

Toward improved monetary policy in Indonesia

Ross H. McLeod

Indonesia Project, ANU

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Indonesia's poor inflation record

Mid 1960s (1966)	Hyperinflation (636%)
1970s	Moderately high (18%)
1980s/early 1990s	5-10% (target 5% max)
Early crisis	83% peak (Sep 1998)
Post crisis (Feb 2002)	Mild resurgence to 15%

budget

BOP

beyond oil

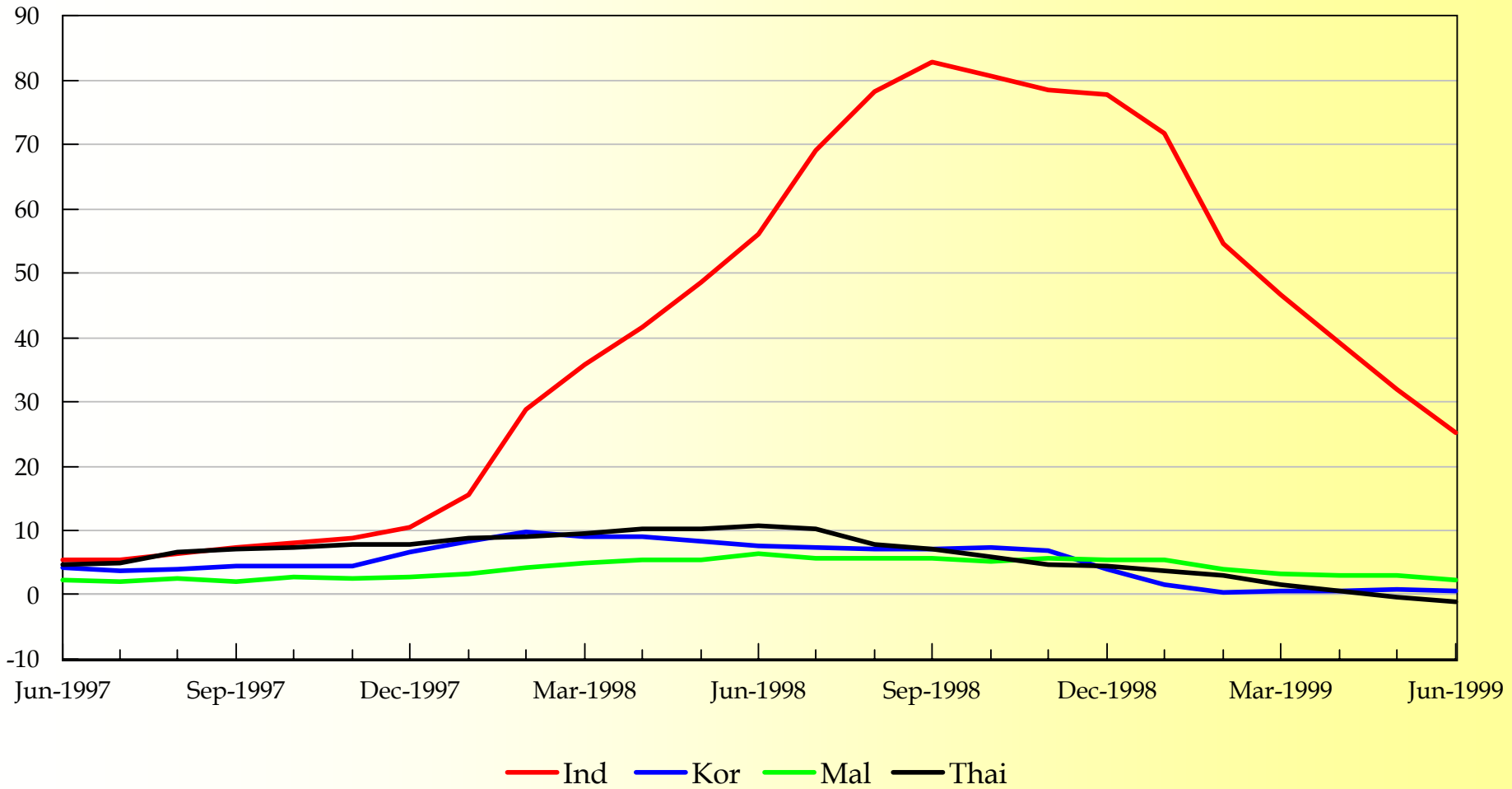
lending

resurgence

Indonesia's inflation
performance was far worse than
the other crisis countries

Inflation in Crisis Countries

% p.a.



Indonesia's poor inflation record

- The inflationary mechanism is not well understood
- Poor policy is the result
- Excessive, unnecessary emphasis on complicated/sophisticated models

In this lecture, I want to discuss how I think about inflation, and how I think it can be controlled.

