Mod 7 memo:
China’s fixed exchange rate

Intro for synch session May 3, 2018

What are we asking you to do?

Assignment 7: Monetary Policy and Exchange Rates

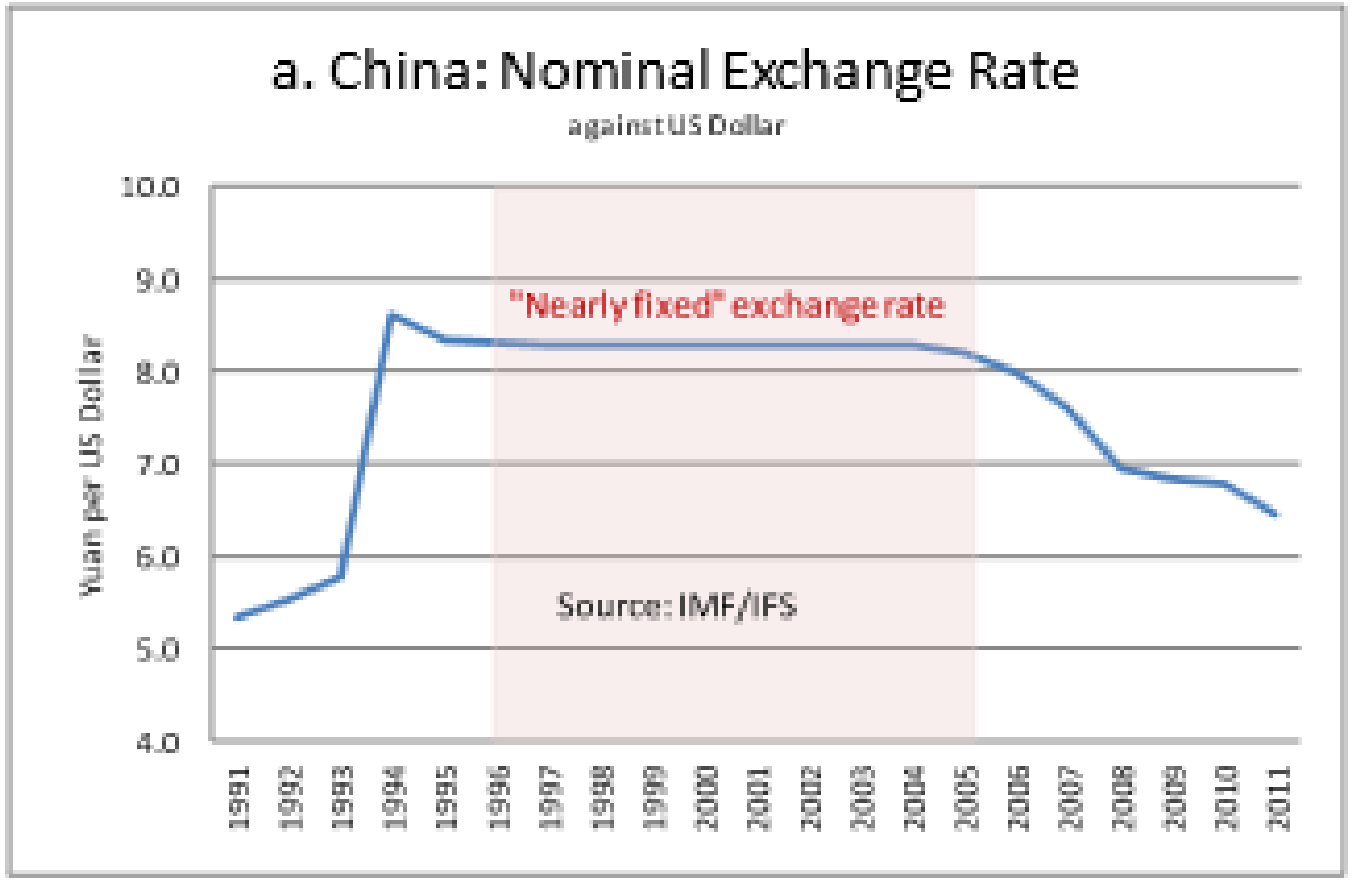
Goal

Write a 500-word report critically analyzing China's monetary policy between 1995 and 2005.

