L-5 DEALING WITH CAPITAL INFLOWS: THE ROLE OF MACROECONOMIC POLICIES

JVI COURSE ON MACROECONOMIC POLICIES IN TIMES OF HIGH CAPITAL MOBILITY,
JVI, VIENNA, MARCH 21-25, 2016

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Objective

• Internal and external balance
• Effectiveness of fiscal, monetary and exchange rate policies in open economies with high capital mobility
• Macro-policy options in the case of strong inflows
• Some recent regional/country examples
Agenda

- Macro Stability, Internal and External Balance
- Open-Economy Analytical Framework
- Response to Capital Inflows
- Response to Capital Outflows
- Conclusions
Macroeconomic Balance

• *Internal balance* has two indicators:
  - Real output is at or close to full capacity
  - Inflation is low and non-accelerating

• *External balance*: current account position is sustainable and can be financed by capital flows without
  - Sharp adjustment(s) in the exchange rate
  - Restrictions on external trade and payments
  - External debt restructuring
New Challenges for Macro Policy with Financial Openness

- Financial openness brings new challenges for macroeconomic policy - dealing with strong capital inflows that can overheat the economy and place upward pressure on the exchange rate, and also addressing the problems arising from slowdowns, sudden stops, or reversals

- Greater financial openness limits the autonomy of macroeconomic policies, especially on exchange rate and monetary policy, but also on fiscal policy
Quiz 1: In a standard IS-LM model fiscal policy is more effective than monetary policy to increase output

1. Yes, always
2. No, never
3. Yes, with flexible exchange rates
4. Yes, with fixed exchange rates
5. Both policies have the same impact

Total: 100
IS/LM Analytical Framework

• Open-economy IS-LM model (Mundell & Fleming)

• Fixed and floating exchange rate regimes

• High capital mobility
Background Assumptions

• Prices are fixed in the short run
  ➢ Income and interest rates equilibrate aggregate supply and demand
• Supply constraints are not binding
• Fiscal deficits financed with domestic borrowing
• Expectations are ignored
• Changes in official reserves lead to changes in the money supply (no sterilization)
The IS Schedule...

- ...represents pairs of output $Y$ and interest rate $i$ for which the goods market is in equilibrium.

\[
\text{Output} = C(Y) + G + I(i) + X(Y^*,e) - M(Y,e)
\]
The LM Schedule...

• ...represents pairs of output $Y$ and interest rate $i$ for which the money market is in equilibrium, $M^D/P$ are real money balances.

\[ M^D/P = f(Y, i) \]
Properties of the LM Schedule

• The slope of the LM schedule depends on:
  - Interest elasticity of money demand, $M^D$ (high $\rightarrow$ flat LM)
  - Income elasticity of money demand, $M^D$ (high $\rightarrow$ steep LM)

• The position of the LM schedule depends on:
  - Money supply
Closed-Economy IS/LM

“Fiscal” impulse

“Monetary” impulse
The BP Schedule...

- Pairs of output $Y$ and interest rate $i$ for which balance of payments is in equilibrium
  - Balance of payments = current + financial accounts

- BP schedule is upward sloping:
  - Higher $Y$ → CA balance worsens (more imports)
  - Higher $i$ → FIN balance improves (more inflows)

- In equilibrium: if higher $Y$ worsens CA → $i$ goes up to attract foreign capital (FIN surplus)

\[
X(Y^*,e) - M(Y,e) + Y^f + TR^f = \Delta NFA - FIN(i-i^*)
\]
Properties of the BP Schedule

- High capital mobility $\rightarrow$ capital flows sensitive to the interest rate $\rightarrow$ the curve is flatter
  - Below the BP, BoP in a deficit (reserve loss)
  - Above it, BoP in a surplus (reserve accumulation)
IS-LM-BP
“Peg” Scenarios

• When the exchange rate is fixed...
• ...fiscal policy is effective
• ...monetary policy is ineffective
Summary: Output Effect of “Peg” Scenarios: High Capital Mobility

<table>
<thead>
<tr>
<th>Exchange rate regime</th>
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<th>Flexible</th>
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Impossible Trinity or Duality?

Free Capital Mobility

Option 1
(Example: USA, U.K.)