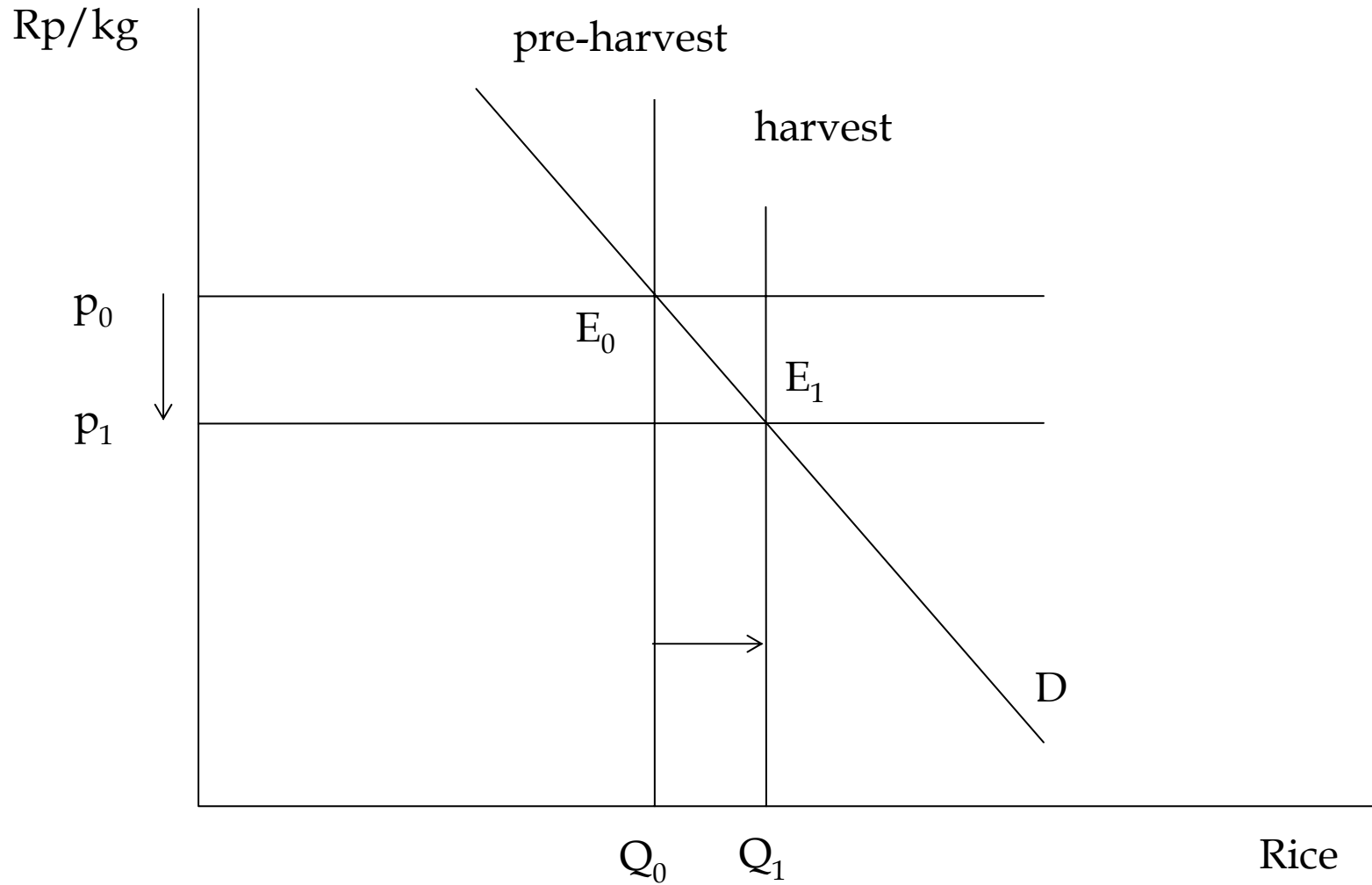
Monetarist model

- Underlying idea is simple supply and demand, applied to money
- (No real need for highly sophisticated models to understand the basics)

Monetarist model

Consider the market for rice...

Market for rice



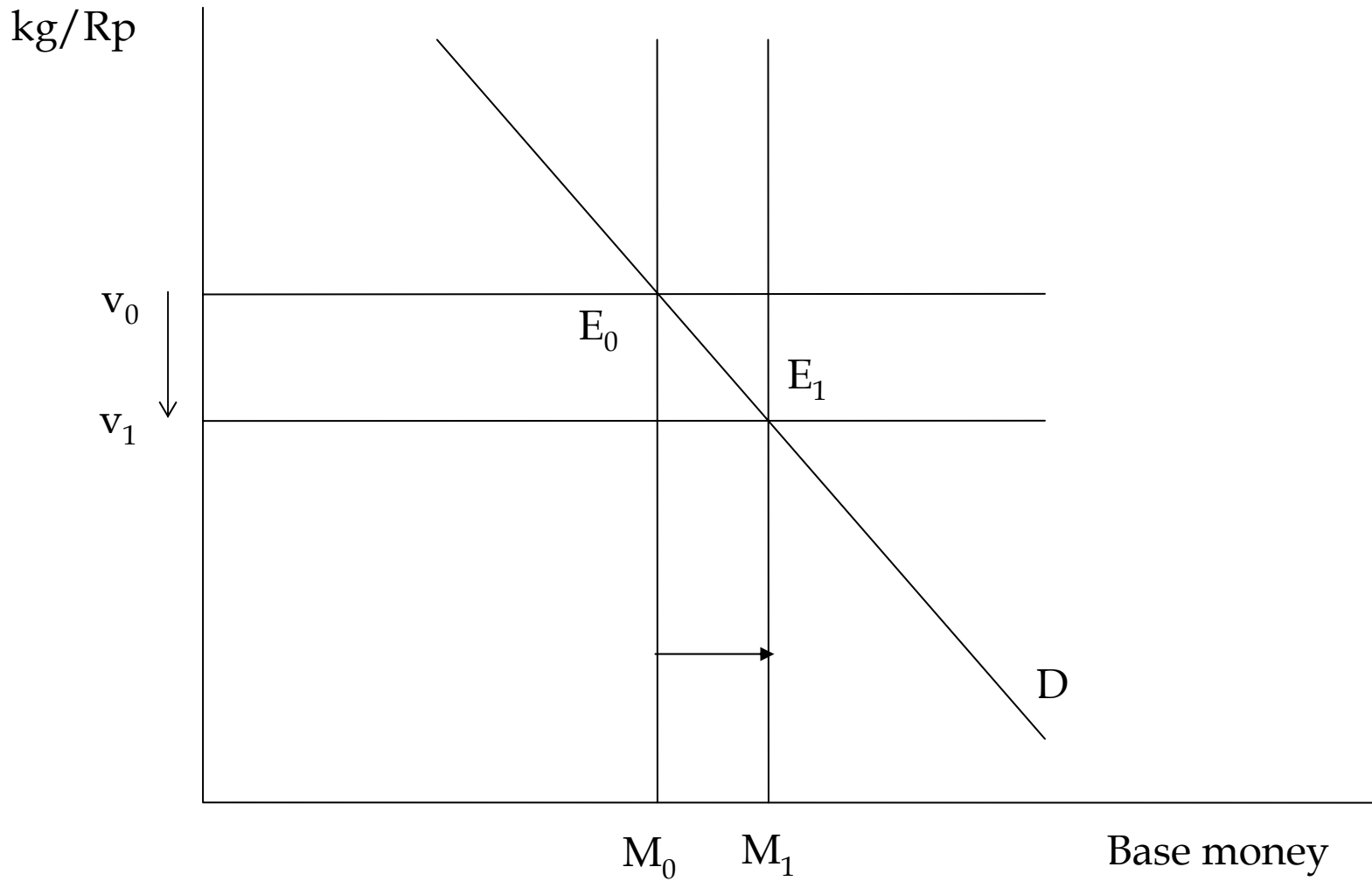
Simple supply and demand

- With a fairly stable demand
 - Changes in supply result in changes in prices
 - *Increasing supply* reduces prices (i.e. *reduces the unit value* of the good being traded)
- Demand for money is also fairly stable
 - Changes in supply result in change in unit value of money

What is the value of money?