Background

With capital controls, think of China as a closed economy; without capital controls, think of China as a small open economy. Remember the relation between net exports and net capital flows from Chapter 6 of the textbook.

Some extra materials – may help ….



Source: Tanner, Ch 15, p. 11

What are we asking you to do?

1. Describe how China's exchange rate regime operated over this period and locate China's exchange rate regime on the "Impossible Trinity Triangle".

2. For each of the following objectives, evaluate whether the regime was effective or not, and why:
   - Maintaining low inflation.
   - Providing monetary policy independence (as measured by …).
   - Promoting competitiveness of Chinese exports.

3. Given the large accumulation of foreign reserves over this period, describe what the macroeconomic equilibrium could have been in terms of domestic interest rates, exchange rate, and net exports had China not had effective capital controls in place but kept the fixed exchange rate regime.

For these questions we thought you'd appreciate a bit of extra material.

The plan

1. Exchange rate regimes – fixed vs. flexible, pros and cons. (Q2) Mankiw 9e pp 389-390

2. Capital controls and the impossible trinity (Q1) Mankiw 9e p393

3. Financing a net export (or current account) deficit: non-reserve and reserve. (Q3) Tanner Ch 15, part 15.1.

4. Review: how do central banks fix exchange rates, anyway? The role of reserves. (Q3) Tanner Ch 15, part 15.2. PP 9 -2 2

5. Linking the balance of payments (net exports and capital flows) to the money supply. (Q3) Mankiw 9e pp 377-379.

Important:

The quiz focuses on Mankiw.

The stuff that is in my book but not in Mankiw will likely not be on the quiz.

But, it IS useful stuff… ☺

Notes on the readings:

My book is a bit more technical – but I will try to emphasize the non-technical and the intuition. This will be useful for your memo assignment.

A bit of terminology:

- Mankiw refers to net capital inflows as the corresponding money that helps finance a net export (trade balance) deficit.
- He is using obsolete terminology (but many people do)
- Today we refer to the “financial account” and the “net financing” or “net financial flows”
- Example: we have a trade deficit of $100. We need financing (or ‘net capital inflows’) of $100.
- IMF refers to “financial account” – since late ’90s.

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Mankiw 9e p 393

Linkages between net exports, exchange rate, and money.

Mankiw 9e p 378

Tanner, Ch 15, Sections 15.1 and 15.2, especially pp. 9 – 21 (top).

Model part in that chapter is not strictly relevant (refers to open capital markets)

For these questions we thought you'd appreciate a bit of extra material.

