

US, China and Europe's imbalances : Problems and scenarios for the Eurozone

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Motivation

- Some economists attribute the current global financial crisis to unsustainable world imbalances, as discussed in previous sessions.
- There are certainly imbalances between some regions of the eurozone (Greece, Italy, Portugal) and other regions (Germany, The Netherlands).
- There are also imbalances between China and the USA, with an accumulation of foreign exchange reserves.
- These imbalances interact with each other.
- The purpose of this presentation is to show how the SFC framework can be useful to understand what is going on right now in Europe and what might happen to the USA.

Outline

- General Method
- European Imbalances
- East Asian Imbalances

The ideal model vs what I offer

- Ideally, to take into account all these possible interactions, we would create a model with four countries:
 - USA, East Asia (China), and two Eurozone countries
- I will have to split the analysis into two models, which were previously built, each with three countries:
 - The first one contains the USA, on a flexible exchange rate with Europe, itself divided into two countries.
 - The second model has the USA, on a fixed exchange rate with China, with Europe being on a flexible exchange rate with the dollar and the yuan.
- The first model was published in the *Cambridge Journal of Economics* in 2007 (with Wynne Godley).
- The second model just got published in *Metroeconomica* in 2010 (with my student Jun Zhao)

Other possibilities

- Build another 3-country model with USA, China and South America, where the South American country is on a managed float with the USA and where the South American country is indebted in US dollars vis-à-vis the USA.

Method I

- These two models are exemplars of the method put forward by Wynne Godley (1926-2010), in a Levy Institute paper published in 1999 on open economies, called: « Open economy macroeconomics using models of closed systems ».
- See also see Godley Lavoie book 2007, ch. 6 and 12.
- In its practical version, it is tied to the New Cambridge model developed in the 1970s by Godley, Cripps, Coutts and others at the Department of Applied Economics.
- It is also tied to the method used at the Levy Institute for its medium-term assessment, and also by some economists at Goldman Sachs (Hatzius 2003, 2006).
- The present theoretical version has some similarities with some versions of computable general equilibrium models, more specifically some structuralist CGE models and financial CGE models.

Method II

- SFC models quickly become complex, as the interactions between countries and economic variables are all described.
- For this reason, we tend to use simulation techniques.
- To evaluate the impact of a change in the value of a parameter we start from a stationary position, impose this change, and observe the evolution of various variables.
- I must warn that there is no effort at calibration in these two models. The whole effort is in setting up a stock-flow coherence with no flow being omitted. There is no implicit equation. All equations are explicit (each variable must be found on the left-hand side of a single equation).
- The two models are complex and large (more than 80 equations), but still omit some crucial elements (inflation)

Main endogenous variables of the main closure of the model

- In all three countries:
 - GDP, disposable income, taxes, sales, consumption
 - Capital gains, household wealth and its allocation between cash and securities of different countries
 - Central bank assets and liabilities
 - Exports, imports, and hence, the trade account, the current account and the capital account
 - In the Chinese model, loans, bank deposits, central bank advances.....

Main exogenous variables of the main closure

- In all three countries:
 - The tax rate
 - Propensities to consume and the parameters of portfolio behaviour
 - Import elasticities
 - Pure government expenditures (excluding debt servicing)
 - The interest rates set by central banks (governments issue only one kind of security)

Behavioural equations

- Standard Keynesian equations :
 - Consumption equations (income, **wealth**)
 - Import equations and hence exports (income, exchange rate)
 - Tobin portfolio equations (imperfect asset substitutability; adding-up conditions)
 - Production supply responds to demand
 - Central banks set interest rates, and the supply of cash money is endogenous

EUROZONE IMBALANCES

Levy Institute, Hyman P. Minsky Summer Seminar, June 19-26, 2010



Table 1. *Balance sheet matrix*

	US\$			Exchange rate	Euroland				Sum
	Households	Govt.	FED		Households #	Govt. #	Households &	Govt. &	
Cash	$+H\$$		$-H\$$		$+H\#$				0
							$+H\&$	$-H\&$	0
Bills	$+B\$\$$	$-B\$$	$+BFED\$$	$xr\$$	$+B\#\$$		$+B\&\$$	$+BECB\$$	0
	$+B\#\$$			$xr\$$	$+B\#\#$	$-B\#$	$+B\&\#$	$+BECB\#$	0
	$+B\&\$$			$xr\$$	$+B\#\&$		$+B\&\&$	$-B\&$	0
Net worth	$-V\$$	$-V\$_G$	0	$xr\$$	$-V\#$	$-V\#_G$	$-V\&$	$-V\&_G$	0
Sum	0	0	0		0	0	0	0	0

Table 2. *Transactions flow matrix*

	USA					Euroland							Sum
						# Euro country			& Euro country			ECB	
	Hhlds	Firms	Govt	FED	Exch. Rate	Hhlds	Firms	Govt	Hhlds	Firms	Govt		
Cons.	-C\$	+C\$				-C#	+C#		-C&	+C&			0
Govt. Exp.		+G\$	-G\$				+G#	-G#		+G&	-G&		0
Trade		-IM\$			$xr\$$		+X\$#			+X\$&			0
		+X\$			$xr\$$		-IM#			-IM&			0
							+X#			-IM&#			0
							-IM#&			+X#&			0
GDP	+Y\$	-Y\$				+Y#	-Y#		+Y&	-Y&			0
Taxes	-T\$		+T\$			-T#		+T#	-T&		+T&		0
Interest payments	$+r\$ \cdot B\$$		$-r\$ \cdot B\$$	$+r\$ \cdot BFED\$$	$xr\$$	$+r\$ \cdot B\#$			$+r\$ \cdot B\&$			$+r\$ \cdot BECB\$$	0
	$+r\#B\#$				$xr\$$	$+r\#B\#\#$		$-r\#B\#$	$+r\#B\&\#$			$+r\#BECB\#$	0
	$+r\& \cdot B\#\&$				$xr\$$	$+r\& \cdot B\# \&$			$+r\& \cdot B\&\&$		$-r\& \cdot B\&$	$+r\& \cdot BECB\&$	0
CB profits			+F\$	-F\$				+F#			+F&	-F&	0
Changes in:													
Cash	-ΔH\$			+ΔH\$		-ΔH#			-ΔH&			+ΔH#+ΔH&	0
\$ bills	-ΔB\$		+ΔB\$	-ΔBFED\$	$xr\$$	-ΔB#			-ΔB&			-ΔBECB\$	0
# bills	-ΔB\$#				$xr\$$	-ΔB##		+ΔB#	-ΔB&#			-ΔBECB#	0
& bills	-ΔB\$&				$xr\$$	-ΔB#&			-ΔB&&		+ΔB&	-ΔBECB&	0
Sum	0	0	0	0		0	0	0	0	0	0	0	0