Independent Monetary Policy

increasing capital mobility

Option 3
(Chile 1991-98)

Option 2
(Hong Kong, Euro-zone Members, Argentina 1991-2001)

Fixed Exchange Rate
Fiscal Expansion - Fixed Exchange Rate, High Capital Mobility

• A debt-financed fiscal stimulus ($\Delta G$) shifts IS → $i$, $Y$, and demand for imports up.

• Higher $i$ attracts capital inflows

• Capital inflows → appreciation pressure → intervention and accumulation of reserves → money supply expands ($LM'$)

• An increase in government spending - reinforced by a monetary expansion - expands output at the cost of worse CA
Monetary Expansion; Fixed Exchange Rate, any Mobility

- Monetary expansion $\rightarrow$ interest rates fall $\rightarrow$
- (i) $Y$ up
- (ii) generates capital outflows $\rightarrow$ central bank looses fx reserves
- Increase in domestic assets (NDA) is offset by decline in foreign assets (NFA) $\rightarrow$ monetary policy contracts to defend the peg
- With incomplete capital mobility the impact of reserve outflows can be delayed by sterilization, but reserves are limited.
“Float” Scenarios

• When the exchange rate is flexible...
• ...fiscal policy is ineffective (unless capital mobility is low or the economy is closed)
• ...monetary policy is effective
Output Effect of “Fixed” and “Float” Scenarios: High Capital Mobility

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Fiscal Expansion; Floating ER, High Capital Mobility

- A debt-financed stimulus ($\Delta G$) shifts IS to the right $\to i$ and $Y$ up
- External balance restored through capital inflows and appreciation ($BP \to$ to the left)
- Appreciation contracts demand ($X_{\downarrow}$ and $M_{\uparrow}$) and output $\to$ IS to the left
- Overall impact on output depends on (i) slope of LM schedule; (ii) exchange rate elasticity of Ex/Imp
Monetary Expansion; Floating Exchange Rate any Capital Mobility

• Expansionary monetary policy reduces interest rates which
• (i) Y, net imports up
• (ii) generates capital outflows → the currency depreciates (BP → to the right) → net exports improve (IS → to the right)
• With low capital mobility the outflows are smaller and so is the magnitude of depreciation
Special Case: “The Liquidity Trap” (Perfect Capital Mobility)

Monetary policy is powerless, fiscal policy is very effective
Quick Summary

In this simplified model framework:

• With high capital mobility, expansionary fiscal policy is very effective under peg, but less under float
• Independent monetary policy inconsistent with fixed exchange rates and open capital account (“impossible trinity”)
• With high capital mobility, under float expansionary monetary policy very effective. Expansionary monetary policy depreciates the exchange rate
• Expansionary fiscal policy deteriorates the current account
• Expansionary monetary policy improves the current account
Impossible Trinity or Duality - Trilemma or Dilemma

• Global capital flows, for example driven by monetary policy in the US, imply that even a floating exchange rate does not give a country autonomy in its monetary policy.

• The trilemma (or the “impossible trinity” of fixed exchange rates, free capital flows and independent monetary policy, seems to be a dilemma, which means that flexible exchange rates do not free monetary policy.

• Whenever capital is freely mobile, the global financial cycle constrains national monetary policies regardless of the exchange rate regime.

See Werner Flassbeck, [http://www.flassbeck-economics.de/trilemma-or-dilemma-impossible-trinity-or-impossible-duality/](http://www.flassbeck-economics.de/trilemma-or-dilemma-impossible-trinity-or-impossible-duality/)

Hélène Rey Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence
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Quiz 2: To work towards reducing strong capital inflows and appreciation pressure of the domestic currency, the authorities could

1. Loosen fiscal policy
2. Tighten fiscal policy
3. Sell foreign exchange reserves
4. Increase interest rates
5. 1 and 3
6. 2 and 3

Total: 120
Capital Inflows and Appropriate Macro Policy Mix

• Macro-policy tools
  ➢ Fiscal, monetary, and exchange rate policy, foreign exchange intervention

