Exchange Rate and Trade Dynamics in Indonesia:

Connecting the Dots

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What drives exchange rate movements and how does it transmit to the current account?

- *2018 External Sector Developments:*
  - Two shocks: Terms of Trade and global financial tightening
  - Exchange rate depreciation ~ 8% (ToT or Financial?)
  - Current account deficit widened by 1.4% of GDP

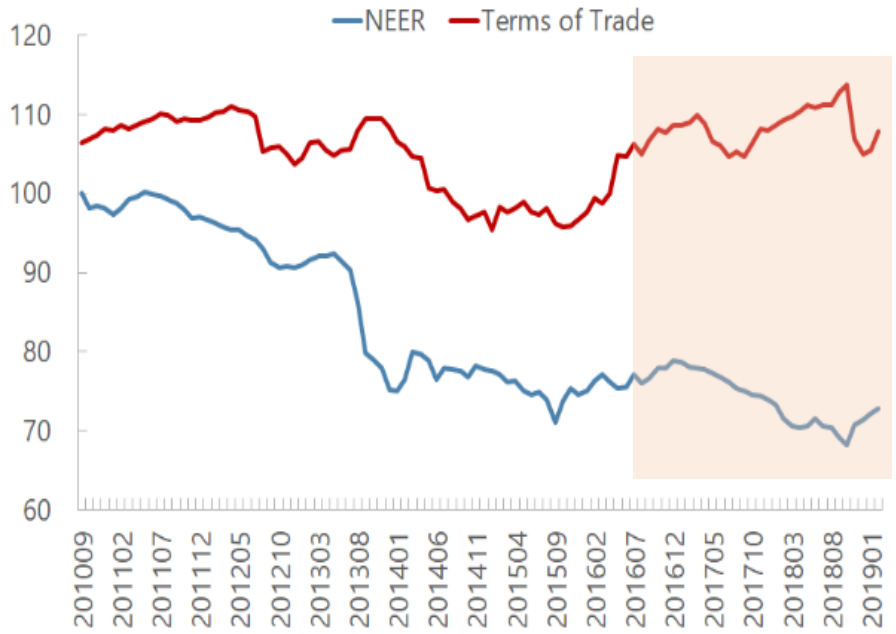
- Did the CA reflect adjustment to the ER depreciation or was it not sensitive to these fluctuations?

- This paper: Explores exchange rate movements in relation to both trade and financial shocks and estimates the extent to which trade adjusts.

Exchange rate and current account: Is there a disconnect ?

Exchange Rate Drivers: Real Sector

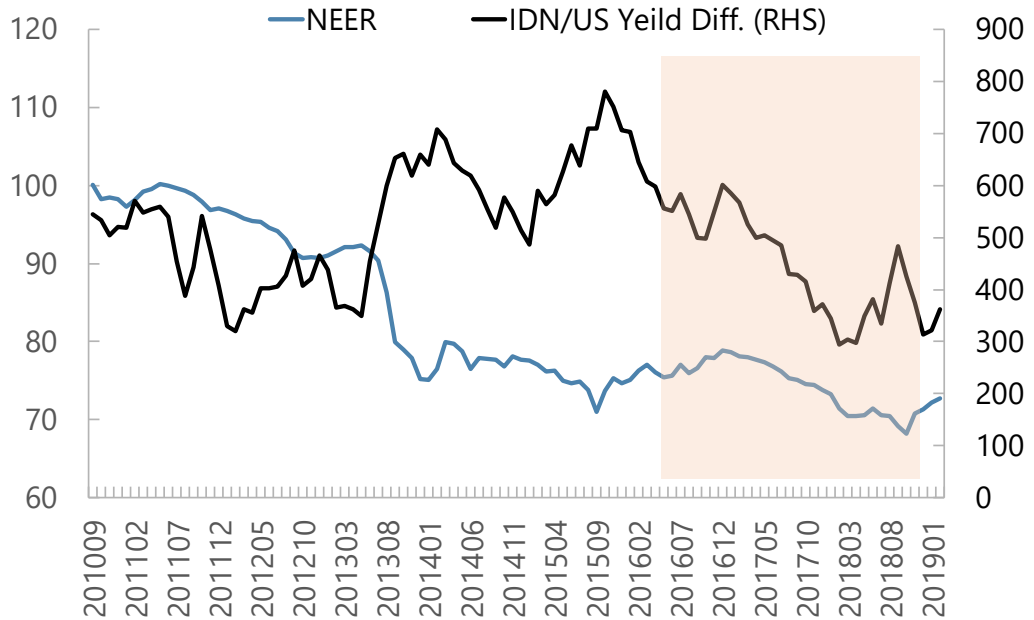
(Effective Exchange Rates and Terms of Trade Index, Base Year 2010)



Sources: Haver and IMF Staff Calculations

Exchange Rate Drivers: Financial Markets

(Nominal Effective Exchange Rate and Yield Differential)



Sources: Haver and IMF Staff Calculations

Decoupling and volatility of ER in recent times…

- Exchange rate volatility >> Volatility of fundamentals (by 4 s.d.)
- REER tracks closely the NEER and displays a similarly large persistence and volatility.