An experiment using the main closure

- Starting from a full stationary state (constant wealth, balanced budget, balanced current account), we impose an increase in the propensity of Italy or Greece (the & country) to import goods from the the USA (the \$ country).
- **Most results would be nearly identical (except for the evolution of the euro) if we assumed instead an increase in the propensity of the USA to import goods from Germany.**
- An increase in the propensity of Italy/Greece to import goods from Germany would yield the standard results of a 2-region economy, and is thus less interesting, having already been discussed in some measure in chapter 6 of G&L 2007.

Main results of the main closure

- Flexible exchange rates still bring the eurozone current account towards equilibrium (zero), but there is no tendency for each country of the eurozone to have a balanced current account (and hence a balanced budget position).
- Interest rates can remain constant, but the ECB must accept a transformation of the composition of its assets (it must hold more assets issued by the deficit eurozone country).
- Eurozone countries cannot all converge towards balanced or surplus budget positions, unless deficit countries decide to self-impose fiscal austerity measures (or unless surplus countries decide to give up fiscal austerity and pursue expansionary policies).

Figure 1.2: The euro (measured in dollars) depreciates, following the increase in the propensity of the & country (Greece, Italy) to import goods from the \$ country (USA)

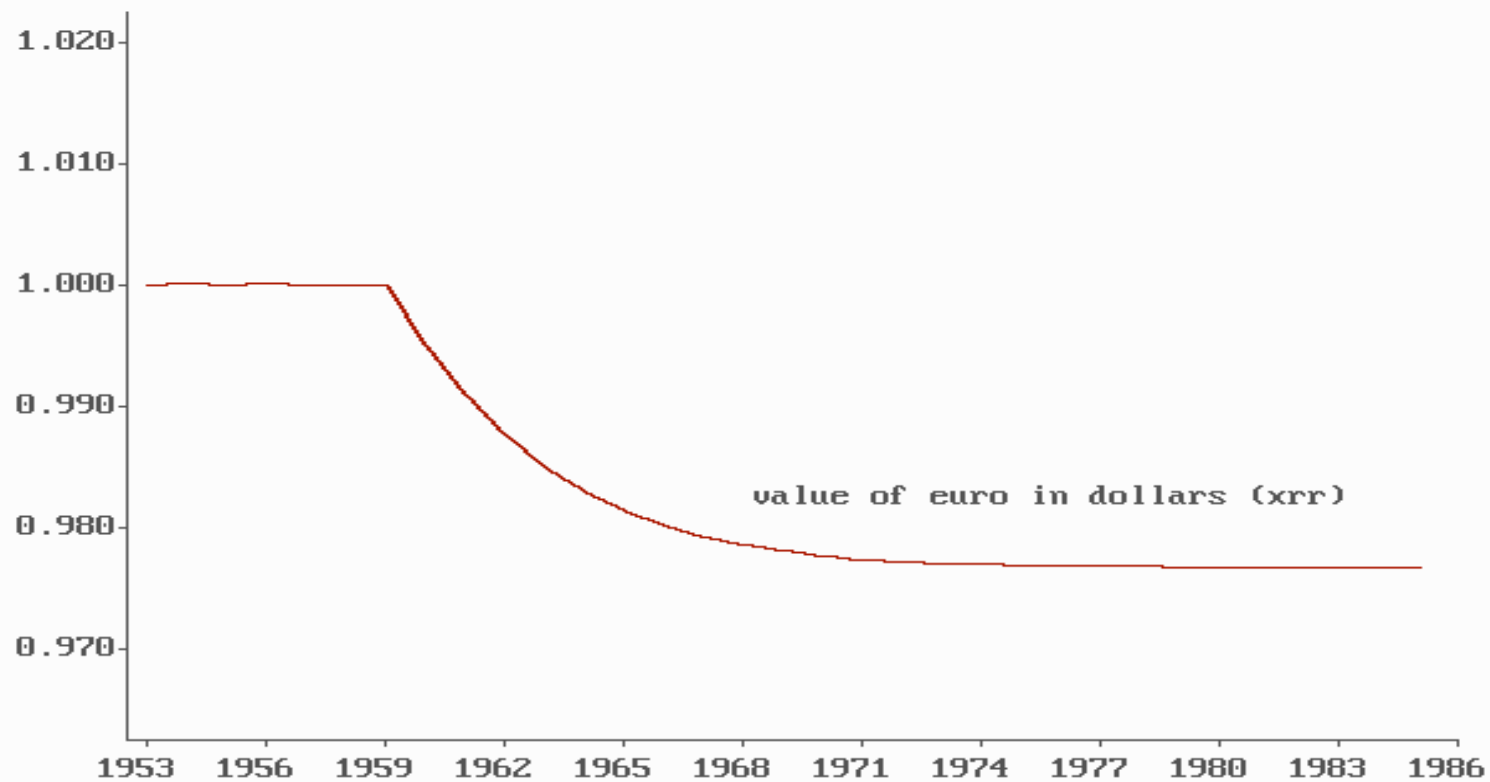


Figure 1.1: Effect on the domestic product of each country of an increase in the propensity of the ‘&’ (Greece) country to import products from the ‘\$’ country (main closure).