• Appropriate policy mix depends on
  ➢ State of the economy (how close to potential)
  ➢ The level of reserves (is further accumulation desirable/appropriate)
  ➢ The quality of existing prudential measures (can prudential tools handle asset price/credit cycle and boom/bust developments)
  ➢ Likely persistence of inflows
The Policy Toolkit

Source: Ostry et al. (2010)
Coping with Surges of Inflows

Focus on macroeconomic considerations

Ostry et al., 2010, Capital Inflows: The Role of Controls, IMF Staff Position Note, 10/04.
Alternative Exchange Rate Responses to Strong Capital Inflows (Flexible Ex. Rates)

• Is exchange rate undervalued, overvalued or broadly appropriate?
• Allow appreciation of exchange rate?
• Advantages:
  ➢ Insulates money supply, especially important if flows reversible and financial sector not robust
  ➢ Introduces uncertainty that can discourage short-term flows
• Disadvantages:
  ➢ Competitiveness of exports may suffer
  ➢ Volatility in the exchange rate may hurt tradable sector especially if hedging products are not available
Reserve Accumulation

• Resist change in nominal exchange rate? Is reserve accumulation desirable? Assessment of current level of reserves

• Effects of ↑Capital inflow → pressure on ↑ER

• To prevent ↑ER, central bank intervenes

• Are there no inflationary concerns? CB intervention → ↑monetary base → ↑broad money → ↑AD → ↑prices

• Are there inflationary concerns? Consider sterilization
Sterilizing the Impact of FX-Market Intervention

This can be achieved through

- Sales of CB bills
- Sales of government obligations from the CB portfolio (T-bills, T-bonds)
- Increasing reserve requirements

The cost of the sterilization may fall on the central bank, the government, or the banking system (if required reserves are not remunerated).

The net fiscal (quasi-fiscal) effect is the difference of return paid on domestic reserves and return on increased holdings of foreign reserves.
Sterilized Interventions

- Central Bank sells $100 for its FOREX reserves and wants to keep the banking system reserves unchanged.

<table>
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<tr>
<th>Central Bank Asset</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>FX reserves</td>
<td>ΔReserves</td>
</tr>
<tr>
<td>Domestic paper</td>
<td>0</td>
</tr>
<tr>
<td>-$100*s</td>
<td></td>
</tr>
<tr>
<td>+$100*s</td>
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Note: $s$ - the level of the exchange rate
Sterilizing the Impact of Intervention: Temporary vs. Permanent Inflows

- Limiting appreciation by intervention and sterilization is regarded as more appropriate for temporary inflows rather than permanent high levels of inflows.

  - The associated fiscal or quasi-fiscal costs may be high and difficult to carry for a long time.
  - The higher level of interest rates may attract additional inflows.
Monetary Policy Responses to Capital Inflows (No Reserve Accumulation)

Under flexible ER arrangement

• The policy rate could possibly be lowered (if output gap permits and if no inflationary concerns)
  ➢ Is this always a right move? (i.e., what may happen to the domestic stock market? Demand for credit?)

• No scope to lower policy rate, if economy is overheated and strong inflationary pressures. Let nominal exchange rate appreciate
  ➢ Domestic reserve money/money supply do not increase and (additional) inflationary pressures are therefore limited
  ➢ Avoid even higher inflows on the back of expected high-scale appreciation, smoother adjustment
  ➢ The presence of exchange rate volatility may limit speculative inflows that help build balance sheet mismatches
Example: Changes in the ERs and Reserves in EMEs During 2009-10

Source: Ostry et al. (2011), Managing Capital Inflows: Which Tools to Use?, IMF Staff Discussion Note 11/06.
Fiscal Policy Response to Capital Flows

Compared to monetary response, fiscal tightening has the advantage that it both:

• Lowers interest rates, discouraging portfolio flows to interest rate instruments (i.e., govt. bonds)
• Reduces aggregate demand

In overheating and with high current account deficit, fiscal restraint can be an effective option.
Fiscal Policy Response: Expenditure Restraint

- Reduces RER appreciation pressure
- Easier to manage as a part of counter-cyclical policy if fiscal rules are in place
- But...
  - Implementation lags may be long (i.e., if no rules are in place)
  - Economic and electoral cycles may conflict
  - Does not work well with large CA surpluses
  - May improve credibility, reduce country premium and attract even more inflows
Example: Response in Emerging Asia

- Most country authorities in Emerging Asia have addressed large capital inflows by relying mostly on reserve accumulation, and to a lesser extent on currency appreciation.

