Conventional Versus Unconventional Monetary Policy

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“Conventional” Monetary Policy

As we have seen, the traditional analysis monetary policy:

• Assumes a single instrument, such as the Federal Funds rate
• Focuses on traditional goals, mainly inflation and output/employment

➔ In advanced economies, however, *conventional* policy has exhausted during the *global crisis*
USA: Real Estate Price Index
(S&P/Case-Shiller 20 City Composite Index)
Source: MacroMarkets
TED Spread (LIBOR Versus T-Bill, percentage points)
US: GDP Growth (% last 12 months)

Source: FRED, St. Louis Fed
US: Federal Funds Rate (Percentage)

Source: FRED, St. Louis Fed
US: Federal Funds Rate

Source: FRED, St. Louis Fed
Unconventional Monetary Tools
“Despite the easing of monetary policy, dysfunction in credit markets continued to worsen...in the latter part of 2008 and early 2009, the Federal Reserve took extraordinary steps to provide liquidity and support credit market functioning...These actions...helped stabilize global financial markets, which in turn served to check the deterioration in the real economy and the emergence of deflationary pressures.”
The Central Bank Balance Sheet: Main Items

**Assets**
- Foreign Exchange Reserves
- Securities:
  - Government Debt versus Private Sector Securities
  - Short Term versus Long Term

**Liabilities**
- Currency in Circulation
- Deposits of Banks (Bank Reserves)
Quantitative Easing

• Generally, QE refers to the central bank’s purchases of assets matched by an increase in bank reserves

• Hence QE is expressed in an overall expansion of the balance sheet
Credit Easing

• The central bank can also change the composition of its portfolio:

  - Towards longer *maturities*
  - Taking *more risk* (i.e. acquiring private sector debt)
Federal Reserve: Securities Held (Billions US$)

Source: Board of Governors, FRED
Does Unconventional Policy Work?

• Bernanke (2012) cited evidence that large scale asset purchases (LSAP) lowered long term rates on Treasury bills, and yields on corporate bonds and MBS

• Evidence is scant, however

• The US has (finally) recovered from the global crisis, but Europe has not, in spite of renewed QE efforts
Emergency Liquidity Programs
(Billions of US$)
Figure 4.1 A broken transmission: the Fed’s extraordinary interventions did little to change private credit market interest rates in 2008–2009
Feenstra and Taylor: International Macroeconomics, Second Edition
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Bank Reserves

Cash in Circulation

Federal Reserve Liabilities
(Millions US$)
Unconventional Policies and Developing Countries
Unconventional Policies: Different Perspectives

• As we have seen, unconventional policies in advanced economies became necessary because of the *zero lower bound* to policy rates.

• The ZLB, however, has not been a major constraint for many emerging countries.
Financial Frictions, Again

• It is well known that unconventional policies such as QE and CE are *irrelevant* if financial markets are perfect

• Consequence of “Ricardian Equivalence”

• The Basic NK Model, in fact, assumes perfect financial markets

• The assumption of perfect financial markets is unrealistic for developing countries
Other Relevant Aspects of Developing Economies

• Liquidity in *foreign currency* is often substantial

• The exchange rate plays a key role
A Model for Emerging Economies

• A recent model: Céspedes, Chang, and Velasco (2015)

• Small open economy with a financial intermediation sector
Households and Demand

- Households consume an aggregate of imports and a domestic good

- Imports are freely traded and have a fixed dollar price (normalized to one)
Demand for domestic good is given by:

\[ y_t = \alpha e_t^{1-\alpha} e^{c_t} + x e_t^\chi \]

where \( e_t \) is the real exchange rate (units of home output per dollar, so an increase is a real depreciation)

Also, \( e_t^{1-\alpha} \) is the relative price of home consumption
Rest of World

Equity $k_t \leq \tilde{k}$

Foreign loan $d(t) \leq \theta k(t)$, World Interest rate $1+\rho$

Banks

Domestic loan $l(t) = d(t) + k(t)$

Loan Rate $1+\varrho(t)$

Households

Financial Intermediation
• Banks will lend to domestic households an amount limited by its equity

\[ l_t \leq (1 + \theta)k_t \]

• Note that there is leverage

• The previous constraint binds (holds with equality) if the loan rate exceeds the world interest rate, i.e. \( \varrho_t > \rho \)
Equilibrium