➢ **High exchange rate volatility is intrinsically linked to a limited pass-through of exchange rates to trade prices.**

Correlation of Exchange Rate with Terms of Trade and Interest Rate Differentials

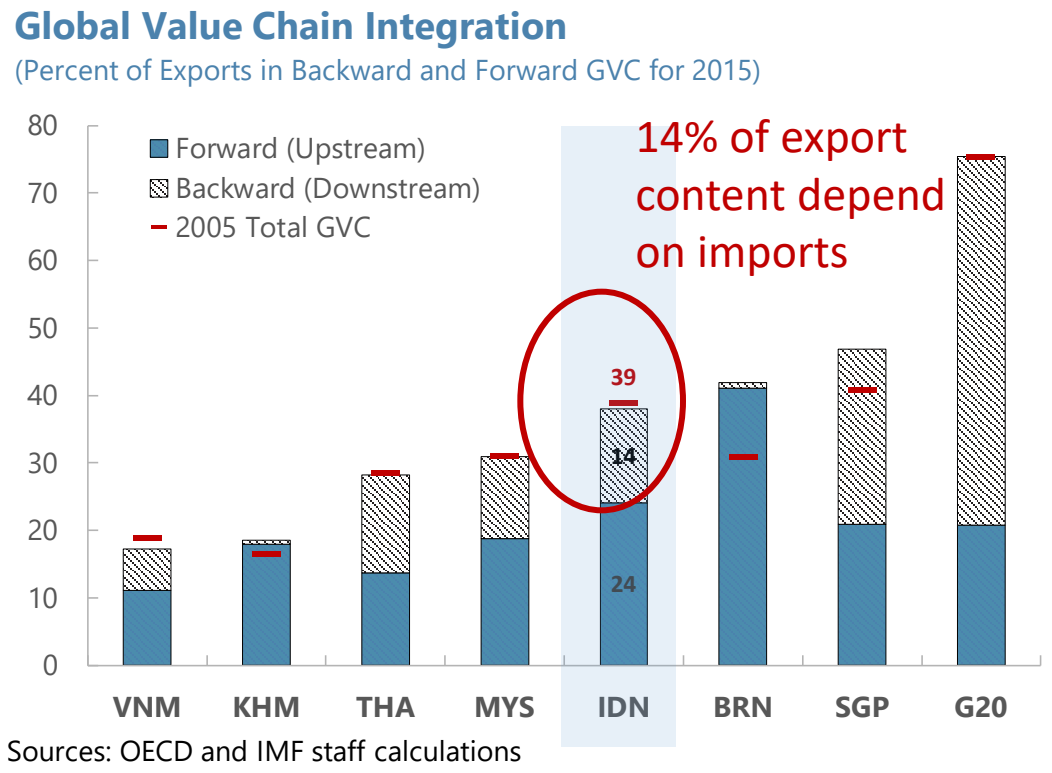
	2011-2014	2015-2018
ToT, NEER	0.67	-0.32
IRD, NEER	-0.65	0.49

Note: ToT refers to Terms of Trade, NEER to Nominal Effective Interest Rates and IRD to the IDN-USA interest rate differential (in bps). All pairwise correlation coefficients are signficant at the 5% level.

Limited pass-through of ER to trade suggests less adjustment capacity

- ***Nature of Shock*:** Literature posits that risk-premium shocks have small effects on the rest of the economy.

- ***Transmission Mechanism:*** Pass-through can vary by the type of price-setting and the structure of international trade markets *– e.g., import-intensive exports show less pass-through.*



Sources: OECD and IMF staff calculations

Data and Methodology

- *Data:* sectoral data from BPS on import and export volume and prices at a monthly frequency. Additional data from BIS, IMF and OECD.

- *Methodology:* Augment the ER pass-through equation with commodity price shocks and account for the asymmetric response to shocks.

$$\underbrace{\Delta mp_{i,c}}_{Import\ Price} = \underbrace{\beta_i^+ \Delta e_c^+ + \beta_i^- \Delta e_c^-}_{Exchange\ Rate} + \gamma_i^+ \underbrace{\Delta c_c^+ + \gamma_i^- \Delta c_c^-}_{Commodity\ Pric} + \underbrace{\rho_q}_{Quarter} + \epsilon_{i,t}$$

- **Aggregation Bias:** Estimating this by pooling all sectors results in a significant downward bias because some sectors experience large price changes, but are relatively more elastic.

