Aggregate Demand and Monetary Policy Transmission Mechanism in Zambia

By

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OUTLINE OF PRESENTATION

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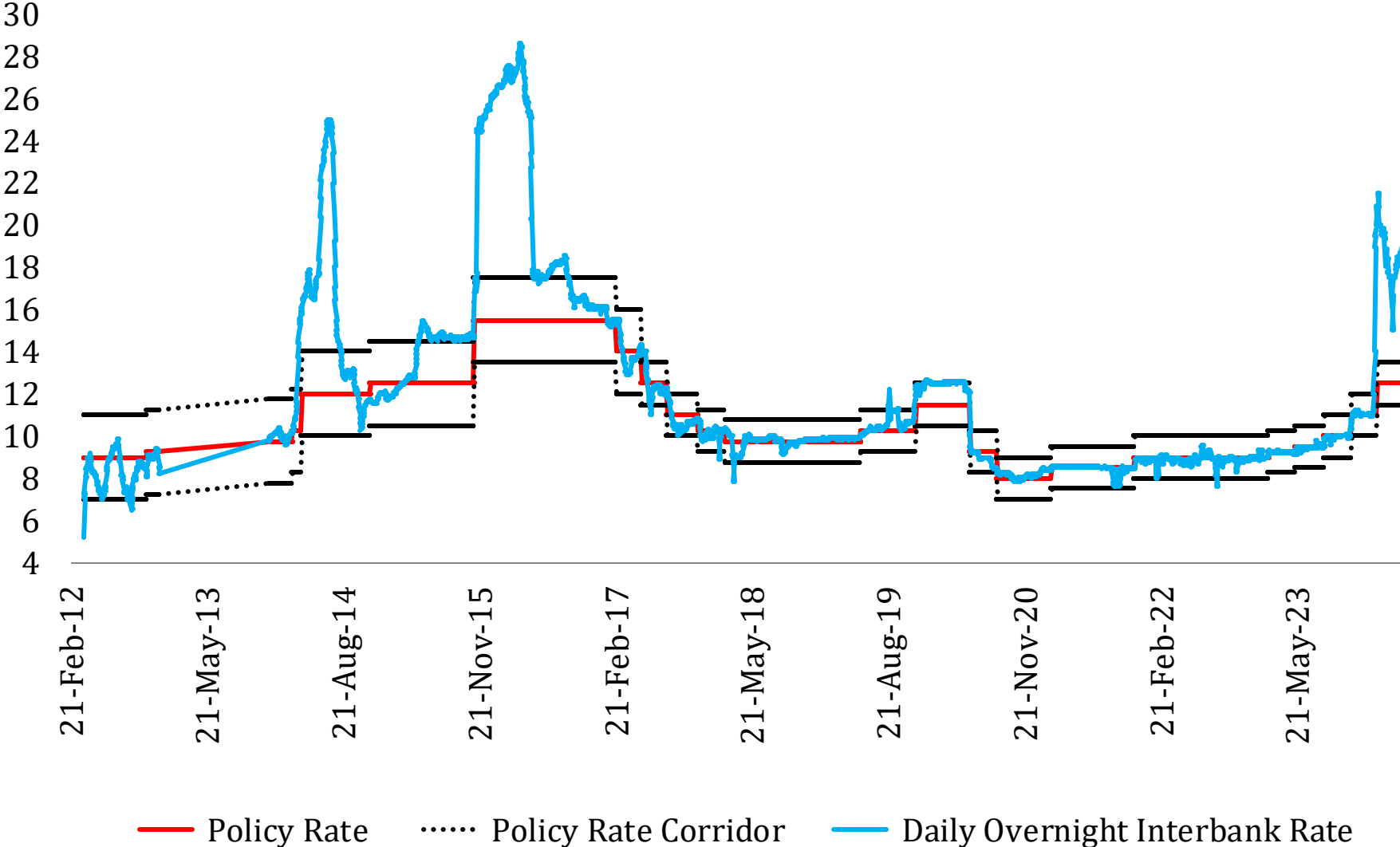
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Introduction

- Views on the transmission of monetary policy remain divergent:

❖ Price based channels; Credit transmission; Expectations

- In Zambia, authors that have explored monetary policy transmission dynamics have relied mostly on VARs (No AD)

❑ VAR methodologies mostly capture the impact of unanticipated or 'surprise' changes (identified as shocks) in monetary policy

❑ Disagreement among authors on the identification of monetary policy shocks

❑ VARs are at variance with the monetary policy transmission theories; relationship between MPR and inflation is not direct

Introduction

- Hitherto, little is known about the role of aggregate demand or its components in the transmission of monetary policy in Zambia.

