Lecture 26: Recent Macroeconomics of China

1. Sterilization of reserve inflows, 2004-06
2. Overheating, 2007-08
3. GFC & fiscal response, 2009-10
4. The Swan Diagram, applied
5. Monetary tightening, 2010-11
7. The end of undervaluation, 2012-14
8. Current troubles, 2015-16

Appendices
(i) Chinese growth slowdown
(ii) Macro-prudential policy
1. Sterilization of reserve inflows, 2004-06
(continued from end of Lecture 9)

- Reserve accumulation

- Initially successful sterilization
  - Declines in NDA
  - Increases in reserve requirements
Recall that China ran large BoP surpluses after 2003.

\[ BP \equiv \frac{dR}{dt} \gg 0 \]
The People’s Bank of China sold sterilization bills, taking cash RMB out of circulation ($d\text{NDA}/dt < 0$) and so counteracted increases in Net Foreign Reserves.

Source: Zhang, 2011, Fig.7, p.47.
The sterilization shows up as a steadily rising share of foreign reserves (vs. domestic assets) in the holdings of the People’s Bank of China.
Another tool: The PBoC raised banks’ required reserve ratios, thus sterilizing in the broad sense of slowing M1, even if M Base grew rapidly.

Source: Zhang, 2011, Fig.6, p.46.
(2) 2007-08: Sterilization faltered

(i) PBoC began to have to pay higher domestic interest rates
   – and to receive lower interest rate on US T bills
   – => “quasi-fiscal deficit” or “negative carry.”

(ii) Money growth accelerated.

(iii) The economy overheated.
(i) “Cost of carry”: By 2008 the cost of domestic funds exceeded the interest rate the PBoC was earning on its foreign reserves (US Treasury bills).

Figure 2. China SHIBOR (Shanghai Interbank Offered Rate) vs. U.S. three-month Treasury bills rate. The grey area indicates the Great Recession period in the United States.

Sterilization eventually faltered, continued

(ii) Money accelerated sharply in 2007-08.
(iii) Signs of overheating in 2007-08:

a. Real growth $> 10$
   probably $> $ potential.

b. Inflation became a serious problem.

c. Also a “bubble” in the Shanghai stock market.
(a) Real growth > 10% in 2007-08
(b) China’s CPI accelerated in 2007-08.
(c) Apparent 2007-08 bubble in China’s stock market

Data from EconStatsTM, Reuters, and major online news outlets such as the BBC & NYT.

- The global recession hit in 2008, 4th quarter,
  – originating in the “North Atlantic financial crisis.”
  – It cut China’s exports by 1/4.
- Growth and inflation fell sharply.
- The government responded with a big counter-cyclical fiscal stimulus in 2009.
- The economy returned to rapid growth in 2010,
  – even to excess demand in 2011.
China was hit by the 2009 global recession.
Chinese government investment spending in 2009 counteracted the recession.

A rise in public investment offset the loss of export demand in 2009.
China’s inflation broke sharply in 2009, but took off again in 2011.
China’s position in the Swan Diagram in 2008 showed a large TB surplus plus overheating. It called for appreciation.
China’s position in 2009: Hit by global recession.
The government responded by increasing spending.
5. Monetary tightening, 2010-11

Overheating resumed in 2010. Besides general inflation, it showed up in rapidly rising land prices.

Real Beijing land prices
China in 2010 resumed raising reserve requirements in a renewed attempt to rein in M1 growth.
China tightened monetary policy in 2011, as it had in 2007: raising interest rates & reserve requirements.
Chinese inflation, once again, began to ease off after 2011.
Chinese inflation fell in 2012, as it had in 2008-09.
Besides tightening monetary policy in 2011, China also tightened macroprudential policies, particularly in housing finance: Loan-to-Value and Debt-Service-to-Income limits.

Fig. 3, Kenneth Kuttner & Ilhyock Shim, “Can non-interest rate policies stabilize housing markets? Evidence from a panel of 57 economies,” NBER WP 19723, 2013.
Housing prices came down in 2012, but had yet another cycle in 2013-14.


6. Exchange Rate Policy, 2005-11

As of 2005-2008, there were several good reasons to allow RMB appreciation, leaving aside US pressure.

i. External balance: Reserves were increasing rapidly
   – to levels high enough for precautionary purposes.
   – Sterilization would become more difficult.

ii. Internal balance: The economy was overheating.

iii. Currency regime: A country as large as China should have a flexible exchange rate.
   – Better to exit the peg in good times than in crisis.

iv. PPP: The RMB was “undervalued” by the price criterion
   – even taking into account China’s GDP/cap (Balassa-Samuelson).

Undervaluation of RMB for 2005 averaging across 4 such estimates = 31%.