Its purchasing power: how much goods and services you can buy with a unit of money
(e.g. kg rice/Rp)

Market for Money



What is the CPI?

- In effect, it is the price of a standardised basket of commodities that is representative of consumer purchases
- Actually, it is an *index* of that price
- If the index moves from 100 to 200 over one year, the price of the basket has doubled
- Or, **the value of money has halved**

In short, supply and demand theory tells us that a fall in value of money is the *inevitable result* of a significant increase in the supply of money relative to the demand for it.

How about the empirical
record?

The empirical record: pre-crisis

	Prices	M1 growth
1960-69	137%	189%
1970-80	18%	36%
1981-92	8%	16%

M0 Growth and CPI Inflation During the Crisis

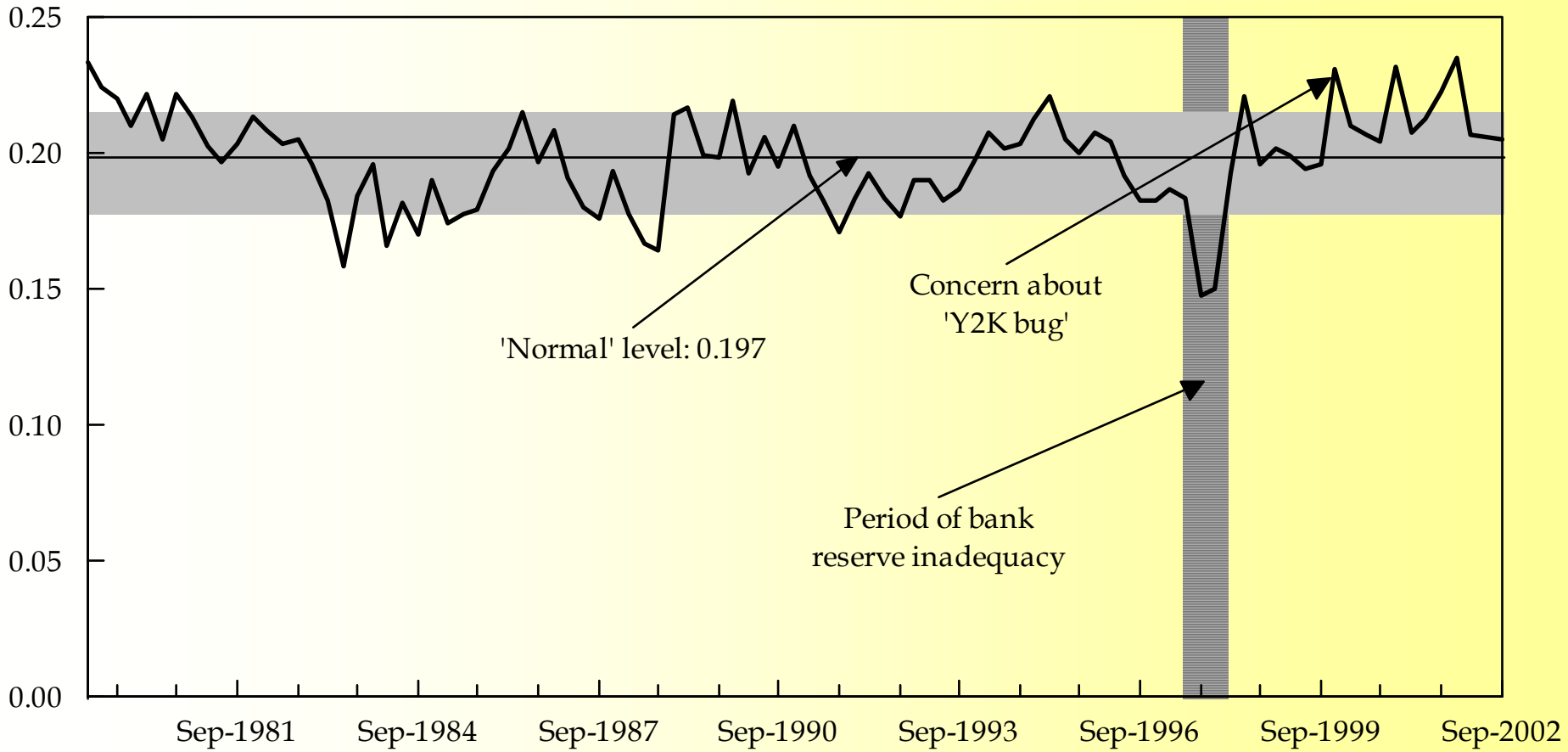
	M0 growth % p.a.		Inflation % p.a.
Jul 97–Jul 98	82.0	Sep 97–Sep 98	82.6
Jul 98–Jul 99	6.4	Sep 98–Sep 99	1.2
Sep 99–Sep 02	12.3	Nov 99–Nov 02	10.8

The empirical record matches the predictions of simple theory (over reasonably long periods of time): when the supply of money increases too rapidly, its value falls.

And yet people who undertake
sophisticated econometric
studies never seem to come to
the same conclusion!

Taking a long term view, the ratio of M0 to nominal GDP has no obvious trend...