Import Price Elasticity to ER

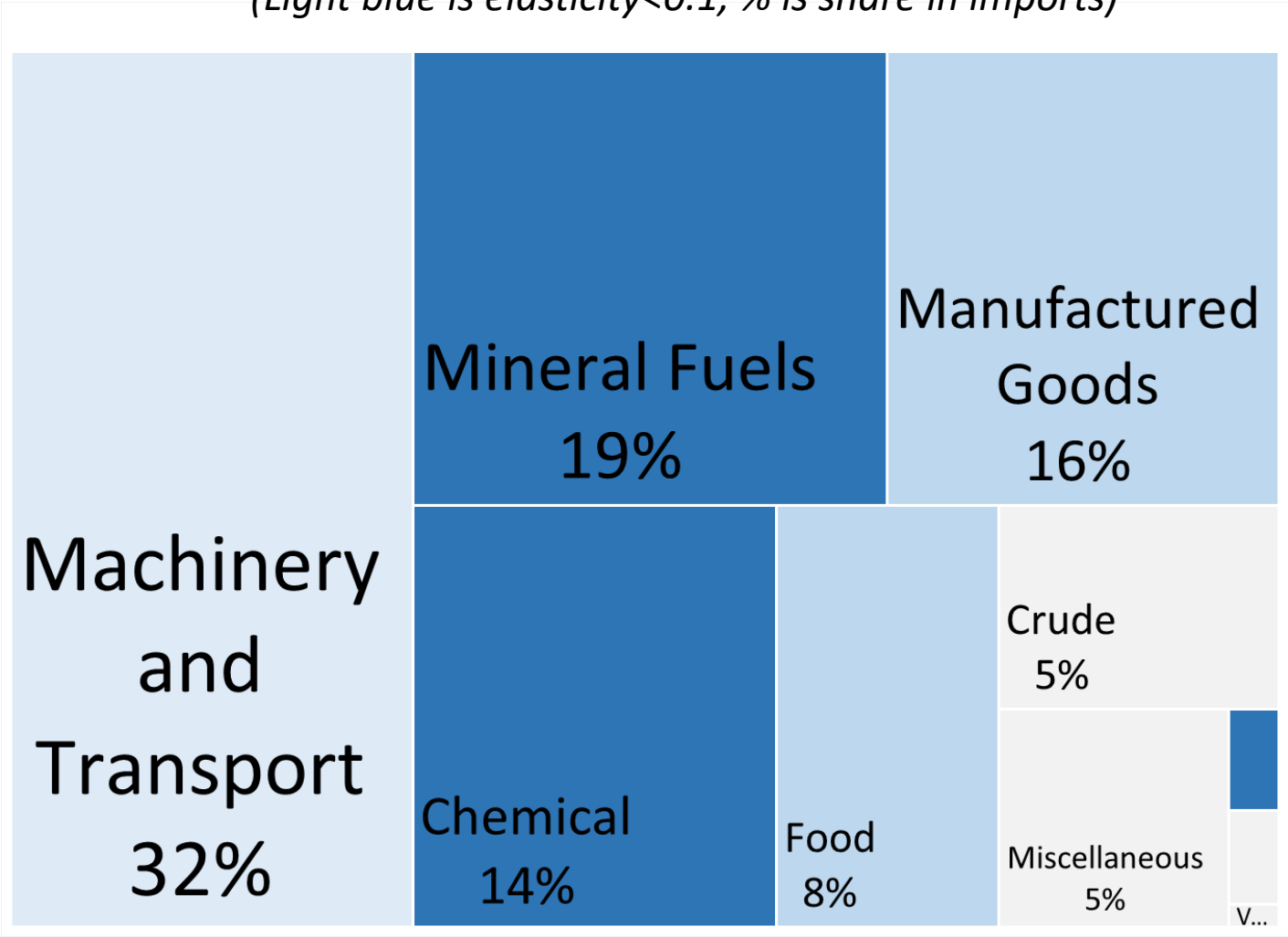
Short Run (6m) Elasticity:
-0.57

ER increase of 10% reduces import price by 5.7% in the short-run

Medium-Run (1y) Elasticity:
-0.70

Sectoral Elasticities

(Light blue is elasticity<0.1, % is share in imports)