The crucial aspect of this economy is the external balance condition:

\[ (1 - \alpha)e_t^{-\alpha}c_t - [z + xe_t^{\chi-1}] = d_t - (1 + \rho)d_{t-1} \]

together with the debt limit:

\[
0 \leq d_t \leq \theta \tilde{k} \quad \text{if} \quad \varrho_t = \rho \\

\]

\[ d_t = \theta \tilde{k} \quad \text{if} \quad \varrho_t > \rho \]

• Note that the model determines the *spread* between the loan rate and the world interest rate

• This is a key feature of many models with financial frictions (see e.g. Woodford 2010)
Conventional Monetary Policy

- For concreteness, suppose that (starting from steady state) there is a temporary fall of the endowment $z$ to $z' < z$

- The external balance constraint in the period of the shock becomes

\[(1 - \alpha)e^{-\alpha}c - (xe^{\chi^{-1}} + z) = z' - z < 0\]
(1 - α)e^{-αc} - (xe^{χ-1} + z) = z' - z < 0

• Because of the financial constraints, the whole adjustment takes place within the current period (a sudden stop)
• The adjustment requires either a contraction in demand (fall in $c$) or a steep real depreciation (increase in $e$)
• Monetary policy determines how the adjustment is split between quantities and prices
External Balance: An Adverse Shock
Adjustment With Flexible Prices
Adjustment Under Nominal Rigidities: Exchange Rate Peg
Adjustment Under Nominal Rigidities: Interest Peg

\[ c = c_{bar} \]
Unconventional Policies

• Assume that the central bank initially has $f > 0$ dollars as “foreign exchange reserves”

→ How is $f$ most efficiently used?
Direct Lending

• Suppose the central bank lends $0 \leq l_t^g \leq f$ directly to households.
• Then the *only* change in the equilibrium conditions is the external balance constraint:

\[
(1 - \alpha)e_t^{1-\alpha}c_t - e_t(d_t + l_t^g) \\
= -e_t(1 + \rho)(d_{t-1} + l_{t-1}^g) + xe_t^\chi + e_t(z + \rho f)
\]
Implications

1. Direct lending in period $t$ matters *if and only if* financial constraints bind

2. It is the *change* in $l^g_t$ which matters

3. *Limit* to this policy: initial amount of international reserves ($l^g_t - l^g_{t-1} \leq f - l^g_{t-1} = \text{international reserves in period } t$)
Liquidity Facilities

• Central bank lends to financial intermediaries

• The debt limit of banks is now assumed to be:

\[ d_t \leq \theta k_t + \phi d_t^g \]

• This implies that lending is limited by

\[ l_t \leq (1 + \theta)k_t + (1 + \phi)d_t^g \]
Implications

• As with direct lending, lending to banks is irrelevant if and only if financial constraints bind

• However, lending to banks is more effective than lending to households

• Intuition: leverage
Other Special Cases

• CCV: *equity injections* and *sterilized foreign exchange intervention operations* are equivalent to one of the previous operations

→ Equity injections and FX intervention affect equilibrium only if financial frictions bind

→ The impact of FX intervention, in such a case, depends on the *sterilization credit*
Summary and Takeaway

1. Endogenous Spread
2. Amplification of Shocks and Sudden Stops
3. The external balance condition emerges as the main driver of the adjustment process
4. Unconventional policies affect equilibria if and only if financial constraints bind
5. Unconventional policies can be very effective but are feasible only if FX reserves are sufficient
Remarks on Capital Controls
The Trilemma

• In our discussion, we have assumed that the government does not interfere with cross border capital flows

• In that case, the *trilemma* states that a main choice is between fixed exchange rates and monetary independence (with flexible rates)
Trilemma: You Can Have Only Two of the Three!
Dilemma, not Trilemma?

• Rey (2013) has emphasized the existence of a *global financial cycle*: capital flows are mostly driven by events in center countries, especially monetary policy in US

• Hence, Rey argues, free capital mobility jeopardizes monetary independence as well
• A global financial cycle that complicates monetary management does not imply, however, that flexible exchange rates do not enhance monetary independence

• Some evidence: Klein and Shambaugh (2013)
Figure 3: scatters of change in own interest rate and change in base interest rate across samples

Open pegs

closed pegs

Source: Klein and Shambaugh, NBER WP 1961, 2013
Open non pegs

Source: Klein and Shambaugh, NBER WP 1961, 2013
• Regardless of this particular debate, capital controls seem to have gained more acceptance as an addition to the policy toolbox.

• This has been the case especially in practice, e.g. Latin America