Compare to estimate for 2000 (Frankel 2005): 36%.
Or, as recently as 2009 (Chang 2012): 25%.
The RMB (2006-11) was allowed to rise against the $, though it returned to a peg in mid-2008.
CNY Index, 2005M06=1

Appreciation vs. currency index, nominal & real, 2005-11

Real value of CNY

Value of CNY
7. The end of undervaluation? 2011-14

• Various measures suggest that China achieved much of the needed adjustment between 2009 and 2014:
  
• Substantial real appreciation of the RMB brought it closer to equilibrium.
  – Some nominal appreciation &
  – Some price inflation and, especially, wage increases.

• Its current account surplus peaked in 2008
  – > 10% of GDP
  – and then narrowed dramatically, to <2% in 2013.
Adjustment of relative prices

• The famous “China price”:
  – Ever since China rejoined the world economy 3 decades ago, its trading partners have been snapping up exports of manufacturing goods,
  – because low Chinese wages made them super-competitive on world markets.

• But relative prices adjusted
  – following the laws of market economics.
The change in relative prices is reflected as real exchange rate appreciation.

– This comprises, in part, nominal appreciation
– and, in part, Chinese inflation.
– Government officials might have been better advised to let more of the real appreciation take the form of nominal appreciation ($ per RMB).
– But since they didn’t, it showed up as inflation instead.
A trend of real appreciation since 2005

Dooley, Folkerts-Landau, Garber (2014)
China’s trade surplus peaked in 2007, and then fell.

China runs a deficit in primary products, offset by a surplus in manufactures.
China’s trade balance

The bilateral surplus with the United States is as big as ever – which has no economic importance, but is politically sensitive.
The natural adjustment process was delayed.

• 1\textsuperscript{st}, because the authorities intervened to keep the exchange virtually fixed against the dollar, in the years 1995-2005 and 2008-2010.

• 2\textsuperscript{nd}, wages had not fully adjusted to (rising) marginal product of labor in coastal factories
  – surplus labor in countryside (A.Lewis, 1954)
  – impediments to migration (hukou system).

• China continued to undersell the world.
But prices eventually adjusted.

• Labor shortages began to appear => China’s urban workers won rapid wage hikes.

• Meanwhile another cost of business, land prices, rose even more rapidly.

• The yuan was finally allowed to appreciate against the $ during 2005-08 & 2010-11, by 25% cumulatively
  • =17% + 8%.
Chinese wages rose
In response to rising wages, some labor-intensive manufacturing has moved out of China.

Source: Noel Maurer, April 2013

**Chart 1: Mexico has overturned China's hourly wages**

- **Source:** BofA Merrill Lynch Global Research, Banxico, INEGI, International Labor Organization, China NBS
  - Own estimates for China since 2009 and for Mexico in 2013

**Mexican employment is rising**

Source: Noel Maurer, April 2013
In 2014, the ICP released new absolute price data.

“Is the Renminbi Still Undervalued? Not According to New PPP Estimates”
M. Kessler & A. Subramanian, PIIE, May 2014

<table>
<thead>
<tr>
<th>Benchmark years</th>
<th>GDP per capita (in PPP dollars)</th>
<th>RMB undervaluation (percent)</th>
</tr>
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<tbody>
<tr>
<td>2005</td>
<td>4,802</td>
<td>-34.5</td>
</tr>
<tr>
<td>2011</td>
<td>10,057</td>
<td>-9.7</td>
</tr>
</tbody>
</table>
5 types of adjustment are gradually reallocating resources in response to the new high level of costs in the factories of China’s coastal provinces:

- **1st**, some manufacturing is migrating inland,
  - where wages & land prices are still relatively low.

- **2nd**, export operations are shifting to Vietnam or Bangladesh
  - where wages are lower still.

- **3rd**, Chinese companies are beginning to automate,
  - substituting capital for labor.

- **4th**, they are moving into more sophisticated products,
  - following the path blazed earlier by Japan, Korea, & other Asian tigers
    - in the “flying geese” formation.

- **5th**, multinational companies that had in the past moved some stages of their production process to China, out of the US or other high-wage countries, are now moving back.
American politicians find it hard to let go of the syllogism that seemed so unassailable just a decade ago:
– (1) The Chinese have joined the world economy;
– (2) their wages are $0.50 an hour;
– (3) there are a billion of them, and so
– (4) their exports will rise without limit:
  “Chinese wages will never be bid up in line with the usual textbook laws of economics because the supply labor is infinitely elastic.”

But it turns out that the laws of economics do eventually apply after all -- even in China.
Expansion of the services sector.

This 6th dimension of adjustment still lags behind,

- despite the consensus in favor of it.
- China has had great success in manufacturing
  - especially via exports and investment.
- Now it needs to help the other side of the economy catch up: services, via domestic consumptions
  - Retail, education, environmental quality,
  - health care, pensions, social safety net.
- This was agreed at the Third Plenum in 2013
  - But it has not all been carried out.
8. Current troubles

In 2014-15, growth slowed substantially, probably below the official 7%.

One-year benchmark lending rate

Source: People’s Bank of China
THE WALL STREET JOURNAL.
Monetary stimulus helped feed a stock market bubble, Nov. 2014-June 2016...

