

SOVEREIGN DEBT: BASIC CONCEPTS AND THE CURRENT DEBATE

A. BASIC CONCEPTS

- a. Gov't budget constraint
- b. Impact of different instruments for funding the deficit;
- c. External vs Internal/Domestic borrowing;
- d. Debt sustainability
- e. Other

B. SOVEREIGN DEBT CRISES AND HOW TO COPE WITH THEM

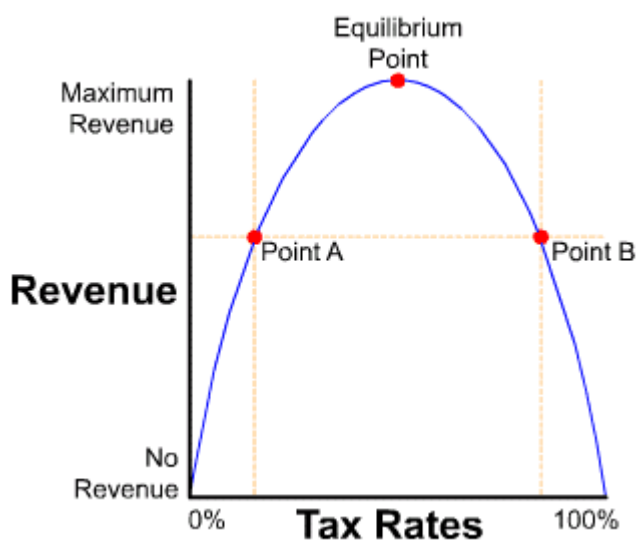
- a. Determinants of debt crisis;
- b. The moral hazard issue;
- c. Debt restructuring: pros and cons and how;

BASIC CONCEPTS

Government budget constraint

$$(1) \quad G = T + B + dM/p \quad (\text{all variables in real terms, except } M) \quad (dX = dX/dt)$$

T = Taxes: pros and cons (Laffer curve, incentive to work, progressive/regressive taxation; political acceptability...)



B = Bond issuing (domestic vs fx, see later)

dM = "printing money" :

Limits to printing money, though!

$$MV = PY$$

if V constant, when $y = y^*$, then $dM/M = \pi$

(see next page for explanation, if necessary)

or

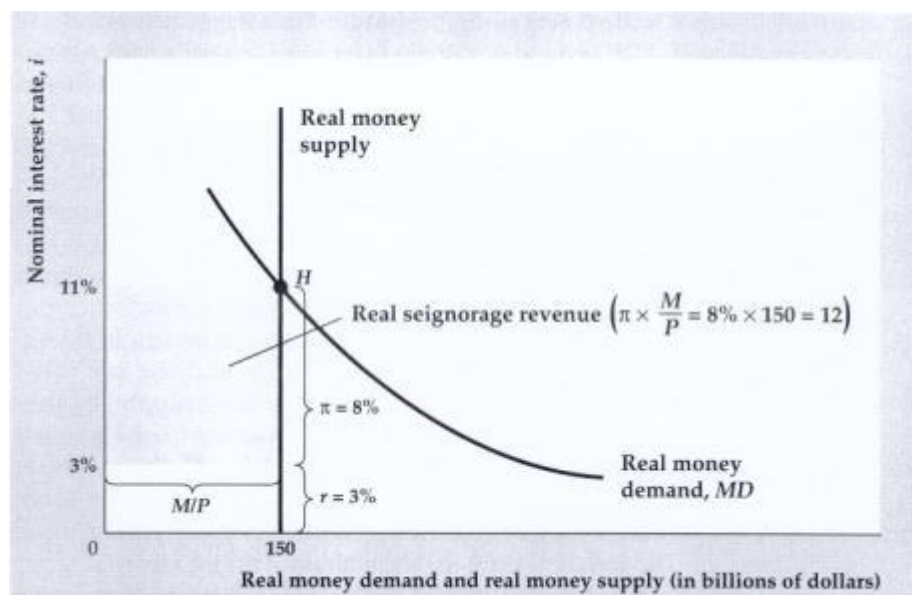
$$dM = \pi M$$

or

$$dM/p = \pi M/p \text{ (seignorage)}$$

Sovereign debt: basic concepts (lecture 1 and maybe part of lecture 2)