**Figure 7 Ratio of Base Money to Nominal Quarterly GDP
(quarters)**

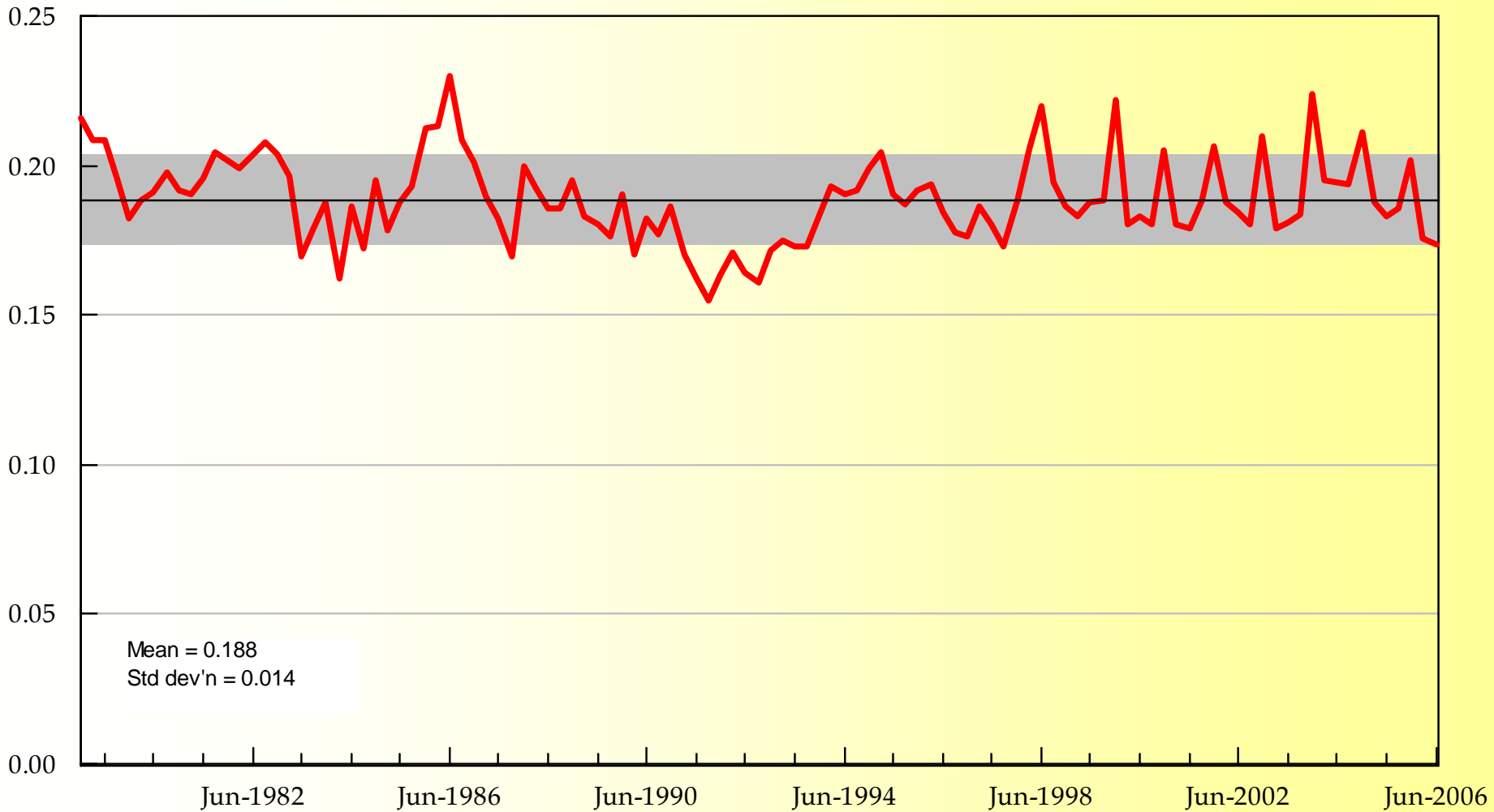


Sources: CEIC Asia Database, BI, BPS

Currency in circulation is the major component of M0.

Perhaps better to focus on C rather than M0: not affected by changes in bank reserve requirements (affects banks' demand for base money).

Currency in Circulation: Nominal GDP (quarters)



Shaded band extends 1 std dev'n around mean.

This explains the correspondence between inflation and money growth

- The simple empirical relationship is

$$M_d = kP.Q$$

- In terms of growth rates:

$$m = p + q$$

- q doesn't change much, so m more or less determines p

If base money growth causes inflation, what causes base money to increase?

Balance sheet of central bank

<i>Assets</i>	<i>Liabilities</i>
	M0 (cash plus banks' reserves)
Loans to government	Government deposits (borrowing from government)
Loans to private sector	SBIs (borrowing from private sector)
FX reserves	FX borrowings

Balance sheet of central bank

<i>Assets</i>	<i>Liabilities</i>
Net foreign assets (F)	Base money (M0)
Net loans to government (G)	
Net loans to private sector (PS)	

$$M0 \equiv F + G + PS$$

$$\Delta M0 \equiv \Delta F + \Delta G + \Delta PS$$

Budget deficits and money

$$\Delta M0 \equiv \Delta F + \Delta G + \Delta PS$$

$$\Delta M0 = 0 + \Delta G + 0$$

(Budget deficit financed by central bank increases M0)

$$\Delta M0 = 0 + \Delta G - \Delta G = 0$$

(Budget deficit financed by borrowing from public, or matched by issue of SBIs, leaves M0 unchanged)

The balance of payments and money

$$\Delta M0 \equiv \Delta F + \Delta G + \Delta PS$$

- A balance of payments surplus means that the central bank buys foreign exchange from the private sector
- This increases base money:

$$\Delta M0 = \Delta F + 0 + 0$$

Net lending to private sector and money

$$\Delta M0 \equiv \Delta F + \Delta G + \Delta PS$$

- Net lending to the private sector (e.g. SBPU/BLBI) **increases** base money
- Borrowing from private sector (issuing SBIs/bonds) **decreases** base money

$$\Delta M0 = 0 + 0 + \Delta PS$$

With these observations as background, let us look at some important inflationary episodes of the past in Indonesia

The 1960s hyperinflation: what can we learn?

- Large, prolonged budget deficits caused rapid money growth and hyperinflation
- Policy response was to introduce 'balanced budget' rule
- But actually, this meant that deficits should henceforth be financed by borrowing (mainly from foreign governments & international institutions)

The 1970s oil boom: what can we learn?

In the 1970s, BoP surpluses were caused by big increases in world oil prices

$$\Delta M0 = \Delta F + 0 + 0$$

Money increased quite rapidly, so inflation was quite high during this period

BI imposed ceilings on credit growth, but these were not effective

No control on base money growth

Beyond the oil boom (late 80s/early 90s): what can we learn?

- Policy of continuous depreciation (4-5% p.a.) caused balance of payments surpluses (same as with oil boom)
- Purchases of excess supply of \$ caused rapid money growth
- This caused inflation above target maximum of 5%

Beyond the oil boom (late 80s/early 90s): what can we learn?

- Eventually the surpluses were driven by capital inflow
- Still the authorities refused to allow the exchange rate to appreciate
- BI had to issue large quantities of SBIs to sterilise the expansionary monetary impact

Beyond the oil boom (late 80s/early 90s): what can we learn?

- Attempt to (partially) sterilise monetary impact of surpluses led to large issues of SBIs and big losses to BI on negative spread

$$\Delta M0 \equiv \Delta F + \Delta G + \Delta PS$$

$$\text{e.g. } \Delta M0 = 100 + 0 - 75 = 25$$

- High cost SBI, low-yield FX reserves
- Private sector borrowed more and more in \$ and invested more and more in Rp (SBIs)

Beyond the oil boom (late 80s/early 90s): what can we learn?