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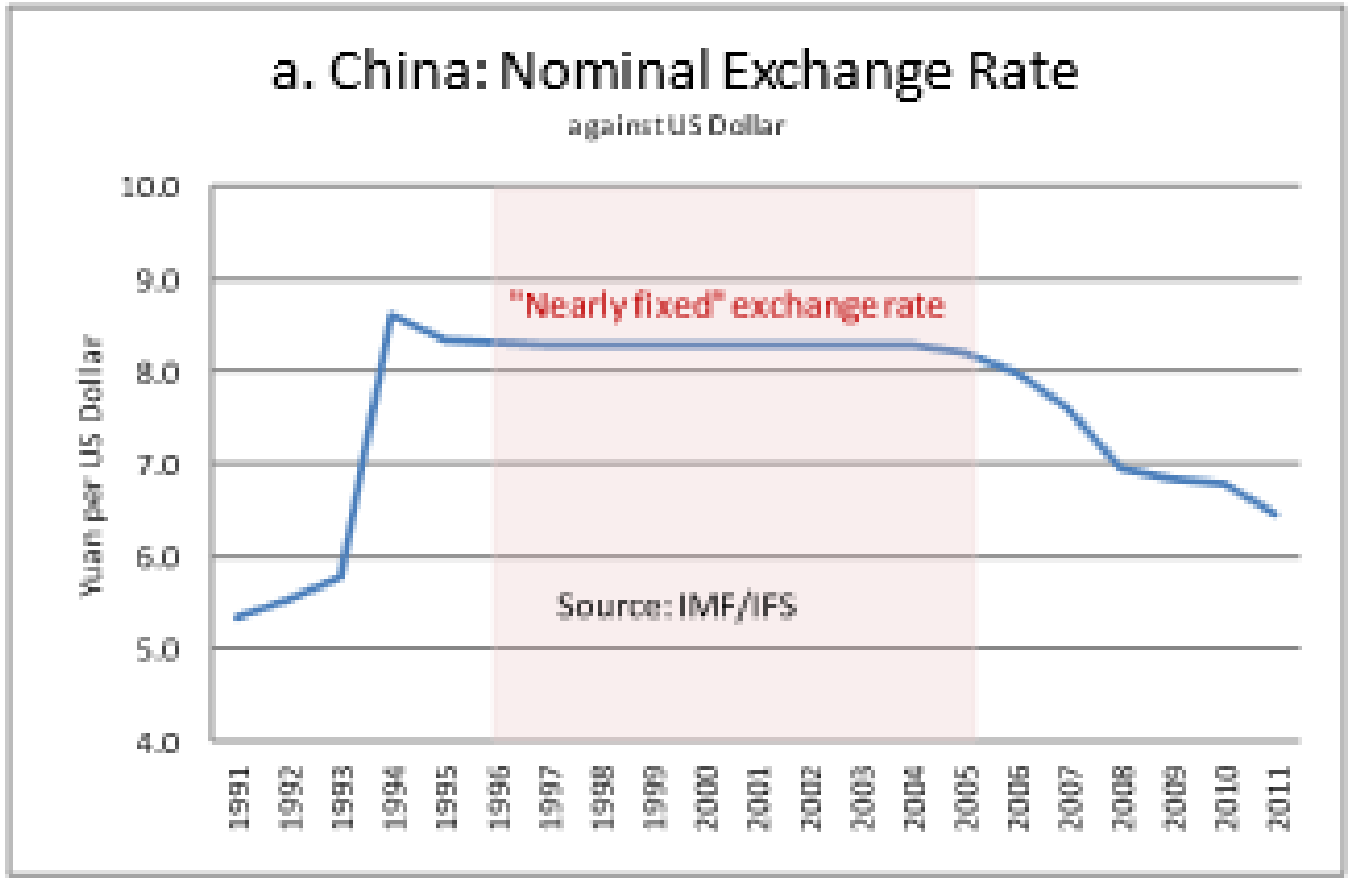
Fixed exchange rate pros and cons



Source: Tanner, Ch 15, p. 11

	Flexible exchange rate	Fixed exchange rate
Monetary policy	Can adapt to country conditions Tighter when you need to cool down Looser when you need to warm up	Full capital mobility: none Country 'imports' world interest rate Partial capital mobility/capital controls: More autonomy -- if controls are effective In search of higher rate of return or safety money finds a way through the cracks. See section on impossible trinity
Keeping inflation low	Country's central bank has to be credible -- otherwise, inflationary expectations can be hard to control.	Country can 'import' low world inflation -- but there can be a homegrown component (non-tradable goods)
Keeping exports 'competitive'	Market sets the exchange rate -- sometimes increaes in value -- to the detriment of exporters (who want to get domestic currency for each dollar they earn)	Central bank sets the exchange rate -- sometimes to boost exports -- export led growth.' Important: this is effective only in the short run. Long run: more 'homegrown' inflation means an appreciation of the real exchange rate See Mankiw pp 155 - 162

Fiscal policy – more powerful under fixed exchange rates.

Why?

Under floating you get: increase in government expenditures, higher interest rates (think of LM) and more appreciated currency.

P 374, Mankiw – Under floating exchange rates fiscal policy has NO impact on GDP.

Why? Exchange rate appreciates just enough so that decrease in net exports offsets increase in G!