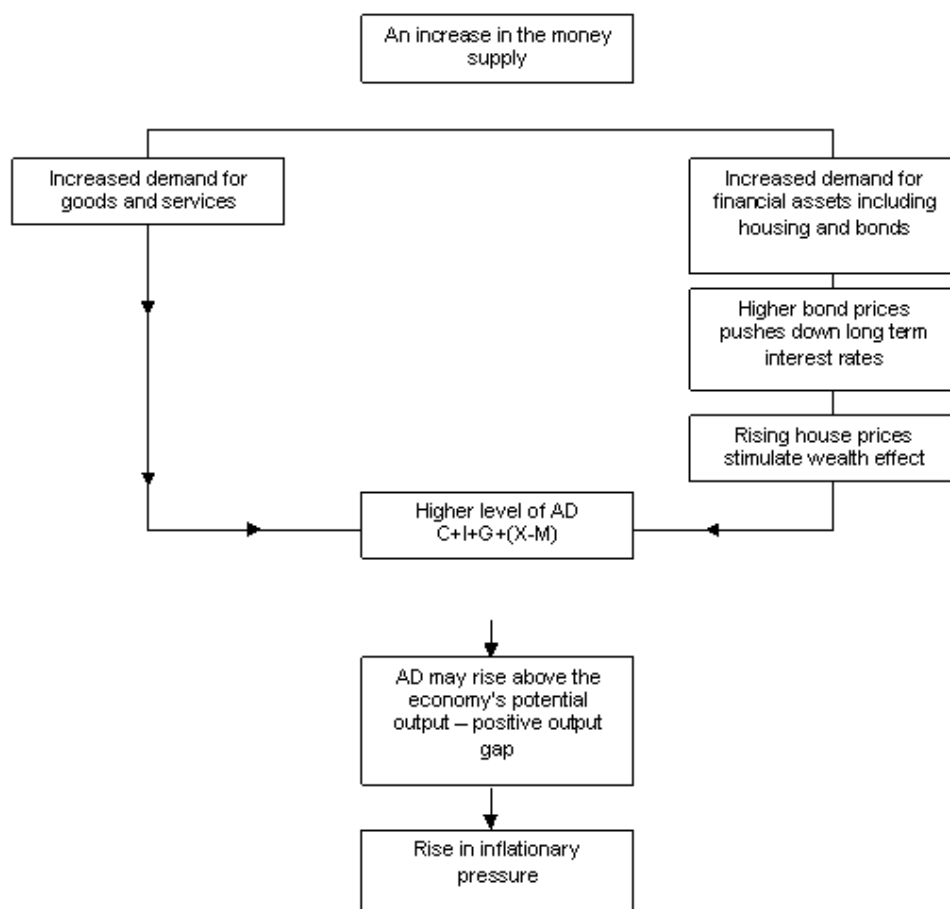
A Detour: SEIGNORAGE



(a) Determination of real seignorage revenue for $\pi = 8\%$

The downward-sloping curve, MD, is the money demand function for a given level of real income. The real interest rate is assumed to be 3%. When the rate of inflation is 8%, the nominal interest rate is 11%, and the real quantity of money held by the public is \$150 billion (point H). Real seignorage revenue collected by the government, represented by the area of the shaded rectangle, equals the rate of inflation (8%) times the real money stock (\$150 billion), or \$12 billion.

Why $dM = dP$



Notice that if we are not at $Y = Y^*$,

$dM/M = \mu$ and

dM/p becomes equal to

$$(M/p) = dM(1/p) - dp(M/p^2) = M/p (\mu - \pi) \quad \text{where } \mu = dM/M \text{ and } \pi = dp/p$$

Also, it could be that $\mu < \pi$ (hyperinflation, expectations, substitution, velocity no longer stable etc)

Also, fiscal drag (higher nominal tax cohorts) and Tanzi-effect (collection lags when inflation is high)

Does it look familiar?

Difference between “money financing” and “Quantitative Easing”

Central banks normally set the price of money using official interest rates to regulate the economy. These interest rates radiate out to the rest of the economy. They affect the cost of loans paid by companies, the cost of mortgages for households and the return on saving money. Higher interest rates make borrowing less attractive because taking out a loan becomes more expensive. They also make saving more attractive, demand and spending reduces. Lower interest rates have the reverse effect.