- The private sector became more and more exposed to exchange rate risk because of the policy of preventing appreciation of the rupiah
- Accumulated exchange rate risk contributed to crisis (after the baht was suddenly floated)

The 1997-98 banking collapse: what can we learn?

- Very heavy lending to troubled banks
- BI failed to sterilise this by issuing SBIs
- Instead of selling SBIs, it sold FX
 - In other words, it did not truly float the Rp
- Reserves declined, Rp fell, prices rose
 - The worst of all worlds!

The 1997-98 banking collapse: what can we learn?

$$\Delta M0 \equiv \Delta F + \Delta G + \Delta PS$$

$$\Delta M0 = \Delta F + 0 + \Delta(\text{BLBI} - \text{SBI})$$

$$\text{e.g. } \Delta M0 = -100 + 0 + (300 - 150) = 50$$

$$\text{Alternatively: } \Delta M0 = 0 + 0 + (300 - 300) = 0$$

This would require both exchange rate and
interest rate flexibility

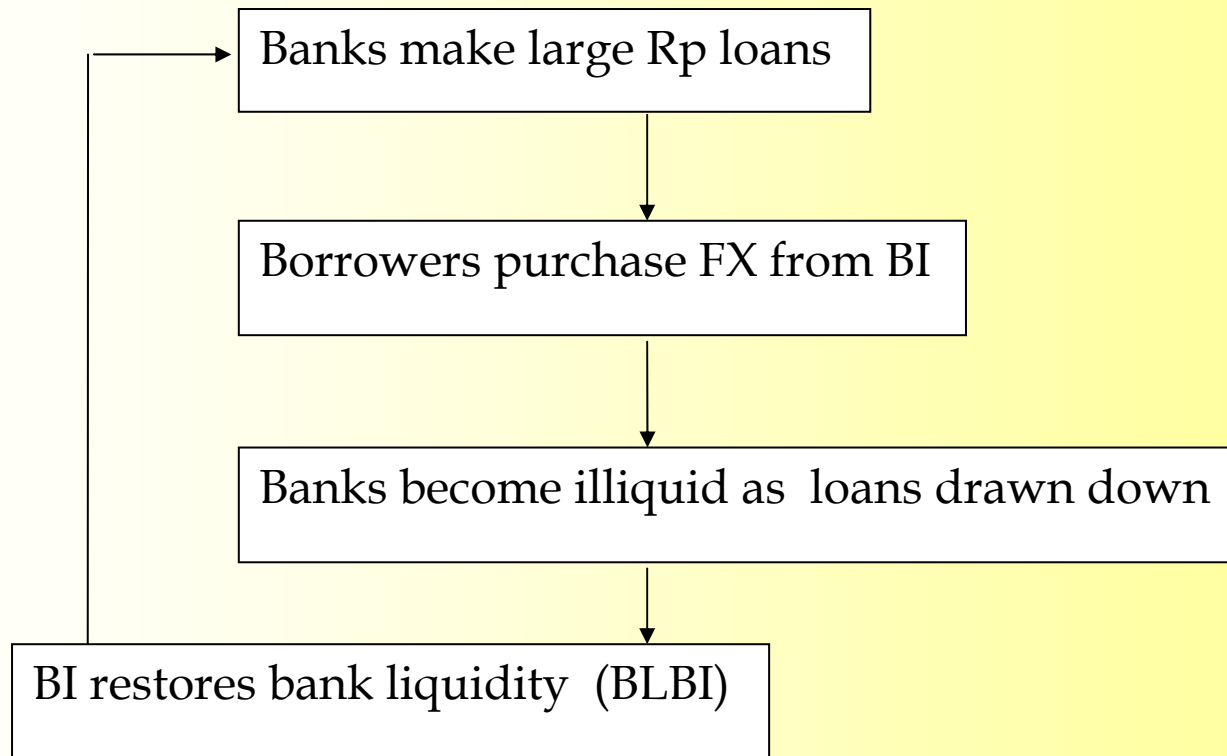
Dealing with a bank run: Last resort loans to accommodate increased demand for cash

Assets			Liabilities
<i>Public</i>			
Cash	+100	Bank borrowings	
Deposits at banks	-100		
<i>Banks</i>			
Deposits at BI	(-100 + 100)	Deposits of public	-100
Loans		LOLR	+100
<i>Bank Indonesia</i>			
FX		Cash	+100
LOLR	+100	Banks' deposits	

Bank run or Rp speculation?

BI failed to distinguish withdrawals of cash (result of fears about safety of bank deposits) from new lending and deposit withdrawals to buy \$ (result of speculation)