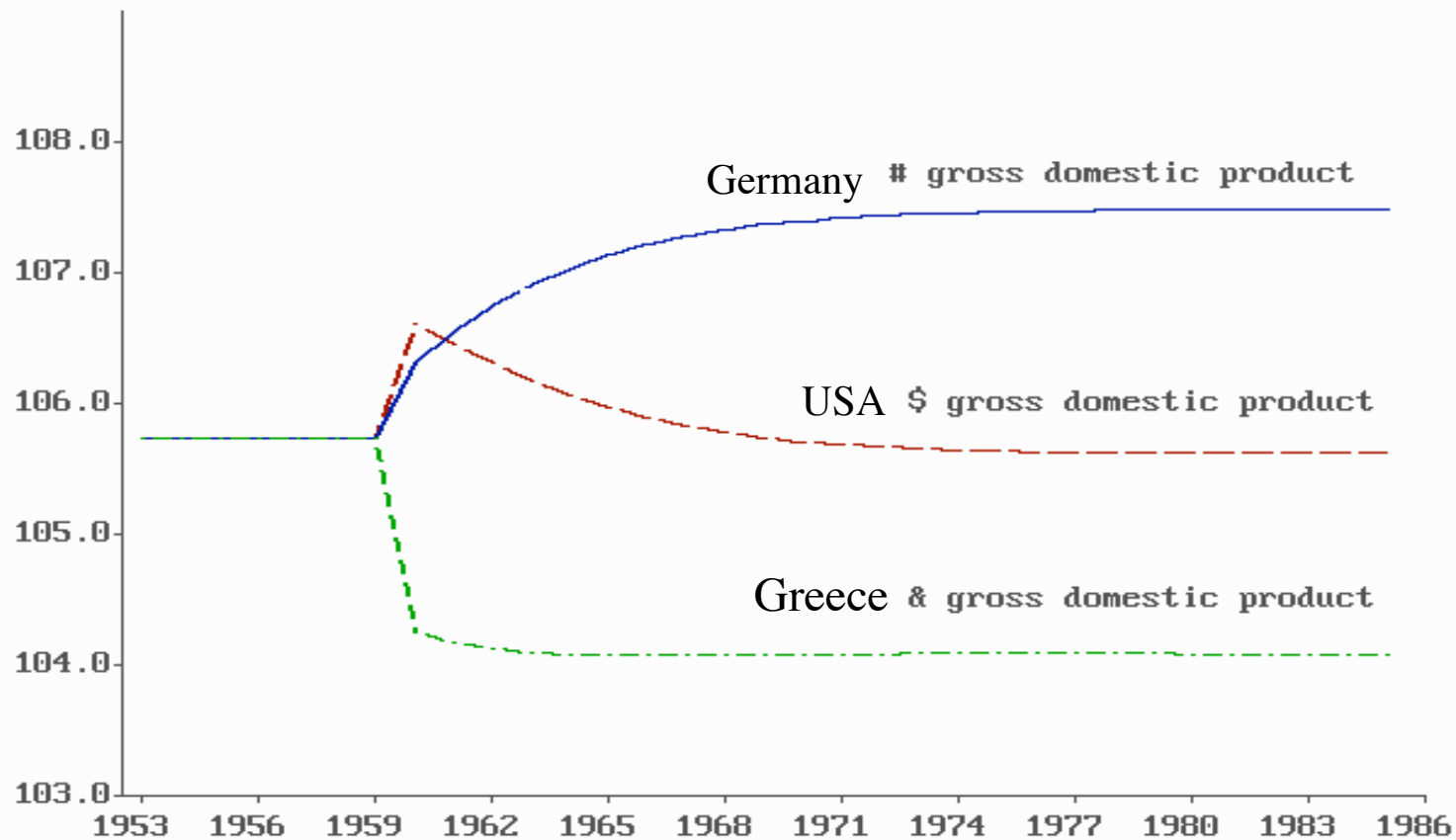
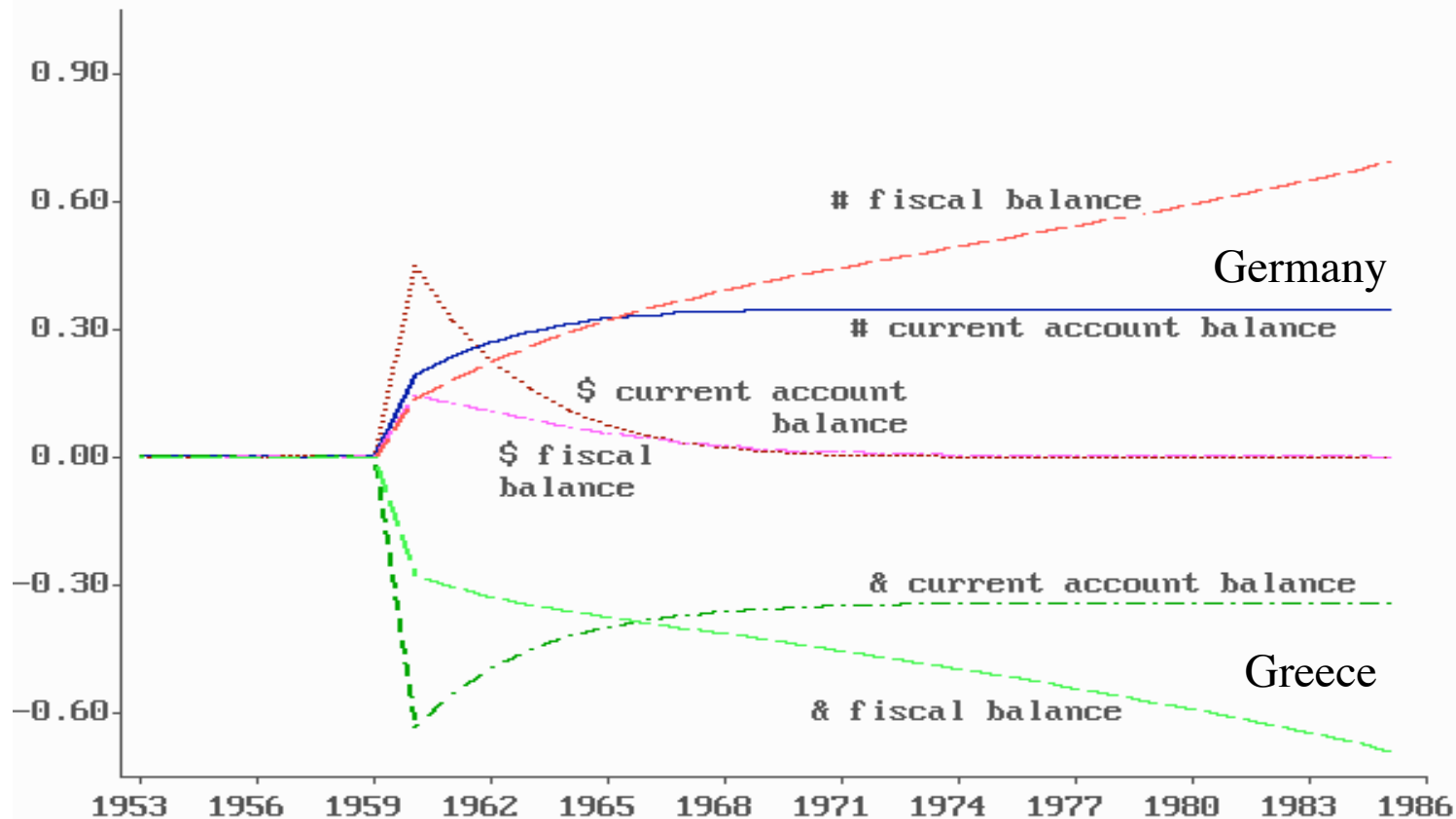