But interest rates cannot be cut below zero and when official rates get close to zero the effect they have on regulating the economy becomes muted. Banks still need to make a profit and in troubled times the gap between the official interest rate and the rates faced by companies and households can rise, because lenders want a greater return for the additional risk of granting a loan when times are tough.

When interest rates are close to zero there is another way of affecting the price of money: Quantitative Easing (QE). The aim is still to bring down interest rates faced by companies and households and the most important step in QE is that the central bank creates new money for use in an economy.

Only a central bank can do this because its money is accepted as payment by everybody. Sometimes dubbed incorrectly "printing money" a central bank simply creates new money at the stroke of a computer key, in effect increasing the credit in its own bank account.

It can then use this new money to buy whatever assets it likes: government bonds, equities, houses, corporate bonds or other assets from banks. With the central bank weighing in, the price of the assets it buys should rise and the yield, or interest rate, on that asset will fall. Companies for example with a willing central bank seeking to buy its bond, will be able to pay a lower interest rate when new bonds are issued or existing bonds come to the end of their life and need to be replaced.

With cheaper borrowing the hope is that the central bank will again encourage greater spending, putting additional demand into the economy and pulling it out of recession. As the money ends up in bank deposits, banks should also find their funding position improved and make them more willing to lend.

A side effect will be that this new money is expected to raise consumer prices giving people another incentive to buy now rather than later.

Of course there are risks. First, a central bank can lose money on its purchases, money that will ultimately have to be underwritten by taxpayers either with higher future taxation or by the central bank creating more money and risking higher future inflation. Second, go too far with creating and spending money and you will destroy the value of the currency. Inflation or even hyperinflation is the result. Third, if a descent into QE destroys confidence in an economy rather than gives reassurance that the authorities are on the case it can be counter-productive.

That is why central banks cannot use QE willy-nilly, but if you are not aggressive enough QE simply will not work to change other interest rates in the economy and stimulate demand the trouble is, because the policy is unorthodox and the situation is dramatic no one knows how much QE is too much and how much is not enough.

External vs. Internal debt:

a matter of jurisdiction and of who is holding it

More interesting:

Domestic currency debt vs. FX debt

Repayment issue: domestic currency → print money, hence “INFLATION AS A FISCAL PROBLEM”

FX debt : how to generate FX?

DEBT SUSTAINABILITY

Debt / GDP (as expression of ability to pay)

$$(2) \quad d(D/Y) < 0$$

$$dD/y - dy D/Y^2 < 0$$

$$(D/Y) (dD/D - dY/Y) < 0$$

Change in debt is equal to:

$$G + rD = T + B \quad (\text{assume } dM = 0, \text{ independent central bank})$$

$$B = \text{bond issuance} = \text{change in debt} = dD$$

Also, assume primary balance = 0 (for simplicity)

$$\text{Hence: } dD = rD$$

$$DY/Y = g$$

The stability condition (2) becomes:

$$(2') \quad r < g$$

That is one reason why markets have had problems with the Greek adjustment programme:

In Greece's case:

$$g < 0; \quad r > 0 \quad (\text{how can there be } r < 0 \text{ with projected debt/gdp} = 150\% \text{ ?})$$

How to push up g ? Foreign help (IMF and the likes as stop-gap, then credible structural reforms)

How to push down r ? Confidence in the programme

Also, it could be that $\mu < \pi$ (hyperinflation, expectations, substitution etc)

Sovereign debt: basic concepts (lecture 1 and maybe part of lecture 2)

Primary balance, interest payments and public debt service

Abstracting from monetary financing that is forbidden in the European Union, the general government budget deficit is the sum of the primary deficit (the excess of purchases G over net tax receipts T) and of debt service (the real rate of interest r times the existing debt stock D).

To finance the deficit the government must borrow and issue new debt ΔD :

$$\Delta D = G - T + rD \quad (1)$$

Dividing both sides of (1) by real GDP, Y :

$$\Delta D/Y = G/Y - T/Y + r (D/Y) \quad (2)$$

A bit of algebra

$$\Delta(D/Y) = (Y \Delta D - D \Delta Y)/Y^2 = (Y \Delta D)/Y^2 - (D \Delta Y)/Y^2 = (\Delta D/Y) - (\Delta Y/Y)(D/Y)$$

Therefore $\Delta D/Y = \Delta(D/Y) + (\Delta Y/Y)(D/Y)$.