Bank Indonesia Financing of Currency Speculation

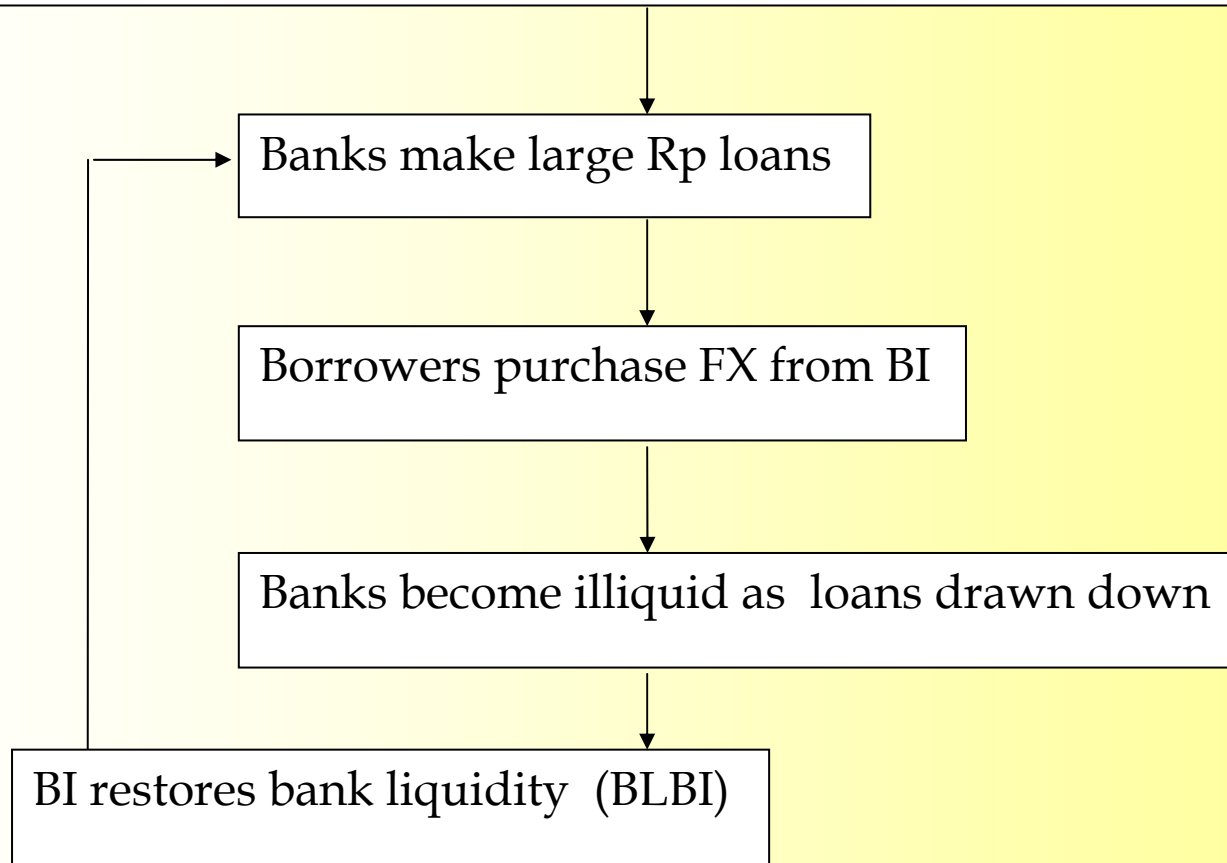


Indonesia had high inflation in 1997-98 because...

- Lending by BI vastly exceeded extra demand for cash by public
- Rp111 trillion in loans to banks in year to July 1998
- Rp22 trillion increase in cash held by public in same period
- Remainder used to buy FX and goods and services
 - Hence depreciation + inflation

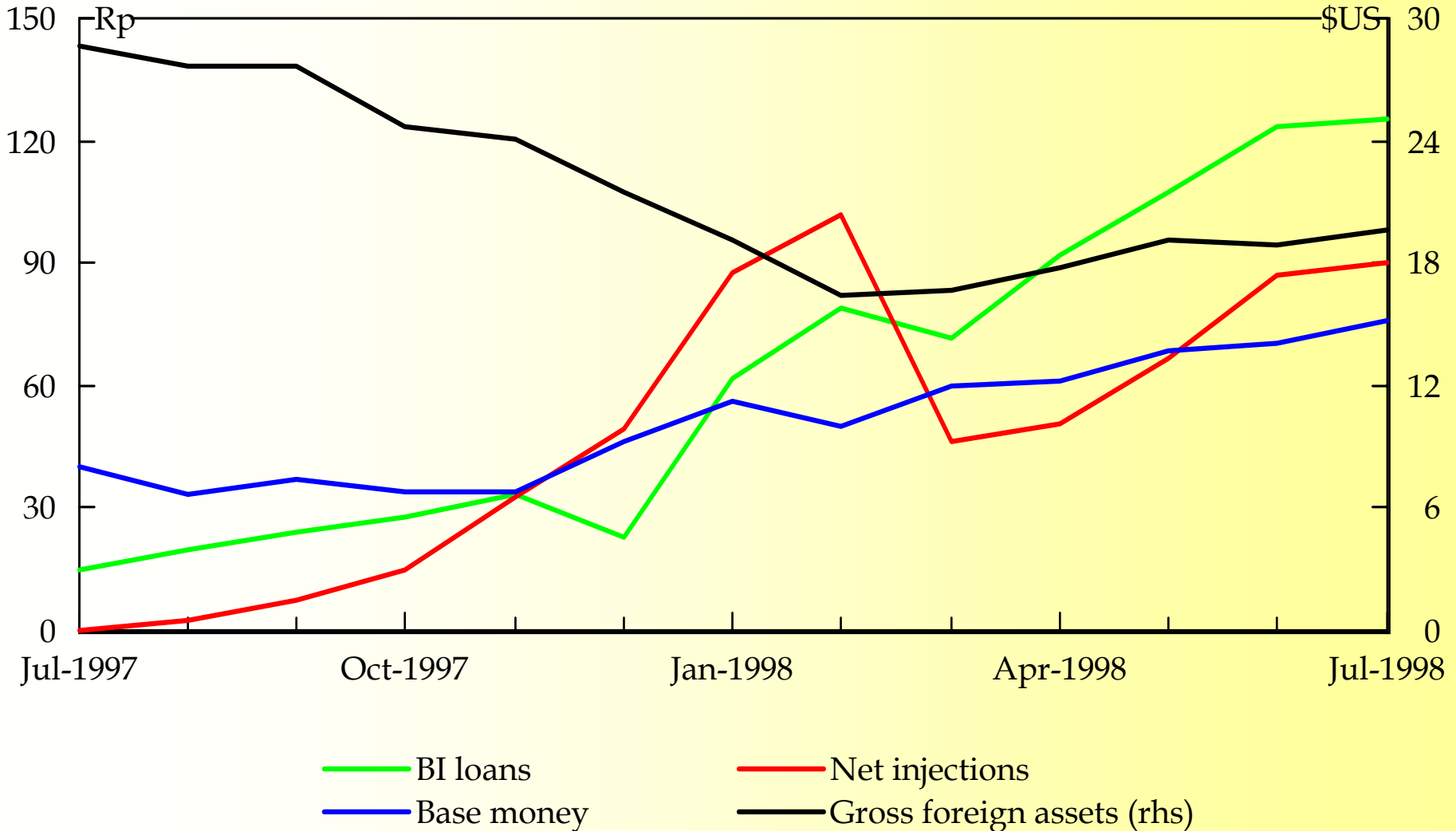
Problem Compounded by Issue of Government Blanket Guarantee ...