A very famous result – very elegant – you should learn it, but it may be a kind of special case.

More generally, we do believe that fiscal policy does have some impact under flexible exchange rates – but less than under fixed.

Hint: you already have some data.

Next: Impossible Trinity

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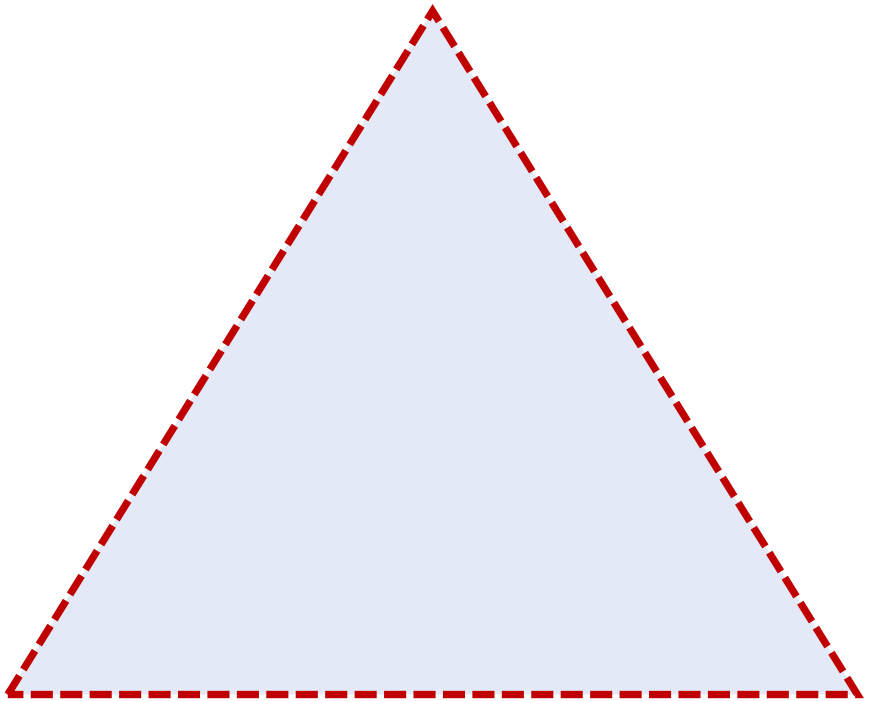
The impossible trinity –a deeper look.

Mankiw 9e pp 393-394

A country can have two of the three – but not all three.

Independent monetary policy – Set interest rate in response to country conditions.



Full capital mobility – financing can move freely in and out of the country.

Fixed exchange rate – set by central bank, not by shifts in market sentiment.

Q: If country has full capital mobility and wants independent monetary policy, why does the exchange rate need to be flexible?

A: Adjustments in the exchange rate will equalize rates of return between countries – even if interest rates diverge.

N.B. Not on the test.

i(Euro) < i(US) 

French investors (and others) say “ooh la la” – higher interest rates in US.

Everyone buys US assets.

US Dollar appreciates – become more expensive.

RECALL: Tighter money means more valuable currency.

That appreciation wipes away the extra return!!

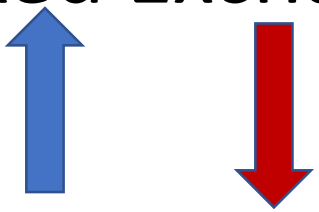
(Think of a bond price – higher price, lower return!)

Q. More important – why is it NOT possible for a country to pursue an independent monetary policy when the exchange rate is fixed and there is full capital mobility?

A: As money moves between countries, it can ‘undo’ intended effects of monetary policy.

This would not happen in a fixed exchanger rate country.

i(Fixed Exchange rate) = i(US)



If FER country tries to raise interest rates, investors will rush in and drive up price of FER bonds – just enough to bring FER interest rate to world (US) interest rate!

This is called ‘arbitrage’.

Q: If a country imposes capital controls, can it then have both a fixed exchange rate and independent monetary policy?