Taking into account that $\Delta Y/Y = g$ and inserting for $\Delta D/Y$ into (2) we obtain:

$$\Delta(D/Y) + g (D/Y) = (G-T)/Y + r (D/Y) \quad (3)$$

and rearranging :

$$\Delta(D/Y) = (G - T)/Y + r (D/Y) - g (D/Y) \quad (4)$$

The change in the debt-GDP ratio (left side) equals to the primary budget deficit-GDP ratio (the first item on the right side) and the debt service-GDP ratio (the second item) adjusted for GDP growth rate (the third item).

Hence:

$$\Delta(D/Y) = (G - T)/Y + (r - g) (D/Y) \quad (5)$$

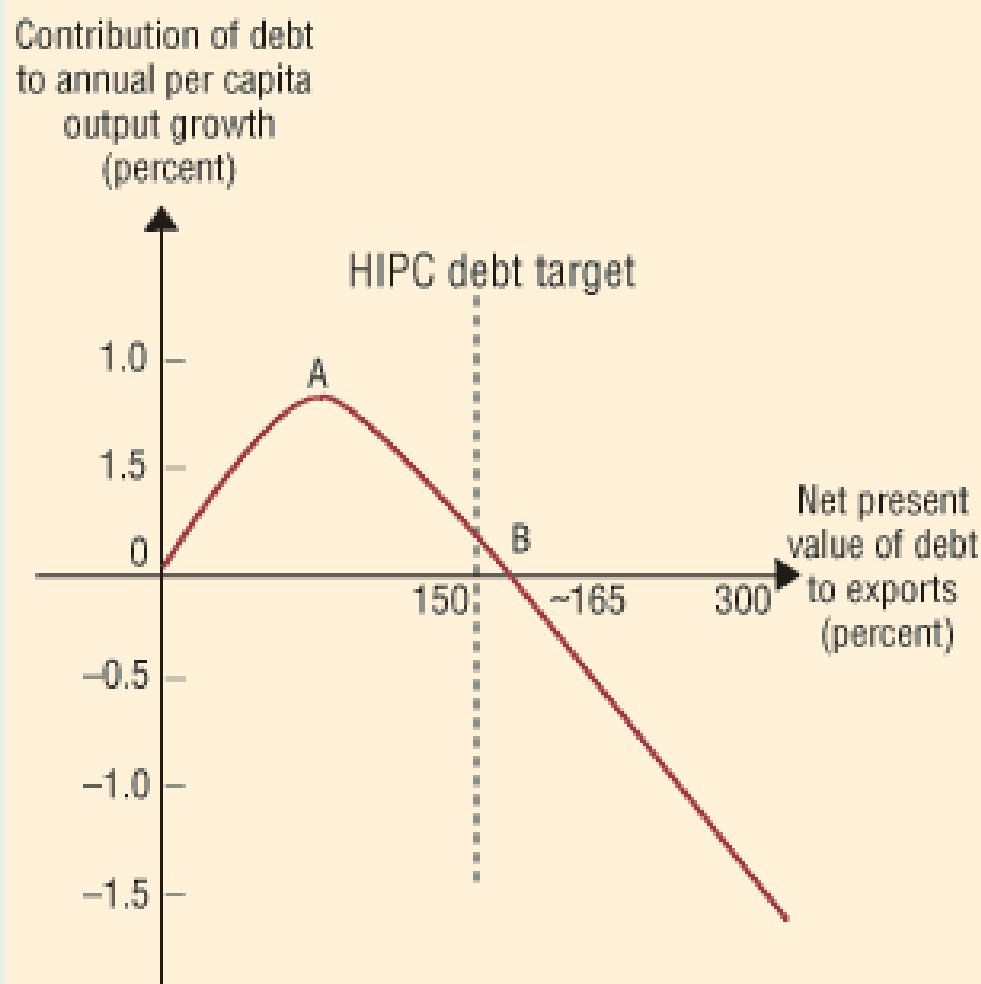
From (5), it is immediate to see that achieving a primary surplus helps to reduce the debt-GDP ratio, $\Delta(D/Y) < 0$, and that the higher the primary surplus, the less stringent the condition $r < g$ is.

Notice the relationship between debt accumulation and growth

Chart 3

Debt thresholds

Debt has an inverted-U relationship with growth. The effect is initially positive, but as debt ratios increase beyond point A, debt eventually slows growth. When debt reaches point B, the overall contribution of debt turns negative.