Government provides blanket guarantee, creating a serious moral hazard



Aspects of M0 Injections

(Rp trill, \$US bill)



Source: CEIC Asia Database

Financing FX speculation: (misdiagnosed as bank run)

Assets			Liabilities
<i>Public</i>			
Cash		Bank borrowings	+500
Deposits at banks	+500		
FX assets			
<i>Banks</i>			
Deposits at BI		Deposits of public	+500
Loans	+500	LOLR	
<i>Bank Indonesia</i>			
FX		Cash	
LOLR		Banks' deposits	

Financing FX speculation: (misdiagnosed as bank run)

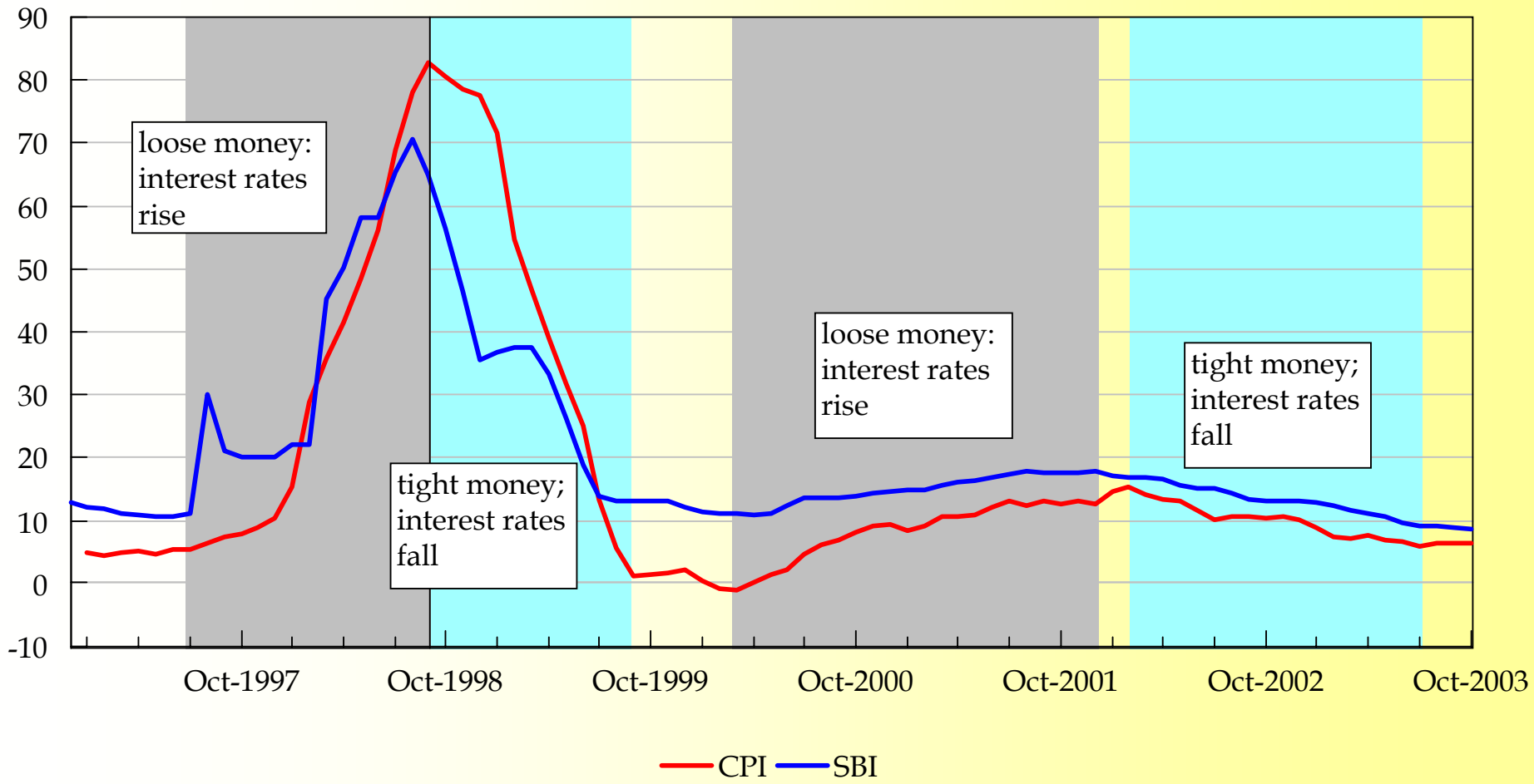
Assets			Liabilities
<i>Public</i>			
Cash		Bank borrowings	+500
Deposits at banks	(+500-500)		
FX assets	+500		
<i>Banks</i>			
Deposits at BI	(-500+500)	Deposits of public	(+500-500)
Loans	+500	LOLR	+500
<i>Bank Indonesia</i>			
FX	-500	Cash	
LOLR	+500	Banks' deposits	

Post-crisis resurgence of inflation

- After falling briefly to zero in 1998, inflation crept back to 15% in early 2002
- An indication of conflict between targets
- To reduce M0 growth, BI would need to issue more SBIs
- But BI did not want to increase interest rates
- In fact, interest rates increased anyway: Fischer effect (nominal rate compensates for expected inflation)