Figure 1.3: Effect on various balances of an increase in the propensity of the ‘&’ country to import products from the ‘\$’ country (main closure).



The peculiarity of the eurozone

- The current account of USA goes back to zero
- Hence the current account of Euroland goes back to zero, because Europe is on a flexible exchange rate with the USA.
- However each individual country of Euroland does not see its current account balance reverting to zero.
- Nor does the budget balance of each individual Euroland country. This is because the Euroland countries are in a sort of fixed exchange regime within Euroland.

Marshall-Lerner conditions ?

- It is worth pointing out, since it is so often assumed that the sum of the elasticities with respect to relative prices must sum to at least one if the trade balance is to improve following devaluation (the Marshall-Lerner condition), that in verity the sum of these elasticities need only be slightly greater than the elasticity of terms of trade with regard to devaluation. For instance, if the deterioration in the terms of trade were 20% of the devaluation, then the sum of the price elasticities need be no more than 0.2. If there were no change at all in the terms of trade following devaluation – not an impossible outcome – the sum of the elasticities need be only slightly greater than *positive* for the balance of trade to improve.

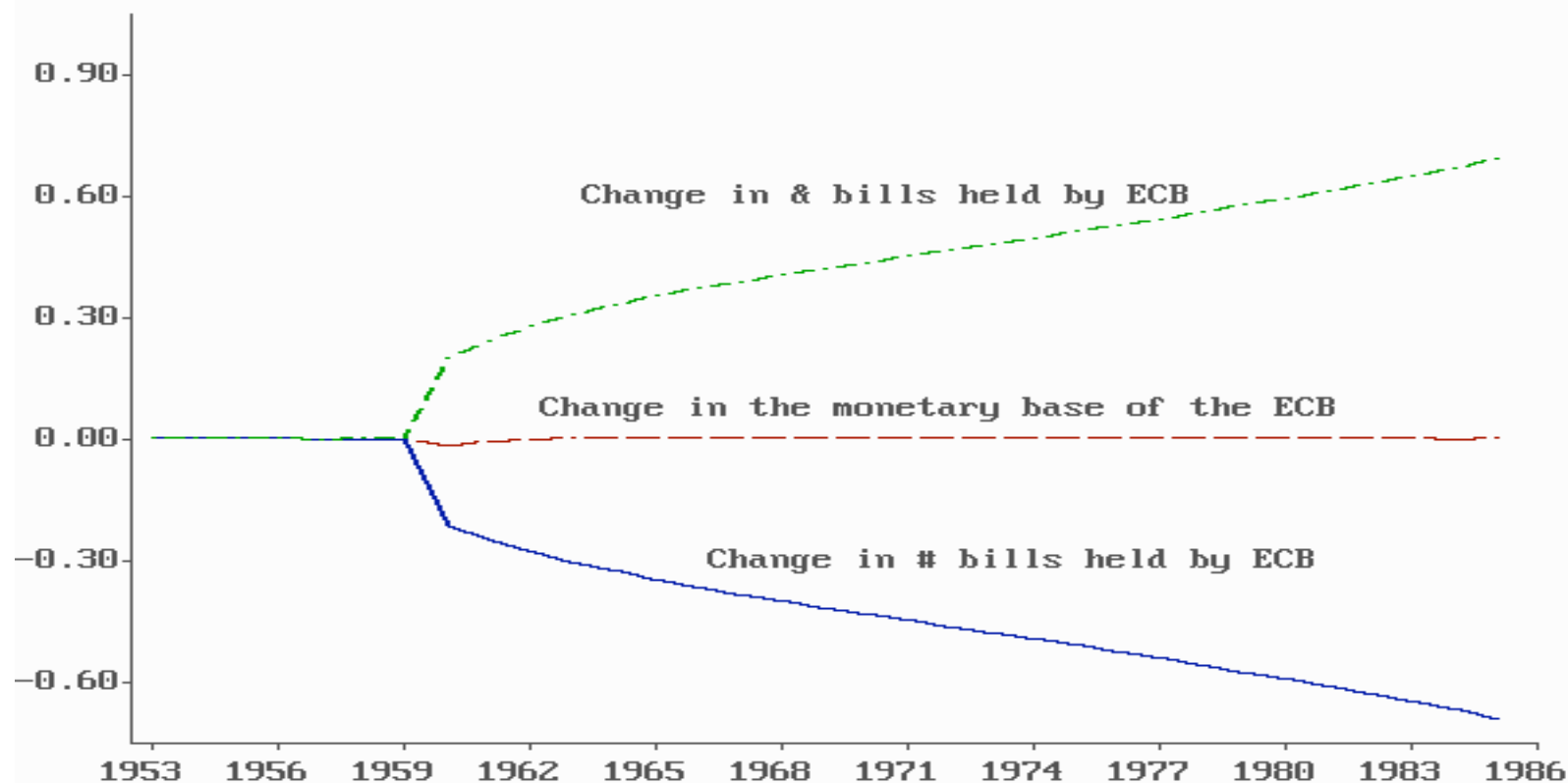


Financial balances approach

- In Godley's approach, the analysis of financial balances gives clues to where the economy is going in the medium term.
- This theoretical model is an illustration of the New Cambridge hypothesis developed by Godley and his colleagues at the Department of Applied Economics at the University of Cambridge, starting in 1974.
- The NAFA of private sector (net financial saving of private sector) = PSBR + current account balance