Export Price Elasticity to ER

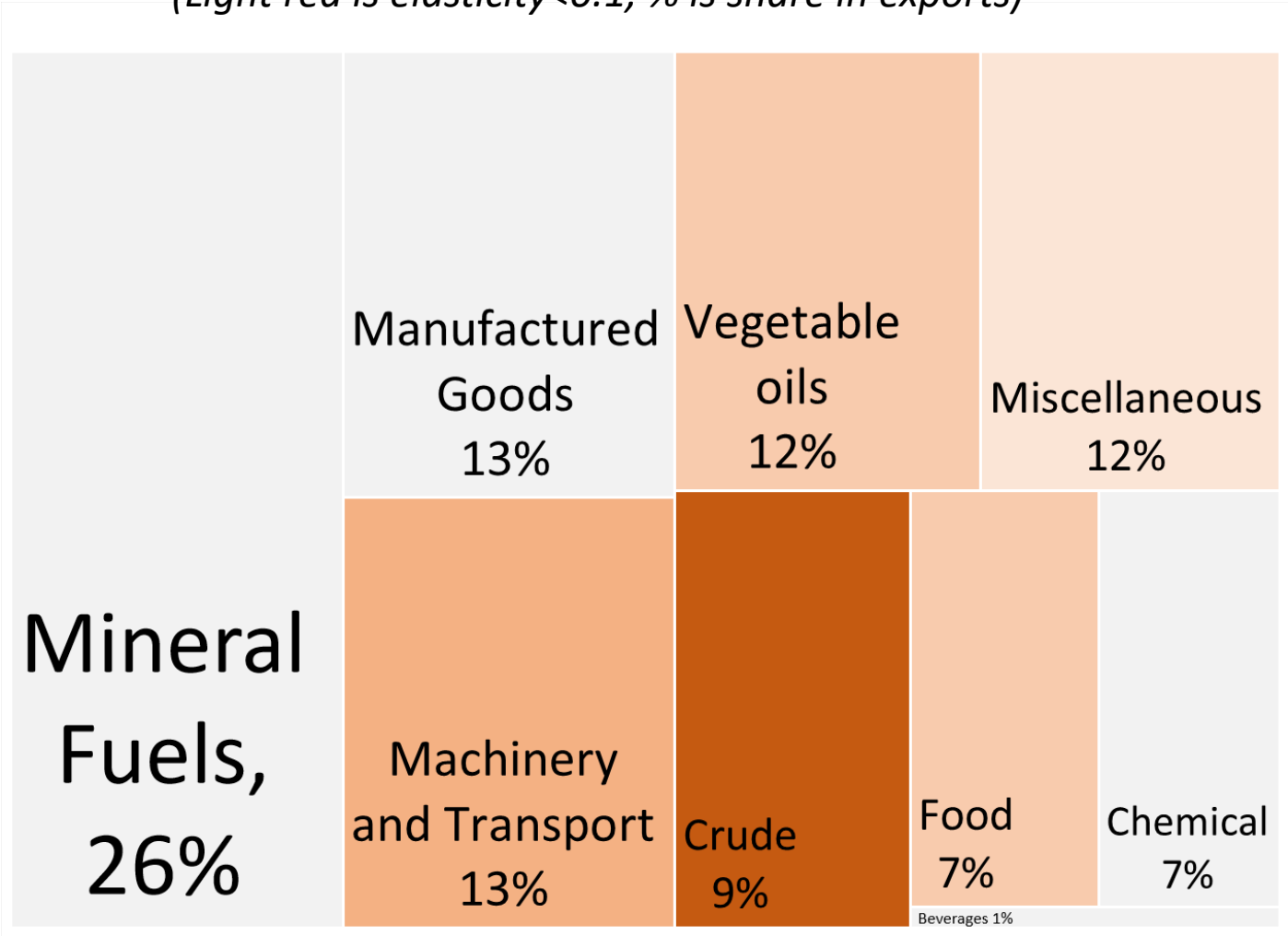
Short Run (6m) Elasticity:
0.44

ER increase of 10% increases export price by 4% in the short-run

Medium-Run (1y) Elasticity:
0.14

Sectoral Elasticities

(Light red is elasticity<0.1, % is share in exports)



Asymmetric Effects: Depreciation vs Appreciation

- **Imports** more responsive to appreciation with a lag (medium-run),
- **Exports** more sensitive to depreciation in the short-run.

	Imports		Exports	
	Appreciation	*Depreciation*	*Appreciation*	*Depreciation*
Short-Run	-0.80	-0.31	0.28	0.61
Medium-Run	-1.01	-0.43	0.09	0.25

Possible Explanations and Conclusion

- *Nature of Shock:* Pass-through effects of trade prices *are weaker* when ER fluctuations are derived *from risk-premium shocks.*

- *Transmission Mechanism:* GVC participation matters;
  - Export-pass through higher for sectors with less dependence on imports.
  - Import pass-through lower for sectors with high shares of re-exported imports.

➢ **Analysis documents heterogeneity in the transmission of exchange rates fluctuation on trade, depending on sectors and type of ER shocks.**

  ➢ *Policy should consider the different driving forces in play that affect the transmission mechanism and extent of adjustment.*