A: Perhaps – but even if you shut a door, money has a way of finding its way through the cracks.

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Net Exports and Financing (Net Capital Flows)

Mankiw 9e p 378

Tanner, Ch 15, Section 15.1

Note – examples here are VERY simple and consistent with Mankiw.

Balance of Payments accounting is complicated!!

My book gives a better flavor of that complicated – but you don’t need to know things at that level…

Net Exports correspond to Net Capital Inflows

Deficit on Net Exports – Net Capital Inflows are positive country is receiving financing – financing willingly supplied by foreigners.

Surplus on Net Exports – Net Capital Inflows are negative (“Net Capital Outflows) country is providing financing – to deficit countries.

Net Exports correspond to Net Capital Inflows (non-reserve) and accumulation of international reserves by central bank.

Net Exports + Net Capital Inflows (non-reserve) = Change in International Reserves

Net Exports	-100
Exports	300
Imports	400
Net Capital Inflows (non-reserve)	100
Change in international reserves	0

In this *simple* example:

A country runs a deficit; foreigners step in to finance the entirety of the deficit -- with bonds and other kinds of financing -- including FDI.

Net Exports	-100
Exports	300
Imports	400
Net Capital Inflows (non-reserve)	70
Change in international reserves	-30

In this *simple* example:

Foreign investors are willing tof finance part of the deficit -- but not all of it.
The remainder is financed by selling reserves -- by central bank.

Net Exports + Net Capital Inflows (non-reserve) = Change in International Reserves

Net Exports	200	
Exports	600	
Imports	400	
Net Capital Inflows (non-reserve)	-200	Negative number is net capital outflow.
Change in international reserves	0	

In this *simple* example:

A country runs a surplus and dometic residents use the proceeds of that surplus to provide financing to other (deficit) countries -- including with bonds and other kinds of financing -- such as FDI.

Net Exports	200	
Exports	600	
Imports	400	
Net Capital Inflows (non-reserve)	-100	Negative number is net capital outflow.
Change in international reserves	100	

In this *simple* example:

A country runs a surplus and but dometic residents only use the a portion of the proceeds to financing to other (deficit) countries.

The remainder is reflected in an accumulaton of reserves by the central bank.

Net Exports + Net Capital Inflows (non-reserve) = Change in International Reserves

Next video – linking up net exports, net capital flows, reserves and the exchange rate.

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Reserves and the exchange rate

Mankiw 9e p 378

Tanner, Ch 15, Section 15.2 pp 10 -11

Note – examples here are VERY simple and consistent with Mankiw.

Fixed exchange rate regime: central bank intervenes with purchases/sales of international reserves -- its foreign currency holdings – in order to keep prevent exchange rate from moving.

Sells foreign exchange (and buys domestic currency) to prevent domestic currency from depreciating against foreign currency – i.e. US Dollar.

Helps importers, cool down the economy – and maybe reduce inflation.

Buys foreign exchange (and sells domestic currency) to prevent domestic currency from appreciating against foreign currency – i.e. US Dollar.

Helps exporters, stimulate the economy – but maybe also increase inflation.

Changes in reserve holdings can reflect pressures from either:

Goods and services (net exports)

Net capital flows (investor sentiment).

See the following examples:

Initial position – balanced trade
No reserves

Net Exports	0
Exports	400
Imports	400
Net Capital Inflows (non-reserve)	0
Change in international reserves	0

Reduction of exports –
sales of reserves is preventing the exchange rate from losing value -- depreciating

Net Exports	-100
Exports	300
Imports	400
Net Capital Inflows (non-reserve)	0
Change in international reserves	-100

When exports fall, all else equal, exports have less dollar proceeds to purchase domestic currency with -- the demand for domestic currency will fall as well.

If the central bank does not intervene, there will be a depreciation of the exchange rate.

However the central bank can prevent that depreciation by selling its dollars at the initial, fixed, exchange rate.

