exchange rate, so the authorities should Consider the money supply Effects in the Economy.
4. The study revealed a significant negative relation between GDP and Afghani Exchange rate, which means that the increase in country's GDP value leads Appreciation of Afghanis/USD Exchange rate.
5. The study indicates a significant positive relation between R-IR and Afghani Exchange rate and that means the increase in Real-IR leads Depreciation of Afghanis/USD Exchange rate. The Real-IR may cause of more Consumption in GDP components which is already financed by imports and may imposed downward pressure on Afghanis.

References

1. Sarno lucio, Mark P. taylor "official intervention in foreign exchange market: is it effective, and if so, how does it work", 2001, 5. www.cepr.org
2. Simwaka Kisukyabo, Mkandawire Leslie. The Effcacy of Foreign Exchange Market Intervention in Malawi, 50. Regal Press (K) Ltd. The African Economic Research Consortium, Nairobi 00200, 2011. Kenya
3. Gustavo Adler; Camilo E Tovar Mora, 2011. Foreign Exchange Intervention: A Shield Against Appreciation Winds? https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Foreign-Exchange-Intervention-A-Shield-Against-Appreciation-Winds-25040
4. Guimarães Roberto F. and Karacadag Cem. The Empirics of Foreign Exchange Intervention in Emerging Market Countries: The Cases of Mexico and Turkey, 33. IMF Working Paper, 2004. WP/04/123
5. Edward, how do countries choose their Exchange rate Regime, 2000, 5. https://books.google.com.af/books?id=OLJp2QNVs7kC&pg=PA5&lpg=PA5&dq=Edward+(2000)+%20(2000)%20about%20exchange%20rate&f=false
6. Anita Mirchandani. Analysis of Macroeconomic Determinants of Exchange Rate Volatility in India, 9, International Journal of Economics and Financial Issues, 2013. www.econjournals.com
7. Dominguez, katryn," central bank intervention and exchange rate volatility", 1998. 30, http://www-personal.umich.edu/~kathrynd/JIMF.CBIVolatility.Feb98.pdf

8. Rahman Chowdhury Mohammad Shafiur, Hossain Md. Tanjil. Determinants of Exchange Rate in Bangladesh: A Case Study, 4, ournal of Economics and Sustainable Development, 2014. www.iiste.org
9. Hussain Fayyaz, Abdul Jalil. Effectiveness of Foreign Exchange Intervention: Evidence from Pakistan, 18. SBP Research Bulletin,2007:3:2.
10. Petro Kembe ouma. Impact of central bank Intervention of Foreign Exchange rate volatility in kenya, 71. A research subject submitted in fulfilment of the requirement of the Award of the masters of Business Administration (MBA) degree, school of business Nairobi, 2013.
11. Ruan songhe. The determinants of Chinese Renminbi Exchange rate, 2013, 56. http://its-2.au.edu/programstudy/msfe/pdf/Songhe.pdf
12. Kilicarslan Zerrin, 2018. Determinants of Exchange rate volatility: Emperical Evidence For Turkey, 11. journal of Economics, Finance and Accounting (JEFA), http://doi.org/10.17261/Pressacademia.2018.825
13. N. Gregory Mankiw Macroeconomics (9th Edition 2016), Building the IS-LM model chap 11 (311-320), (140-180), worth publisher, New york
14. Anwar shahzad, sherzad allajan, 2018, Central bank intervention in controlling Exchange rate: a study of Afghanistan bank, 1, kardan journal of Economics and Management science, https://kardan.edu.af/Research/journal.aspx?j=KJEMS&id=28
15. Ramasamy Ravindran, abar karimi soroush, 2015, influence of macroeconomic variables on Exchange rate, 1, journal of Economics, Business and Management, http://joebm.com/papers/194-W10044.pdf
16. Wan Mohd Yaseer Mohd Abdoh, Yusuf Noor Hafizha Muhamad, Zulkifli Shaliza Azreen Mohd, Bulot Norhisam, and Ibrahim Nor Jamilah, 2016. Macroeconomic Factors That Influence Exchange Rate Fluctuation in ASEAN Countries, 89, international academic Journal of Social science, https://www.academia.edu/38870506/
17. Mishkin Frederic S, the Economics of Money, banking and financial markets, tenth edition, Pearson, 2013. http://bibliotheque.pssfp.net
18. Dayyabu Siba, Adnan Ahmad Azrin, Sulong Zunaidah, ffectiveness of Foreign Exchange Market Intervention in Nigeria,2016:(1970-2013):279. international journal of Economics and financial issues, https://dergipark.org.tr/tr/pub/ijefi/issue/32008/353682
19. Rajakaruna SHI. An Investigation on Factors affecting Exchange Rate Fluctuations in Sri Lanka,69, Central bank of sri lanka staff studies, https://ss.sljol.info/articles/10.4038/ss.v47i1.4703/galley/3808/download/
20. Mwansa, Katwamba, The Impact of Central Bank's intervention in the foreign exchange market on the Exchange Rate: The case of Zambia,2009:(1995-2008):5. Munich Personal RePEc Archive, https://mpra.ub.uni-muenchen.de/22428/
21. AJAO, Mayowa G. The Determinants of Real Exchange Rate Volatility in Nigeria, 44, 2015. Ethiopian Journal of Economics, https://www.ajol.info/index.php/eje/article/view/146624/136150
22. Restihani Rika Utami, Aimon Hasdi. Monetary Policy Interventions Against Emerging Market Exchange Rate Stability in ASEAN, 263, Advances in Economics, Business and Management Research, 2019. https://www.atlantis-press.com/proceedings/piceeba-2-19/125935769