$$(S - I) = (G - T) + (X - IM + NFY)$$

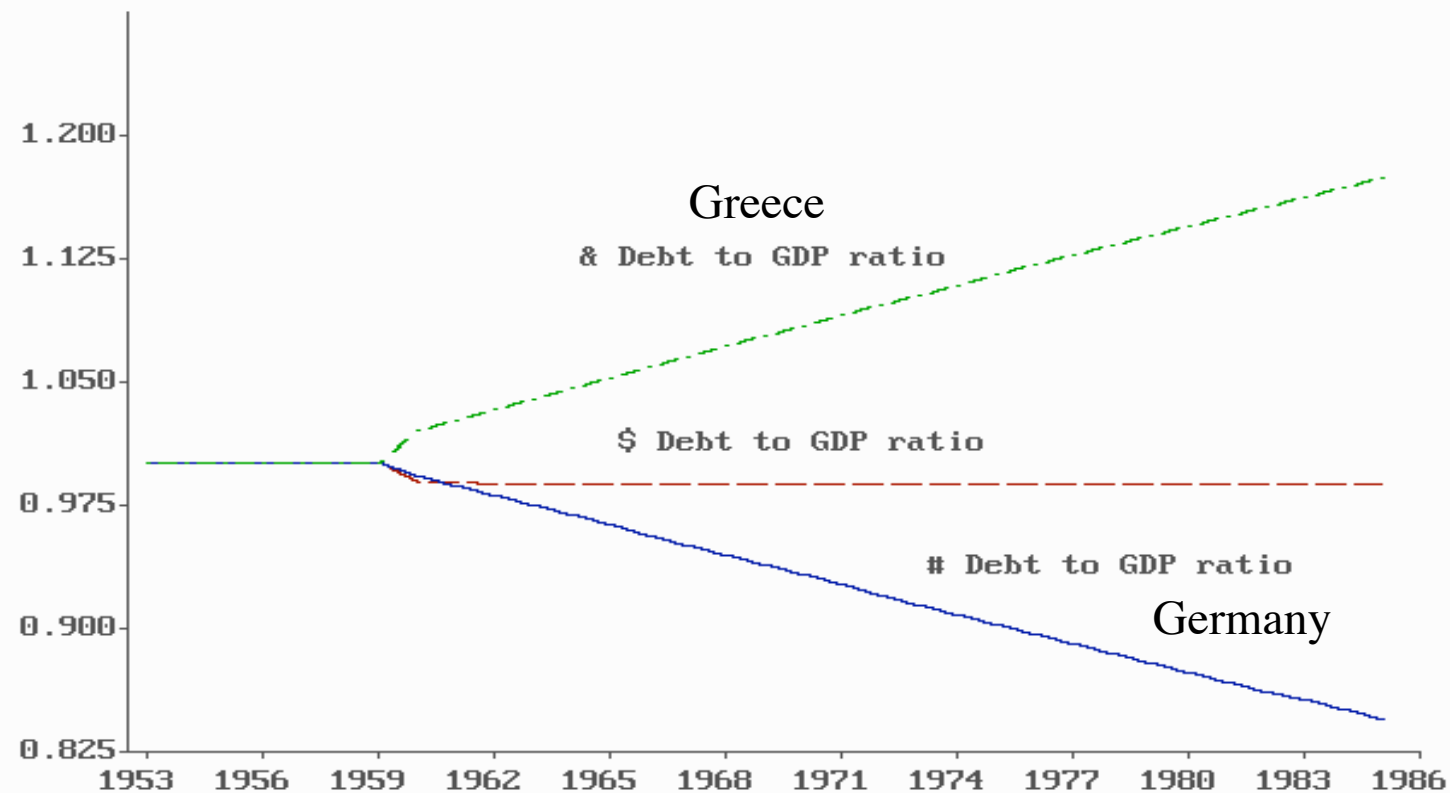
Figure 1.4: Evolution of the assets and liabilities of the European Central Bank following an increase in the propensity of the '& Greece' country to import products from the '\$ USA' country (main closure, with rates of interest remaining constant in both countries)



Requirements to keep euro interest rates under control (as in the USA)

- The ECB must purchase or acquire sovereign debt from the various national governments
- On the assumption that the private sector does not change its portfolio preferences, the ECB must gradually get rid of the securities issued by governments that run budget surpluses and it must acquire more of the securities issued by the governments that run budget deficits.
- In other words, the ECB must act as the residual buyer.

Figure 1.5: Relative evolution of the debt to GDP ratios, in a world where pure government expenditures grow at an exogenous rate 3.5% (vs interest rate at 3%)



Closure 2: endogenous interest rates

- The interest rate of country & (Italy, Greece) becomes endogenous.
- To get this variant, a series of equations must be inverted.
- Here it must be supposed that the ECB (and the Eurosystem) refuses to purchase additional Italian or Greek securities. As a result, the interest rate on Italian or Greek bills or bonds becomes endogenous, to clear the financial markets.

Figure 2.1: Effect of an increase in the propensity of country & (Italy, Greece) to import goods from the USA (\$), when the interest rate & on Italian or Greek securities is endogenous.