Source: Authors.

ABILITY TO PAY VS WILLINGNESS TO PAY

Willingness to pay is a choice, ability to pay is a fact

History has shown that countries do not want to reimburse debt at debt/gdp levels that are not very high (60-70%), why?

Domestic political costs

In the past: What can foreigners do? Invade?

Today:

- Reputational costs;
- Access to capital markets (even Argentina had to settle)
- But little (or zero) law enforcement

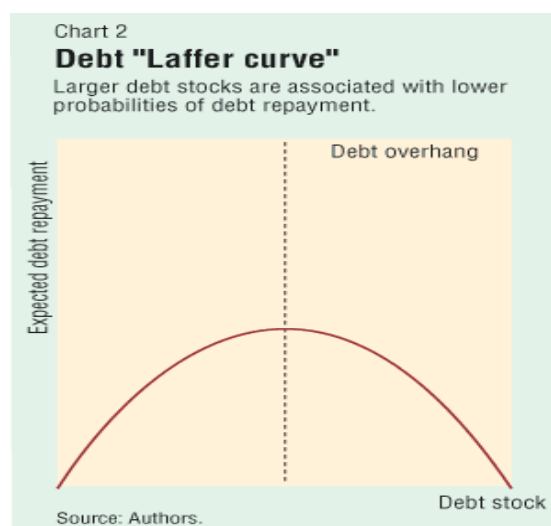
ILLIQUIDITY VS.	INSOLVENCY
Short-term funding problem	Inability to pay
- Bridge loan (IMF or similar); - Market willing to provide resources if the country has a long-term credible adjustment programme	- Rescheduling; - Default

DEBT RESCHEDULING

There is a limit to the amount of resources a country can devote to servicing its external debt (ability to pay) and, of course, a lot of game theory is involved here. "Why do large levels of accumulated debt lead to lower growth? The best-known explanation comes from "debt overhang" theories, which show that if there is some likelihood that, in the future, debt will be larger than the country's repayment ability, expected debt-service costs will discourage further domestic and foreign investment and thus harm growth. Potential investors will fear that the more a country produces, the more it will be "taxed" by creditors to service the external debt, and thus they will be less willing to incur costs today for the sake of increased output in the future." (External Debt and Growth; Catherine Pattillo, Hélène Poirson and Luca Ricci, Finance & Development, June 2002)

Since the peak of the debt Laffer curve shows the point at which rising debt stocks begin acting as a tax on investment, policy reforms, or other activities that require up-front costs in exchange for future benefits, the peak may relate to the point at which debt begins to have a negative marginal impact on growth.

Rationale for investors: benefit/cost analysis: haircut in exchange of higher probability of reimbursement



Sovereign debt: basic concepts (lecture 1 and maybe part of lecture 2)

ISSUES RELATED TO DEBT RESTRUCTURING

1. Deadweight losses (The net cost to society due to market imperfections or government interventions such as trade restrictions --ie, losses by consumers or producers that are not offset by gains elsewhere, such as increased government revenues):
 - a. Incomplete info (Nigeria's GDP???) or info that it is difficult to obtain, lead to "war of attrition" between creditors and debtor
 - b. One dissenting creditor might block the entire process, thus penalising other creditors and the country itself.
2. Moral hazard and how to beat it?

Definition: Moral hazard occurs when a party insulated from risk may behave differently than it would behave if it were fully exposed to the risk.

How to beat it:

- Private insurance (cds);
- Bankruptcy, but too big to fail?
- Bailing-in creditors (pros and cons), see PSI in Greece or other debt-swaps (Argy and Russian case later in the course);

Statutory Approach (SDRM)

It is necessary/optimal to create a formal, institutionalised framework to deal with debt crises? Something like Chapter11... Or not?