- Consider the role of aggregate demand (investment and consumption);

- While capturing the effect of monetary policy at each stage of the transmission process in line with Zellner and Theil (1992), Nosier and El-Karamani (2018) and Iddrisu and Alagidede (2020).

Brief overview of the Monetary Policy Framework in Zambia

- Mostly based on Mishkin (1996), Boivin et al (2010) and Bwire (2019)

- **The interest rate channel**

- $M \downarrow \rightarrow i \uparrow \rightarrow r \uparrow \rightarrow I \downarrow \rightarrow Y \, or \, \pi \downarrow$

- **The traditional bank lending (credit) channel**

- $M \downarrow \rightarrow bank \, deposits \downarrow \rightarrow bank \, loans \downarrow \rightarrow I \downarrow \rightarrow Y \, or \, \pi \downarrow$

- Mixed results

Authors	Objectives	Methods	Conclusion
Brooks (2007); Aban (2013); Kabiro and Nyamongo (2014); Ebire and Ogunyika (2018); Opolot and Nampewo (2014); Iddrisu and Alagidede (2020)	To investigate the effectiveness of MP TCs in Turkey, the Philippines, Malaysia, Kenya, Nigeria, and South Africa	VECM, VARs, ARDL, panel data approach using bank level data, GMM, 3SLS	➔ Evidence in support of the credit channel (Turkey, the Philippines, Kenya, Nigeria, Uganda, South Africa) ➔ Ineffective credit channel (Malaysia) ➔ Weak interest rate channel in SA
Chileshe and Akanbi (2017); Zgambo and Chileshe (2014); Funda (2014); Simpasa et al (2014); Kalikeka and Sheefeni (2017); Chileshe and Akanbi (2016); Chisha (2017); Mutoti	To investigate the effectiveness of MTP TCs in Zambia	VARs, VECM, SVARs, panel data approach using bank level data,	➔ Effective credit channel ➔ Weak interest rate channel ➔ Effective interest rate channel

- The analysis uses quarterly data, spanning 2012 to 2022

Variable	Description
Monetary Policy Rate (MPR)	Measured in percentage as the Bank of Zambia Policy Rate
Average Lending Rates (ALR)	Measured in percentage as the average of interest rates charged by commercial banks for lending purposes
Private Sector Credit (LPSC)	Measured as the natural log of the total banking sector credit to the private sector
Deposit rates (DPSR)	Measured in percentage as interest paid on deposits by banks
Real GDP growth (GDPG)	Measured in percentage as growth in output in a given quarter from the corresponding quarter in the previous year
Exchange Rate (EXCH)	Measured as the nominal exchange rate of the Zambian Kwacha (ZMW) to the United States dollar (USD)
Inflation (INF)	Measured as the log-difference in the quarterly Consumer Price Index
Investment (GFCF)	Measured as the natural log of real gross fixed capital formation
Consumption (CONS)	Measured as the aggregate of retail sales by major chain stores
BOND YIELD (BOND_RATE)	Measured by the yield on the 5-year Government bond

The system of equations for the interest rate channel is given as:

$$DALR_t = \gamma_0 + \gamma_1 DMPR_{t-k} + \gamma_2 GDPG_t + \gamma_3 D\_BOND\_RATE_t + \gamma_4 DDPSR_t + \varepsilon_t \qquad (7)$$

$$DLOG\_GFCF_t = \beta_0 + \beta_1 DALR_t + \beta_2 DLOG\_PSC_t + \beta_3 DLOG\_CPI_t + \varepsilon_t \qquad (8)$$

$$DLOG\_CPI_t = \alpha_0 + \alpha_1 DLOG\_GFCF_t + \alpha_2 DALR_t + \alpha_3 DLOG\_EXCH_t + \varepsilon_t \qquad (9)$$

Similarly, the system of equations for the bank lending channel is estimated as:

$$DLOG\_PSC_t = \rho_0 + \rho_1 DMPR_{t-k} + \rho_2 GDPG_t + \rho_3 DLOG\_EXCH_t + \rho_4 DDPSR_t + \varepsilon_t \qquad (12)$$

$$DLOG\_GFCF_t = \delta_0 + \delta_1 DLOG\_PSC_t + \delta_2 DALR_t + \delta_3 DLOG\_CPI_t + \varepsilon_t \qquad (13)$$

$$DLOG\_CPI_t = \mu_0 + \mu_1 DLOG\_GFCF_t + \mu_2 DALR_t + \mu_3 DLOG\_EXCH_t + \varepsilon_t \qquad (14)$$