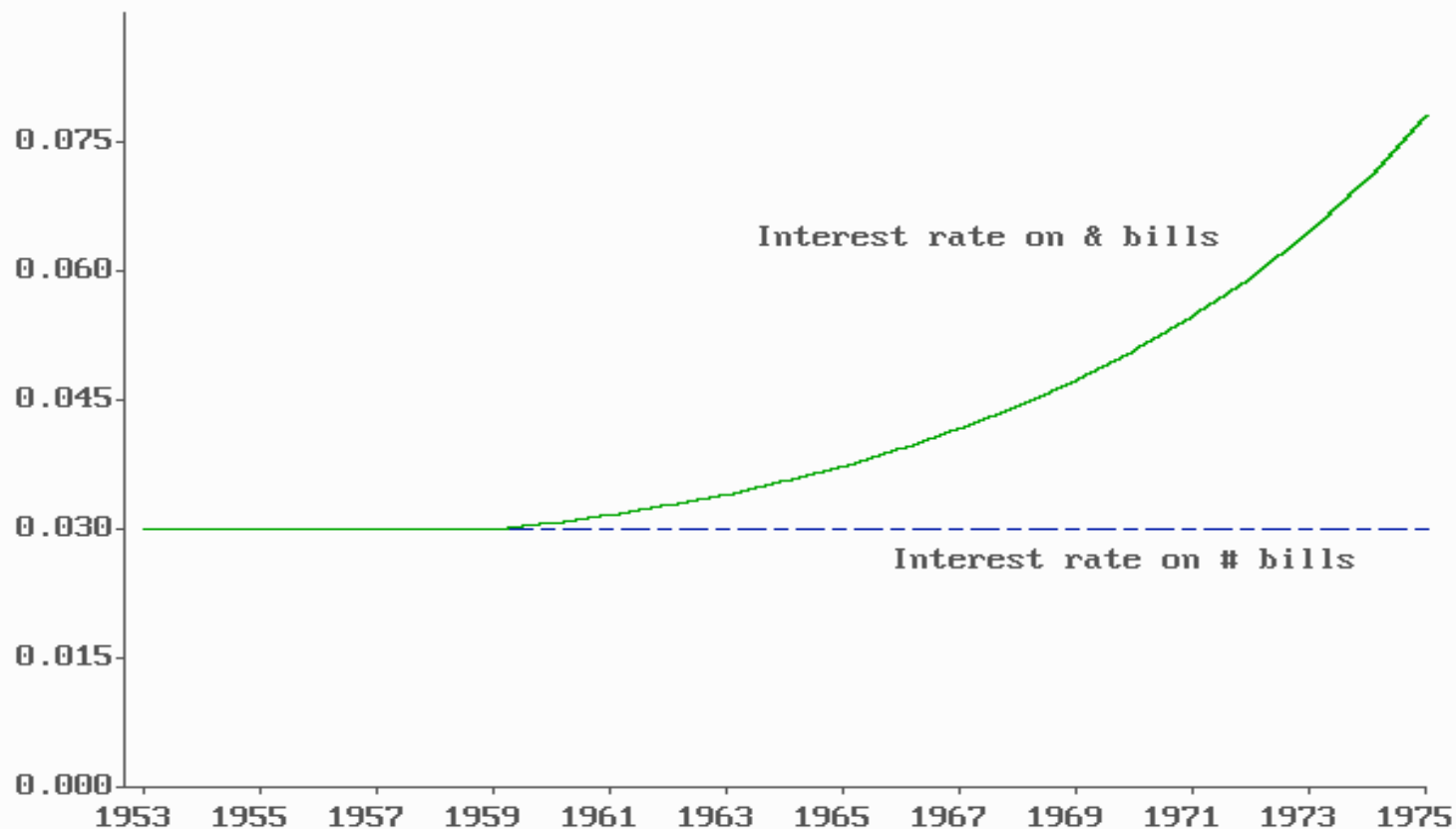
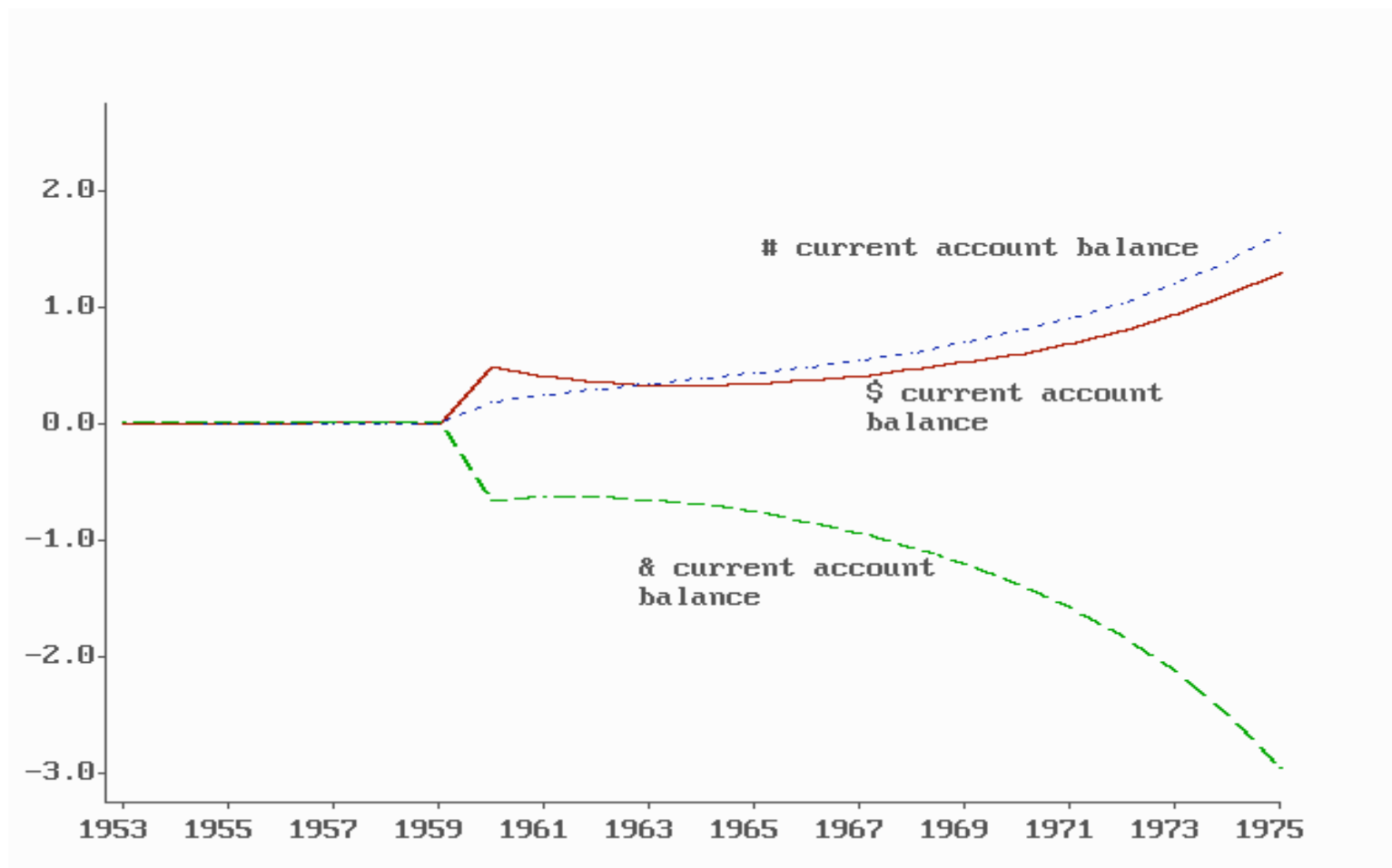