Advantages of an SDRM:

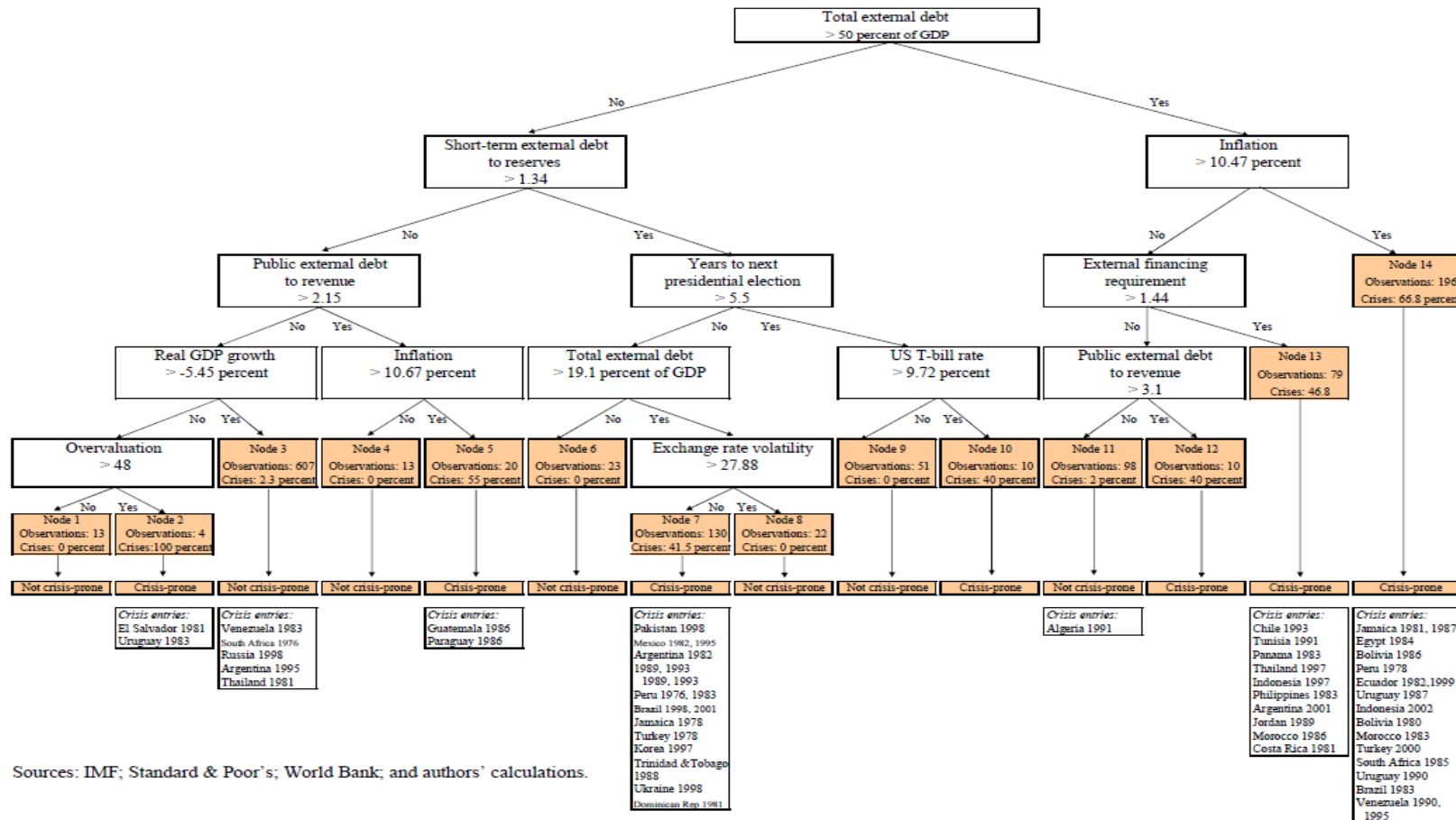
1. Transparency;
2. Universality (all creditors treated equally).

Issues to be debated:

- d. Burden sharing;
- e. Transition period;
- f. What other instrument to include (bonds vs loans);
- g. Borrowing costs (higher ex ante)

BUT, WHAT ARE THE DETRMINANTS OF A CRISIS?

Figure 1. The Empirical Tree



Sources: IMF; Standard & Poor's; World Bank; and authors' calculations.

From Manasse-Roubini, IMF

Sovereign debt: basic concepts (lecture 1 and maybe part of lecture 2)

Main culprits:

- a. Excessive indebtedness (i.e., poor fiscal policies in the past)
- b. Inflation (i.e., poor monetary policies)
- c. Exchange rate volatility (i.e., poor and inconsistent policies or fixed exchange rate in presence of a. and b.)

i.e., external debt crises are rooted in poor domestic policies, cannot blame the bond vigilante!