Exchange Rate Valuation and its Impact on the Real Economy

Enzo Cassino and David Oxley
We try to understand the relationship between New Zealand’s exchange rate and the wider economy...

...and review the theoretical and empirical evidence.
Equilibrium

Exchange Rate

Misalignment / Overvaluation

Cycle

Real Exchange Rate

Time
What do we mean by ‘fundamentals’?

- We interpret fundamentals as shocks impacting the equilibrium exchange rate (e.g., export prices, productivity, etc).

- Different definitions of ‘fundamentals’ in different exchange rate models.

- Exchange rate is an asset price - may depend on actual and expected fundamentals.
Real Exchange Rates

June 1999 = 100

Real Trade-Weighted Index
Price of Non-Tradables relative to Tradables
Commodity Prices and Terms of Trade

ANZ commodity price index (world prices)

Goods terms of trade (National Accounts measure, RHS)
Some Possible Explanations

• A shock to fundamentals has impacted the equilibrium real exchange rate, shifting resources from tradables to non-tradables

• A non-fundamental shock has pushed the exchange rate above equilibrium, cutting tradables activity and increasing non-tradables activity

• Exchange rate volatility has had negative impact on activity in the tradables sector

• The stories are not mutually exclusive
The Exchange Rate and the Wider Economy

Exchange Rate Impact on Wider Economy

- Fundamental Shocks
  - Composition of output (Tradables vs Non-Tradables)
- Non-fundamental Shocks
  - Long-run Growth
- Short-term volatility
  - Trade / Welfare
Fundamental shocks and output composition

• The Dependent Economy / Salter-Swan / ‘Australian’ Model

• Real exchange rate \( (P_{NT} / P_T) \) adjusts after shock so supply equals demand for tradables and non-tradables

• Model can be extended by splitting tradables into ‘booming’ sector and ‘lagging’ sector

• Used to study resource commodity booms (especially in Australia)
Fundamental shocks and output composition

• The impact of the resources boom works through two channels –
  – **Spending Effect** (some extra income spent on non-tradables)
  – **Resource Movement Effect** (booming sector pushes up wages in all sectors)

• Net effect: Real exchange rate is higher, non-tradables output uncertain

• Policy response: Allow smooth shift of resources between sectors
Resource Boom effects on Exchange Rate and Non-Tradable Output

Relative Price of Non-Tradables

Non-Tradables Output

D0

S0

A
Resource Boom effects on Exchange Rate and Non-Tradable Output

![Graph showing resource boom effects on exchange rate and non-tradable output](image)
Resource Boom effects on Exchange Rate and Non-Tradable Output

Relative Price of Non-Tradables

Non-Tradables Output
Tradable Industries Output Growth (2004Q1-2012Q3)
Decomposing Tradable GDP

- 'Booming' tradables
- 'Lagging' tradables
- Non tradables
The Exchange Rate and the Wider Economy

Exchange Rate Impact on Wider Economy

- Fundamental Shocks
  - Composition of output (Tradables vs Non-Tradables)
- Non-fundamental Shocks
  - Long-run Growth
- Short-term volatility
  - Trade / Welfare
Exchange Rate and Growth

- Impact on growth could be from ‘Dutch Disease’ effects of fundamental shock or from over-valuation (non-fundamental shock)

- ‘Endogenous’ growth models have a link between exchange rate and long-run growth
  - ‘Learning by Doing’
  - Knowledge spillovers across firms
  - Assumed to be larger in tradables sector
Exchange Rate and Growth – The Evidence

- Exchange Rate Overvaluation – negative effect on growth
- Dutch Disease and Growth – very little work done
- Learning by Doing / Knowledge Spillovers:
  - International evidence very mixed
  - Large, persistent differences in productivity within industries
  - NZ evidence: Higher productivity in exporting firms, but from capital deepening, not from learning by doing
- Policy: If sectoral costs of high exchange rate outweigh benefits, offset upward pressure (eg tighter fiscal stance)
### Estimates of NZ Dollar Misalignment

<table>
<thead>
<tr>
<th>Institution</th>
<th>Measure</th>
<th>Over/Undervalued?</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMF</td>
<td>REER</td>
<td>In range of +10-20%</td>
</tr>
<tr>
<td>Cline &amp; Williamson (Peterson Institute)</td>
<td>vs. USD</td>
<td>+15-20% (approx.)</td>
</tr>
<tr>
<td></td>
<td>vs. GBP</td>
<td>+18% (approx.)</td>
</tr>
<tr>
<td></td>
<td>vs. USD</td>
<td>+20% (approx.)</td>
</tr>
<tr>
<td></td>
<td>vs. EUR</td>
<td>+15% (approx.)</td>
</tr>
<tr>
<td></td>
<td>vs. AUD</td>
<td>+4% (approx.)</td>
</tr>
<tr>
<td></td>
<td>vs. JPY</td>
<td>-11% (approx.)</td>
</tr>
<tr>
<td>RBNZ</td>
<td>TWI</td>
<td>In range of +1-10%</td>
</tr>
</tbody>
</table>
The Exchange Rate and the Wider Economy

Exchange Rate Impact on Wider Economy

- Fundamental Shocks
  - Composition of output (Tradables vs Non-Tradables)

- Non-fundamental Shocks
  - Long-run Growth

- Short-term volatility
  - Trade / Welfare
Short-term Exchange Rate Volatility

- Trade – Theoretical impact depends on ability to hedge risk and other factors

- Welfare – Theoretical impact depends on firms’ pricing behaviour and other assumptions

- The Evidence:
  - Little evidence of negative trade effect from volatility for most developed economies
  - But NZ evidence suggests negative impact on number of exporting firms and exports per firm (Are sunk costs larger?)
• Relationship between exchange rate and real economy depends on the nature of shocks hitting the economy / exchange rate

• Appropriate policy response depends on what is driving exchange rate and trading off costs and benefits (hard to measure)

• Knowledge spillovers may be stronger in tradable industries, but solid evidence is hard to find

• NZ dollar may be above equilibrium, but fundamental shocks may also have played a role in appreciation in recent years

• NZ firms more sensitive to exchange rate volatility than overseas
...but also more questions

- If fundamental shocks played a role in Tradable / Non-Tradable split, what does that mean for rebalancing?

- If tradable / non-tradable split partly due to higher commodity prices, how will this affect NZ’s potential growth?

- Should we try to identify industries where spillovers are strongest, or focus on addressing other issues?

- Do New Zealand firms have sufficient access to financial instruments to hedge exchange rate risk?