Co-movement of Inflation and Interest Rates

% pa



Policy for the future

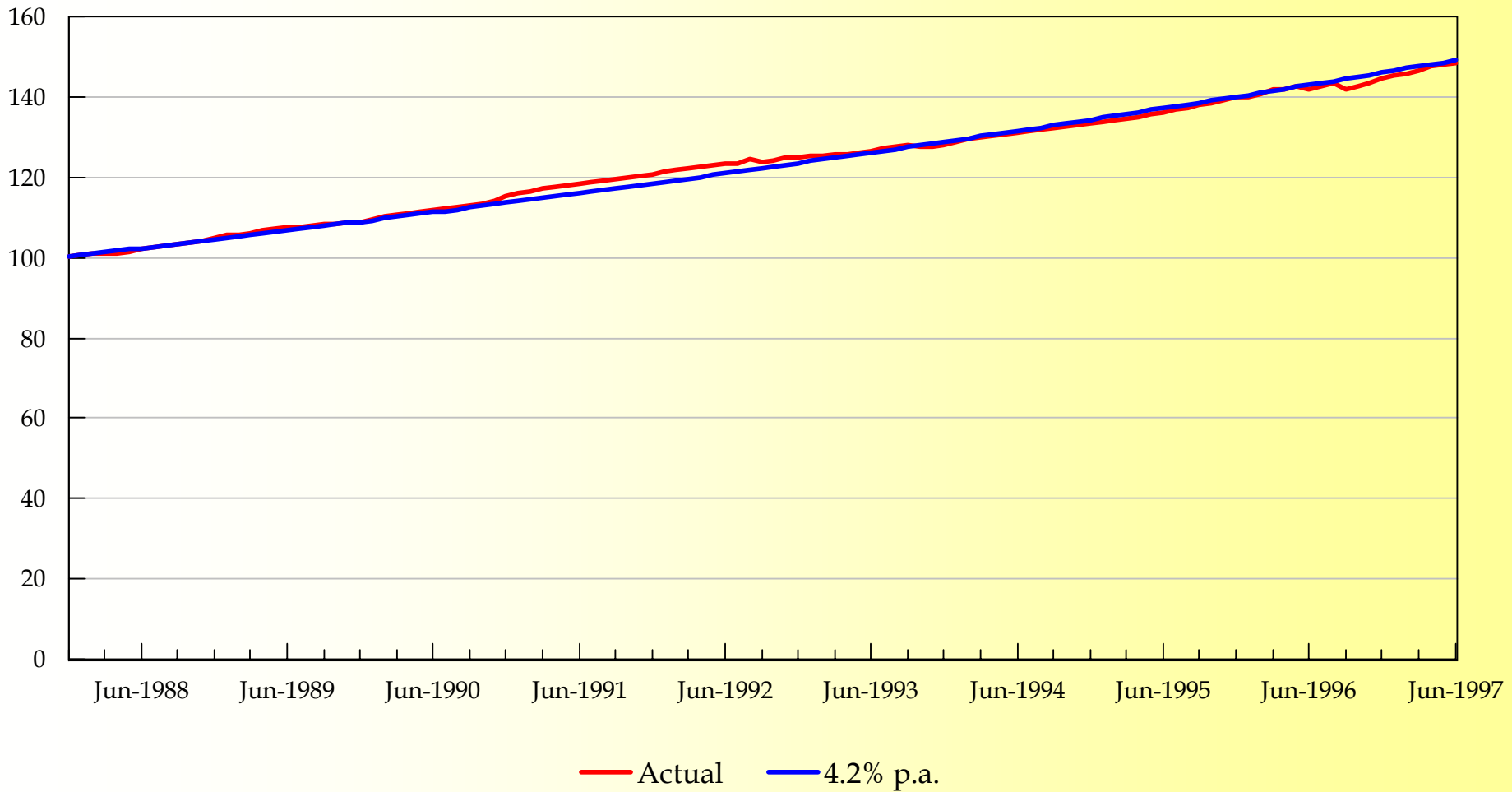
We need to decide on the preferred nominal anchor for monetary policy

But there should be *only one* anchor

Before the crisis there were several anchors, but the nominal exchange rate was dominant

Figure 1 Exchange Rate (Rp/\$) as Nominal Anchor

(Dec-1987 = 100)



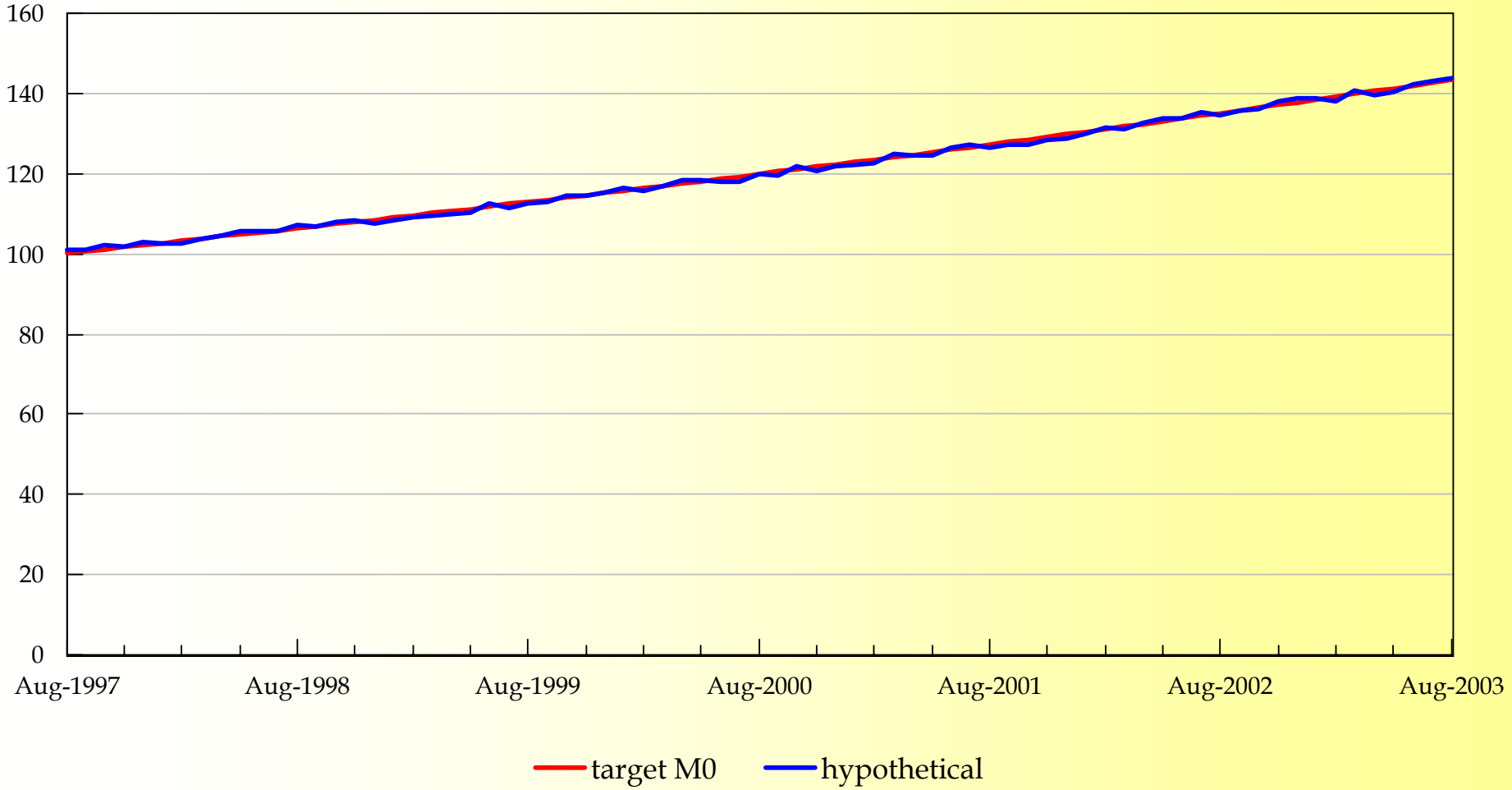
We could choose the price level/inflation rate as the nominal anchor

Tighten M0 if inflation too high;
loosen it if too low

My preference is to make M0
grow at a slow steady rate
(around 6% p.a.).

Good for credibility: we can see
immediately if BI is hitting its
targets.

Figure 3 Base Money as Nominal Anchor
(August 1997 = 100)



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