Figure 2.2: Effect of an increase in the propensity of country & (Italy, Greece) to import goods from the USA (\$), when the interest rate & on Italian or Greek securities is endogenous.



Closure 2: The adjustment through interest rates leads to instability.

- The adjustment through interest rates brings the asset market to equilibrium for a single period. A continuous readjustment is needed, pushing up the interest rate for countries with a deficit current account (and fiscal deficit).
- The current account of the two euro countries seems to converge to a steady value initially.
- However, eventually, the current account of the deficit country worsens and the model explodes.
- Interest rate endogeneity brings about instability systematically in this kind of models.

Closure 3: Endogenous government expenditures by deficit country

- If the ECB does not want to take on more assets issued by the deficit country (Italy, Greece), or if the deficit country does not want to let its debt to GDP ratio drift upwards, then the deficit country may decide to impose fiscal austerity, having endogenously falling government expenditures.
- The Greek or Italian government then acts as if it were facing a loanable funds constraint: the supply of government securities must adapt to the demand for Greek or Italian securities by households (or the banks that purchase these securities on their behalf).

Figure3.2: Effect on current account balances of an increase in the propensity of the 'Greece &' to import products from the 'USA', when government expenditures of the deficit country are endogenous

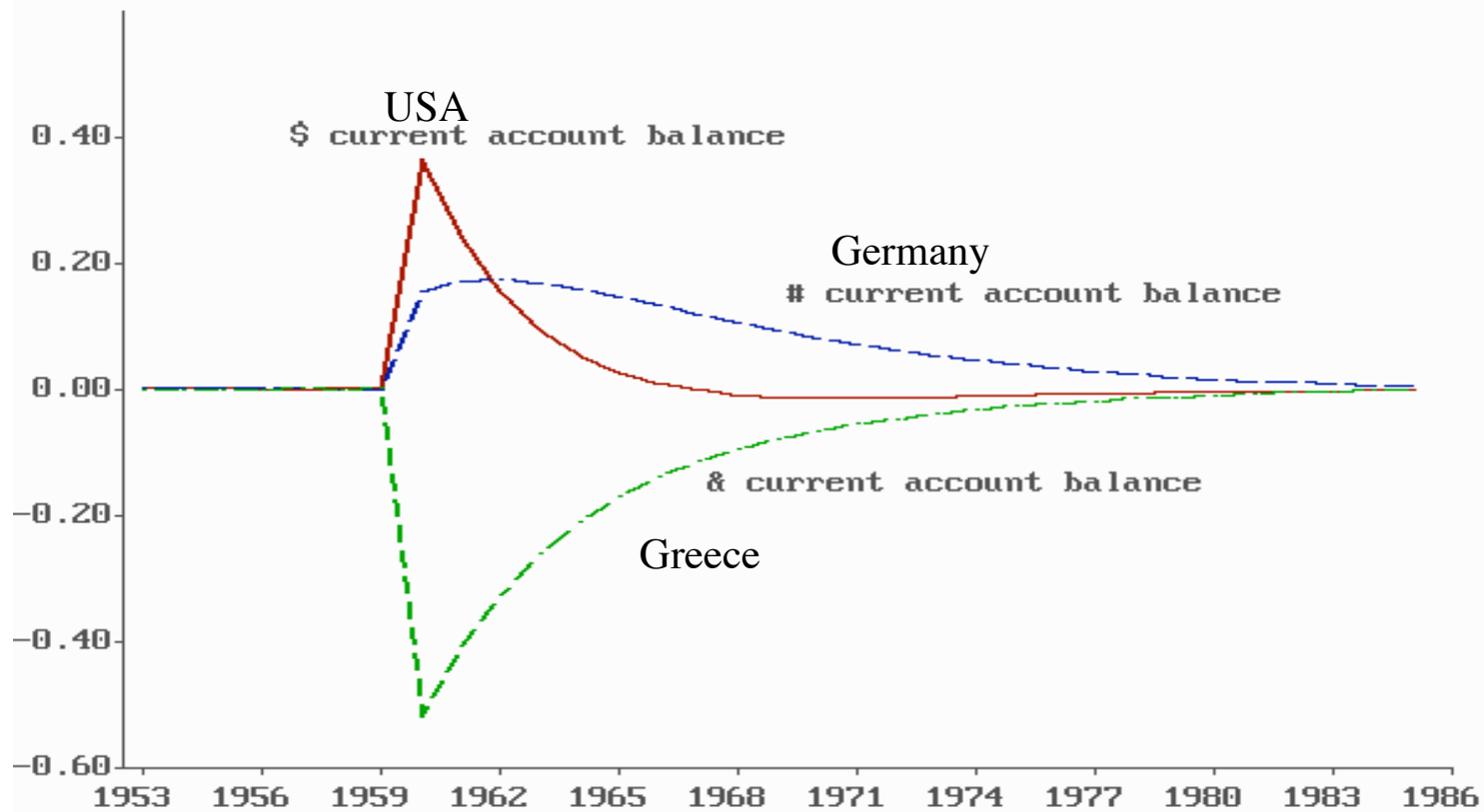
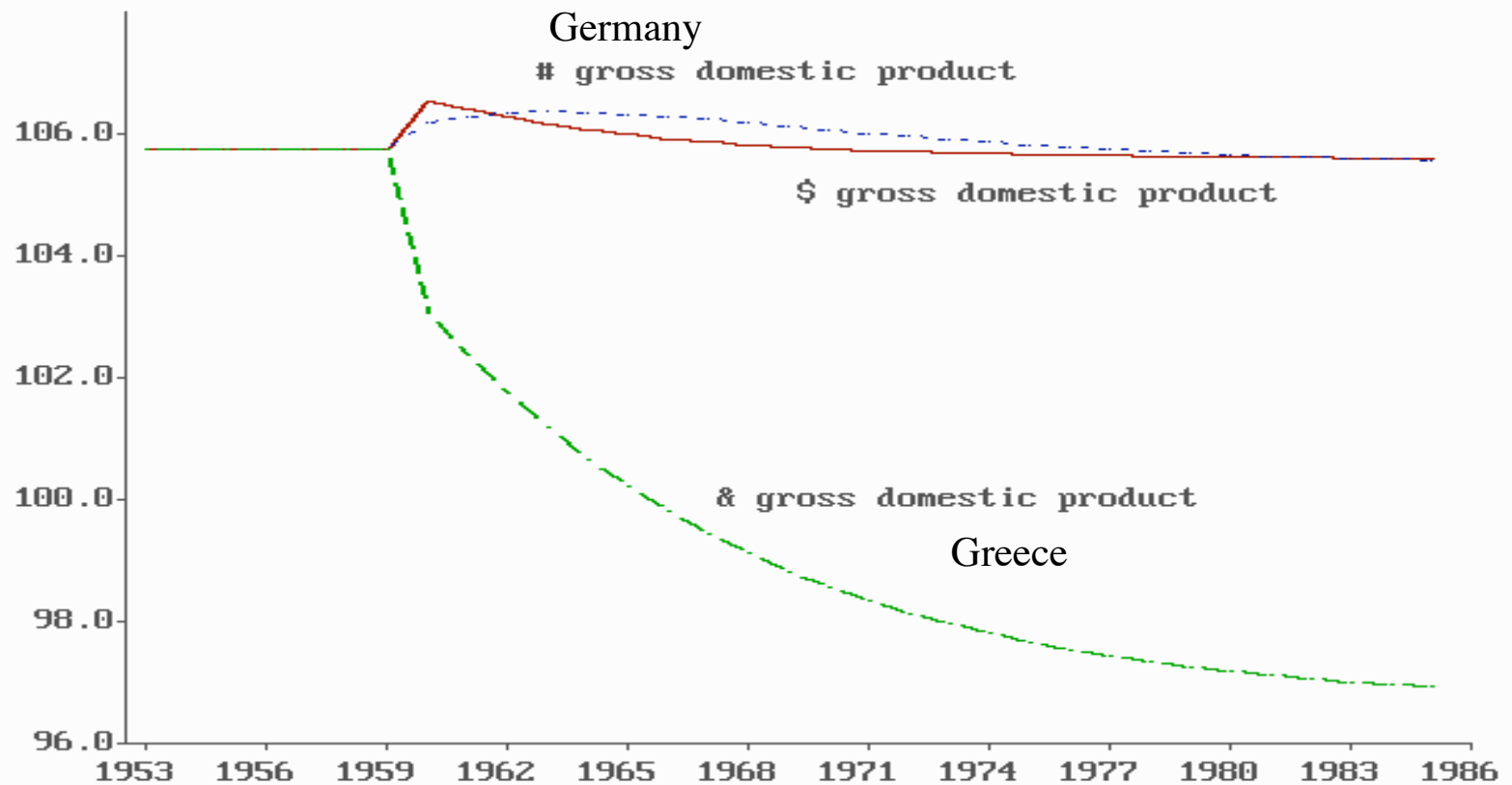


Figure3.3: Effect on debt/GDP ratios of an increase in the propensity of the ‘&’ country to import products from the ‘\$’ country, when government expenditures of the deficit country are endogenous



Figure 3.1: Effect on GDP of an increase in the propensity of the ‘&’ country to import products from the ‘\$’ country, when government expenditures of deficit country are endogenous



Compare with Figure 1

Conclusion I