...which then abruptly reversed.
American politicians never got the memo, but:

Chinese foreign exchange reserves have been falling since June 2014.

Through March 2016

DATA SOURCE: PEOPLE’S BANK OF CHINA, via TRADINGECONOMICS.COM
End of last lecture
Appendices

i. Is China’s current slowdown a new trend?
   – If so, is it a middle-income growth trap?

ii. Countercyclical use of macro-prudential policies by China & some other Asian countries.
35 years of strong Chinese growth

China’s GDP
% increase on a year earlier

Sources: Haver Analytics; National Bureau of Statistics
Appendix (i): Transition to slower growth path

- Growth in 2014-15 is slowing down to about 7% (officially)
  - Convergence (K/L ratio, urban migration, technical catch-up, ...)
  - Middle-income trap? e.g., Eichengreen, Park & Shin (2012)
  - Regression to the mean: Pritchett & Summers (2014)

- Transition with hard-landing or soft-landing?
  - Debt
    - Leverage becomes unsustainable when growth slows.
    - Bad loans in the shadow banking system.
  - Some needed reforms & the Third Plenum of 2013 (18th Party Congress)
    - Rural land rights and hukou system
    - Market orientation
    - Environment
  - The need to shift composition of GDP
    - From Investment and Net Exports, to Consumption
    - From Manufacturing to Services
“Is there a middle-income growth trap?”

“Formal evidence on growth slowdowns and middle-income traps has suggested that at per capita incomes of about US$16,700 in 2005 constant international prices, the growth rate of per capita GDP typically slows from 5.6 to 2.1%.

Using regression and standard growth accounting techniques, recent analysis (Eichengreen, Park, and Shin 2011) suggests that growth slowdowns are essentially productivity growth slowdowns.

Pritchett & Summers (2014): Regression to the mean fits the data better than middle-income trap

**Potential Future Growth Trajectories for China**

- **Consensus forecasts (7% growth)**
- **Authors’ calculations (3.89%)**
- **Full regression to mean (2%)**

GDP in 2013 = $8,939bn

Sources: Penn World Tables, projections based on authors’ regression analysis

“Asiaphoria Meets Regression to the Mean,” NBER WP No. 20573, Lant Pritchett and Lawrence Summers
Appendix (ii):
Macro-prudential policies in Asia

Specific examples of macro-prudential policies

• Banks: reserve requirements
  – E.g., higher on fx liabilities than domestic.

• Stock market: Margin requirements

• Housing market:
  • Maximum Loan/value ratio
  • Maximum Debt service/income ratio
  • Prohibition on foreign-currency mortgages

• A surprising possible conclusion – Emerging Market countries are successfully applying these tools in a counter-cyclical manner more than are the US and other advanced countries.
Federico, Végh & Vuletin (2014) find that developing countries use reserve requirements counter-cyclically far more than advanced countries do.
The PBoC tightens money by raising reserve ratios and also raising lending rates while continuing to underpay depositors:

“financial repression”

You would not guess it from the commentary, but:

China’s stock market regulator raised margin requirements during the 2015 bubble, in January & April and on June 12.
Asia-Pacific & other EM countries take macro-prudential actions more often than advanced countries do -- Kuttner & Shim (2015)

<table>
<thead>
<tr>
<th>Policy actions by type and region</th>
<th>Table 1</th>
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<tbody>
<tr>
<td></td>
<td>Asia-Pacific</td>
</tr>
<tr>
<td></td>
<td>(15)</td>
</tr>
<tr>
<td>Reserve requirement</td>
<td>201 7.5</td>
</tr>
<tr>
<td>Credit growth</td>
<td>9 0.3</td>
</tr>
<tr>
<td>Liquidity</td>
<td>30 1.1</td>
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<tr>
<td>General credit total</td>
<td>240 9.0</td>
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<tr>
<td>LTV</td>
<td>56 2.1</td>
</tr>
<tr>
<td>DSTI</td>
<td>20 0.7</td>
</tr>
<tr>
<td>Risk-weighting</td>
<td>14 0.5</td>
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<tr>
<td>Provisioning</td>
<td>16 0.6</td>
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<tr>
<td>Exposure limits</td>
<td>11 0.4</td>
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<tr>
<td>Targeted credit total</td>
<td>117 4.4</td>
</tr>
<tr>
<td>Housing-related tax</td>
<td>50 1.9</td>
</tr>
<tr>
<td>Total</td>
<td>407 15.2</td>
</tr>
</tbody>
</table>

Notes: The figures in the columns labelled “per decade” are the absolute number of policy actions taken in all economies in one region, divided by the sum of the number of coverage years for each economy in the region, and then multiplied by 10 so that it represents the average number of actions taken in a decade. The number of coverage years for each economy used to calculate the average value is the difference between June 2012 and the earlier of the following two years: (1) the first for which official source materials from central banks and financial authorities were reviewed in order to identify relevant measures; and (2) the first year in which a relevant policy action appears in the database.

Kuttner & Shim (2015): Ceilings on ratios of Debt Service to Income significantly affect housing credit.