- After Lehman Brother’s collapse currencies across the region depreciated significantly, but in many cases bounced back rapidly with the onset of recoveries and capital inflows.

- Similarly reserves fell first sharply as central banks used reserves to buffer the exchange rate effect, but reserves recovered quickly following the resumption of inflows and fx intervention.

Change in Net Capital Flows, Exchange Rate Appreciation, and Reserve Accumulation

Examples: Selected Non-Asian Emerging Markets

- Brazil, South Africa, and Turkey faced waves of inflows in 2010
- Portfolio flows account for about 60 percent of all gross inflows in these three countries
- Three countries faced somewhat different cyclical positions in 2010
  - Brazil: highest growth rate in decade
  - Turkey: strong growth, but cyclical position less advanced
  - South Africa: large unemployment

Brazil: Policy Response and Recommendations

• Strong capital flows had exacerbated exchange rate pressures

• The authorities have used a combination of tools, including allowing the flexible exchange rate to appreciate, intervention in the foreign exchange market, macroeconomic policies (some fiscal tightening), and capital flow measures (CFMs)

• Higher savings (including pension reform) would help lower interest rates and the exchange rate

• Capital inflow measures, including a financial operations tax on capital inflows with varying scope and rates, have arguably provided some temporary breathing space

Source: IMF Country report (12/191)
South Africa: Policy Response and Recommendations

• The rand was assessed as overvalued, policy interest rates at historical lows, reserves were on the low side

• Keep exchange rate flexibility and continue building reserves in the near term

• Gradually recalibrate the fiscal-monetary policy mix over the medium term
  ➢ Tighten fiscal stance
  ➢ Delayed start of tightening monetary policy, while inflation expectations are within target band

• Gradual liberalization of capital outflow controls on residents since 2009

• No capital inflow management measures added to toolkit at this stage

Sources: IMF South Africa Country reports 12/247, see also 10/296 and 11/258.
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Capital Outflows

- Capital outflows that are large, sustained, or sudden can pose significant policy challenges
  - Natural consequence of openness
  - Can become disruptive - outflows can be driven by global risk appetite, interest rates, global growth, domestic developments, contagion

- Disruptive outflows can lead to financing constraints, currency collapse, financial system stress, output loss
Examples of Capital Outflows

- Argentina 2001-2002 (unsustainable macroeconomic policies)
- Iceland 2008 (collapse of the banking system in the early stages of the global financial crisis)
- Ukraine 2008 (banking and currency crises, deepened by insufficient adjustment)
- Russia (beginning of the global financial crisis)
- Pressure on outflows, announcement of US tapering
- Emerging Markets in 2015

Macroeconomic policies possibly to be supplemented by capital flow measures
Capital Flows to Emerging Markets

Institute for International Finance (IIF), 2016, Capital Flows to Emerging Markets
Outflows, Falling Reserves, and Depreciating Exchange Rates

Institute for International Finance (IIF), 2016, Capital Flows to Emerging Markets.
Addressing Outflows

- Without immediate threat of a crisis, there would usually be scope to adjust macroeconomic and financial sector policies to address the implications.

- Discuss role and scope of
  - Monetary policy
  - Fiscal policy
  - Exchange rate policy

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Summary

• Macroeconomic policy tools are fiscal, monetary, exchange rate policy and foreign exchange intervention

• Appropriate macroeconomic policy response depends on several factors, including institutional characteristics/initial conditions (e.g., type of exchange rate regime, level of reserves etc.), state of the economy and market expectations

• Macro-policy tools, though key, are part of a more comprehensive toolkit, including macro-and micro-prudential tools and eventually temporary capital controls
Managing Capital Inflow Surges: Monetary Policy and Exchange Rate Response

- Exchange rate overvalued
- Lower rates / Intervene
- Intervene and Sterilize
- Appreciate / Intervene and Sterilize
- Appreciate / Lower rates
- Reserves adequate
- Economy’s overheating

Selected Readings


