Informal Foreign Currency Market Rate Coordination and Remittance Flows

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Disclaimer: The views expressed in this paper are those of the authors and do not necessarily reflect the views of the Reserve Bank of Zimbabwe (RBZ).

1. Introduction

- Diaspora remittances are important for many emerging economies.
- Remittances received by Zimbabwe rose from US$198.2 million in 2009, through US$1.7 billion 2014, to US$2.80 billion in 2022 (RBZ data), representing 13.5% of GDP (Kalantaryan & McMahon, 2020).
- While remittances are positively related to economic growth, they can have detrimental effects, e.g.:
    - Spiraling prices from the Dutch disease.
    - Fueling the black market for currency trading, especially in countries with restrictive exchange control regimes.
- This paper is concerned with the second potential problem.

2. Introduction (contd)

- Since the infamous hyperinflation and economic meltdown of 2007-8, Zimbabwe has experienced volatile domestic currency valuations, suspensions of the local currency and runaway black market rates.
- In the absence of a liquid interbank foreign currency trading market prior to 2020, the market adopted an informal reference foreign currency exchange rate motivated by PPP and derived from cross-rates obtained from internationally dual-listed (ZSE and LSE) Old Mutual Limited stock – the Old Mutual Implied Rate (OMIR).
- Zimbabwean exchange control authorities were sufficiently concerned about the role of OMIR in coordinating/fueling the black market and external forex transfers via dual listing arbitrage that they abolished its usage on 23 June 2020 by halting ZSE trading my OML.

3. Research questions

- This provides a natural experimental setting in which to ask the following questions about whether OMIR was used as a currency trading coordination mechanism:
    - *What was the remittance flow reaction to the cessation of OMIR?* (A decrease would support the information coordination hypothesis).
    - *Whose remittance flows (the public's v NGOs') relied on OMIR?* (Separating the speculative from the altruistic motive).
    - *Did public attention on money transfer operators change after the cessation of the reference rate? (*A fall in attention would support the information coordination hypothesis).
    - *Did the OMIR rate Granger cause remittance flows?*

4. Background literature and contribution

- Because clandestine markets lack documented data, it is difficult to properly investigate their coordination via reliable statistical analyses (Gallais-Hamonno., et al 2019).
- For instance, in informal commodity trading, due to the dearth of reliable statistics, researchers face great difficulty in examining price formation in such markets (Kriz (1952) and Gallais-Hamonno et al. (2019).
- Our paper tests whether PPP-based cross-country pricing of goods and securities can be used as a currency exchange rate coordination mechanism affecting cross-border money flows.
- We also contribute to the vast literatures on the determinants of remittance flows and the interaction of remittances with exchange rates by focusing on the speculative currency trading motive.

5. Data

- We utilize monthly remittances flow data covering 2014-2021 from the RBZ.
- The dataset covers retail (diaspora) remittance flows separately from those of non-governmental organisations.
- Night-time lights as a proxy for economic development following (Perez-Sindin et al. 2021)

  (Source: https://eogdata.mines.edu/products/vnl/)
- World trade uncertainty index

  (Source: https://worlduncertaintyindex.com/)
- Monthly interest and inflation data from the RBZ.

6. Descriptive Statistics

Table 6: Descriptive statistics

Variable	Obs	Mean	Std.Dev	Min	Max
lndiaspora	96	18.048	0.301	17.246	18.837
lnngo	96	17.877	0.307	17.090	18.499
lntotalrem	96	18.676	0.253	18.105	19.168
nightlights	96	16.260	7.548	0.267	30.884
nominal	96	15.926	9.246	8.860	41.860
omirdummy	96	0.188	0.392	0.000	1.000
uncertainty	96	0.093	0.066	0.000	0.266
cpi	96	4.739	8.811	-0.890	39.300
omirate	47	20.599	34.979	1.262	132.239

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7. OLS Results – Post-OMIR Remittances and MTO Attention

Table 12: Effect of OMIR Cessation on Monthly Total Rem, Diaspora Rem, NGO Rem and MTO Searches

	Model 1 Total Rem	Model 2 Diasp Rem	Model 3 NGO Rem	Model 4 MTO Searches
nightlights	-0.008***	-0.007***	-0.010**	-0.01
	(0.003)	(0.002)	(0.004)	(0.009)
nominal	0.018***	0.019***	0.012*	0.004
	(0.005)	(0.004)	(0.007)	(0.015)
postomir	0.029	0.254***	-2.322	1.439***
	(0.112)	(0.096)	(0.007)	(0.354)
uncertainty	0.086	-0.061	0.249	-1.641*
	(0.308)	(0.265)	(0.459)	(0.972)
cpi	-0.009***	-0.006***	-0.012***	0.039***
	(0.002)	(0.002)	(0.003)	(0.007)
constant	18.557***	17.840 ***	17.933***	1.009***
	(0.008)	(0.072)	(0.125)	(0.265)
R-Squared	0.50	0.74	0.24	0.66

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8. VECM Results – Post-OMIR Remittances

Table 13: Vector correction error model estimation results

Variable	Model 1 (Total)	Model 2 (Diasp)	Model 3 (NGO)
cointEq 1	-0.151 ***	-0.252 ***	-0.149 ***
	(0.064)	(0.096)	(0.063)
dependent	-0.166	-0.253 ***	-0.224 ***
	(0.118)	(0.102)	(0.089)
nightlights	0.004 *	0.007 ***	0.003
	(0.003)	(0.003)	(0.003)
nominal	0.003	-0.005	0.008
	(0.011)	(0.013)	(0.016)
postomir	0.001	0.128	-0.249 ***
	(0.041)	(0.158)	(0.055)
uncertainty	-0.203	0.103	-0.676 ***
	(0.196)	(0.356)	(0.351)
cpi	-0.007	-0.005	-0.006
	(0.004)	(0.002)	(0.006)
constant	0.003	0.011	-0.005
	(0.011)	(0.016)	(0.018)

9. Granger causality test results: Remittances and concurrent OMIR rates

Table 14: Granger causality tests on OMIRate

Null Hypothesis	Obs	F-statistic	Prob
omirate does not granger cause totalrem	45	1.311	0.281
totalrem does not granger cause omirate	45	0.581	0.564
omirate does not granger cause diaspora	45	7.925	0.001
diaspora does not granger cause omirate	45	4.735	0.014
omirate does not granger cause ngo	45	1.563	0.222
ngo does not granger cause omirate	45	0.342	0.712
omirate does not granger cause mtosearches	45	3.544	0.038
mtosearches does not granger cause omirate	45	10.159	0.001

10. Summary and conclusions

- We provide preliminary evidence that the PPP-determined informal OMIR rate was at least relevant to remittance flow activity in Zimbabwe.
- Post OMIR, NGO remittance flows decrease significantly while the upward trend of general remittance flows is not disturbed.
- Google search evidence suggests attention on MTOs increased after OMIR's cessation.
- We find bi-directional Granger causality between the OMIR rate and diaspora remittances as well as with MTO search activity.