Increase in exports --
Purchases of reserves prevent the exchange rate from gaining value – appreciating

Net Exports	100
Exports	500
Imports	400

Net Capital Inflows (non-reserve)	0
Change in international reserves	100

When exports rise, all else equal, the demand for domestic currency will rise as well.

If the central bank does not intervene, there will be an appreciation of the exchange rate.

However the central bank can prevent that appreciation by selling more domestic currency and buying dollars at the initial, fixed, exchange rate.

More capital inflows.
Purchases of reserves prevent the exchange rate from gaining value – appreciating

Net Exports	0
Exports	400
Imports	400
Net Capital Inflows (non-reserve)	50
Change in international reserves	50

In this *simple* example:

A country's net exports are in balance -- exports equal imports.

Foreign investors have found a new opportunity to lend -- perhaps to finance a new project -- as reflected in an increase in net capital inflows.

Since trade is balanced, the increase in capital is 'parked' in reserves of the central bank.

In so doing the central bank has prevented the curency from appreciating.

Net Exports + Net Capital Inflows (non-reserve) = Change in International Reserves

More capital outflows --
Sales of reserves prevent the exchange rate from losing value – depreciating

Net Exports	0
Exports	400
Imports	400
Net Capital Inflows (non-reserve)	-50
Change in international reserves	-50

Negative number is net capital outflow.

In this *simple* example:

A country's net exports are in balance -- exports equal imports.

Foreign investors have perhaps 'turned sour' on the country -- they have decided to pull their money out of the country -- as reflected in an increase in net capital outflows.

In order to prevent the currency from depreciating, the central bank sells reserves (and buys domestic currency).

The central bank CANNOT do this indefinitely -- it will run out of reserves.

This may invite speculaton: if investors are worried that the currency will depreciate, they will want to sell domestic currency and buy dollars even more quickly. This is what

Bottom lines: Central bank's foreign exchange transactions are the mechanism by which the exchange rate is fixed.

Figure 15.1:
The Central Bank's Role in External Transactions
Fixed ('soft-peg') exchange rate regime

Pressures on a currency to appreciate or depreciate can come from either the net export side or the capital inflow side.

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Net exports, net capital flows --- and money!!

Mankiw 9e pp 378-382

Tanner, Ch 15, Section 15.2 pp 10 - 18

A central bank – like any other bank – has a balance sheet, with both assets and liabilities.

Assets of a small country central bank include international reserves (a claim on foreigners) and domestic assets (loans to domestic banks, government bonds). Money is a liability.

Initial situation of hypothetical central bank

Assets		Liabilities	
Total	1971	Monetary Base (M0)	1390
Net Foreign Assets (NFA)	1696	Currency	416
International Reserves (IR)	1528	Deposits (banks)+other	974
Other	167		
Net Domestic Assets (NDA)	275	Net Worth	580

When a central bank acquires international reserves (an asset), so long as all else is equal, it must also create a liability – one-to-one. That liability is money!

Hence, as a first impact, when international reserves go up, the money supply expands – all else equal

Increase in reserves and money

Assets		Liabilities	
Total	2071	Monetary Base (M0)	1490
Net Foreign Assets (NFA)	1796	Currency	516
International Reserves (IR)	1628	Deposits (banks)+other	974
Other	167		
Net Domestic Assets (NDA)	275	Net Worth	580

Symmetrically, as a first impact, when international reserves go down, the money supply contracts -- all else equal!!

Decrease in reserves and money

Assets		Liabilities	
Total	1871	Monetary Base (M0)	1290
Net Foreign Assets (NFA)	1596	Currency	316
International Reserves (IR)	1428	Deposits (banks)+other	974
Other	167		
Net Domestic Assets (NDA)	275	Net Worth	580

Expansion of money will mean a reduction of domestic interest rates – as an IS/LM model would tell you.

But then, just as quickly, there will be a net capital outflow – investors will dump their domestic bonds in search of higher rate of return outside the country.

Final position – increase and offsetting decrease means NO CHANGE in money supply

Domestic and world interest rates kept equal.

See excel example

Capital controls are a way of circumventing this last part – so long as they are effective.