Results and Discussion

- Unit root tests

	ADF t-statistic (Level)	ADF t statistic (First log- difference)	Order of Integration
GFCF	-0.469228	-6.078627*	I (1)
ALR	-2.593892	-3.073709**	I (1)
EXCH	-0.791004	-4.720447*	I (1)
PSC	0.366762	-4.651968*	I (1)
CPI	1.535122	-4.664425*	I (1)
MPR	-1.933998	-3.538278**	I (1)
GDPG	-3.683279*	-8.979280*	I (0)
DPSR	-2.157039	-3.587686*	I (1)
RS	-0.261734	-4.611904*	I (1)
BOND_RATE	-2.387827	-4.338408*	I(1)

Results and Discussion

- Interest rate channel

	Lending Rate Equation	Investment Equation	Inflation Equation
DMPR$_{t-2}$	**0.390 (1.669) *****		
GDPG	0.065 (0.901)		
D_BOND_RATE	0.049 (0.742)		
DDPSR	1.036 (3.518) *		
DALR		**-0.022 (-1.915) *****	
DLOG_PSC		-0.161 (1.915)	
DLOG_CPI		1.243 (1.963) ***	
DLOG_GFCF			**0.179 (2.341) ****
DALR			0.007 (1.837)***
DLOG_EXCH			0.099(1.954)***
Constant	-0.127 (-0.521)	-0.009 (-0.399)	0.022 (5.319) *
Eventual Effect of MPR on Inflation ($\widehat{\phi}$)			**-0.0015 (1.271)**

Results and Discussion

- Bank lending channel

	Credit Equation	Investment Equation	Inflation Equation
$DMPR_{t-2}$	**-0.034 (-2.408) ****		
GDPG	-0.003 (-0.531)		
DLOG_EXCH	0.317 (2.097) **		
DDPSR	0.009 (0.559)		
DLOG_PSC		**0.611 (1.859) *****	
DALR		-0.007 (-0.437)	
DLOG_CPI		1.813 (2.287) **	
DLOG_GFCF			**0.239 (2.382) ****
DALR			0.009 (1.758) ***
DLOG_EXCH			-0.064 (-0.804)
Constant	0.021 (1.284)	-0.040 (-1.508)	0.023 (4.912)*
Eventual Effect of MPR on Inflation ($\widehat{\phi}$)			**-0.0049 (1.745)***

Results and Discussion

- Interest rate channel revisited

	Lending Rate Equation	Consumption Equation	Inflation Equation
$DMPR_{t-2}$	**0.382 (1.710) *****		
GDPG	-0.010 (-0.155)		
D_BOND_RATE	0.103 (1.493)		
DDPSR	0.861(3.311)*		
DAL		**-0.034 (-2.035) ****	
DLOG_EXCH		0.178 (0.804)	
DLOG_CPI		1.679 (2.152)**	
DLOG_RS			**0.131 (2.364) ****
DALR			0.008 (1.431)**
DLOG_EXCH			0.099(1.954)***
Constant	0.265 (-0.509)	-0.017 (-0.719)	0.024 (6.342)*
Eventual Effect of MPR on Inflation ($\widehat{\boldsymbol{\phi}}$)			**-0.0017 (1.503)**

Conclusion

- Authors that have explored monetary policy transmission dynamics in Zambia have relied mostly on vector autoregressions;

- They infer the impact of monetary policy shocks directly on inflation with little or no regard to the role of aggregate demand in this process

- This study employed the three-stage least squares (3SLS) technique to investigate the transmission of monetary policy considering the role of AD

- Results show the step-by-step transmission of MP via the interest rate and credit channels, while highlighting the role of AD

- Credit channel is found to be potent while the interest rate channel is ineffective

Conclusion

- These findings underscore the need for reforms to enhance the efficacy of financial markets in Zambia as a conduit for the transmission of monetary policy

- This is crucial in strengthening the interest rate channel which is a bedrock of the inflation targeting regime

- The results also enable policy makers to identify the stages of the transmission process at which their actions are more impactful and where they are less prominent.

Thank you for listening...