- All countries of the eurozone cannot be in a current account surplus or balanced position (unless the deficit countries pursue austerity policies that are detrimental to all).
- Thus some eurozone countries will have a government deficit.
- The government deficit of a eurozone country may not arise because of lax fiscal behaviour.
 - it may arise because of a poor trade performance;
 - or because other countries of the eurozone have an improved trade performance (e.g., Germany);
 - this transforms the euro into an overvalued currency, causing current account and budget deficits for the other eurozone countries.

Conclusions II

- The current setup of the Eurozone is flawed.
- There is no strong federal government that can engage in substantial equalisation payments, thus averting the present bias towards downward fiscal adjustments, not to speak of the 3% deficit rule.
- The ECB and the national central banks normally do not purchase government securities, and they certainly never do it directly. Thus, unless households or their banks decide to hold a greater proportion of securities issued by fiscally-weak countries, interest rates on government securities in the eurozone can only diverge ever more.
- The decision taken by European leaders and the ECB on May 10th, 2010, was the only reasonable one that could be taken, with the ECB purchasing Greek debt and thus conducting « credit easing » operations, now favouring sovereign debt, instead of private debt as had occurred until then in Europe, the USA, and Canada.

Article 123

(ex Article 101 TEC)

1. Overdraft facilities or any other type of credit facility with the European Central Bank or with the central banks of the Member States (hereinafter referred to as ‘national central banks’) in favour of Union institutions, bodies, offices or agencies, central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of Member States shall be prohibited, as shall the purchase directly from them by the European Central Bank or national central banks of debt instruments.



ASIAN IMBALANCES

Levy Institute, Hyman P. Minsky Summer Seminar, June 19-26, 2010



The Chinese model

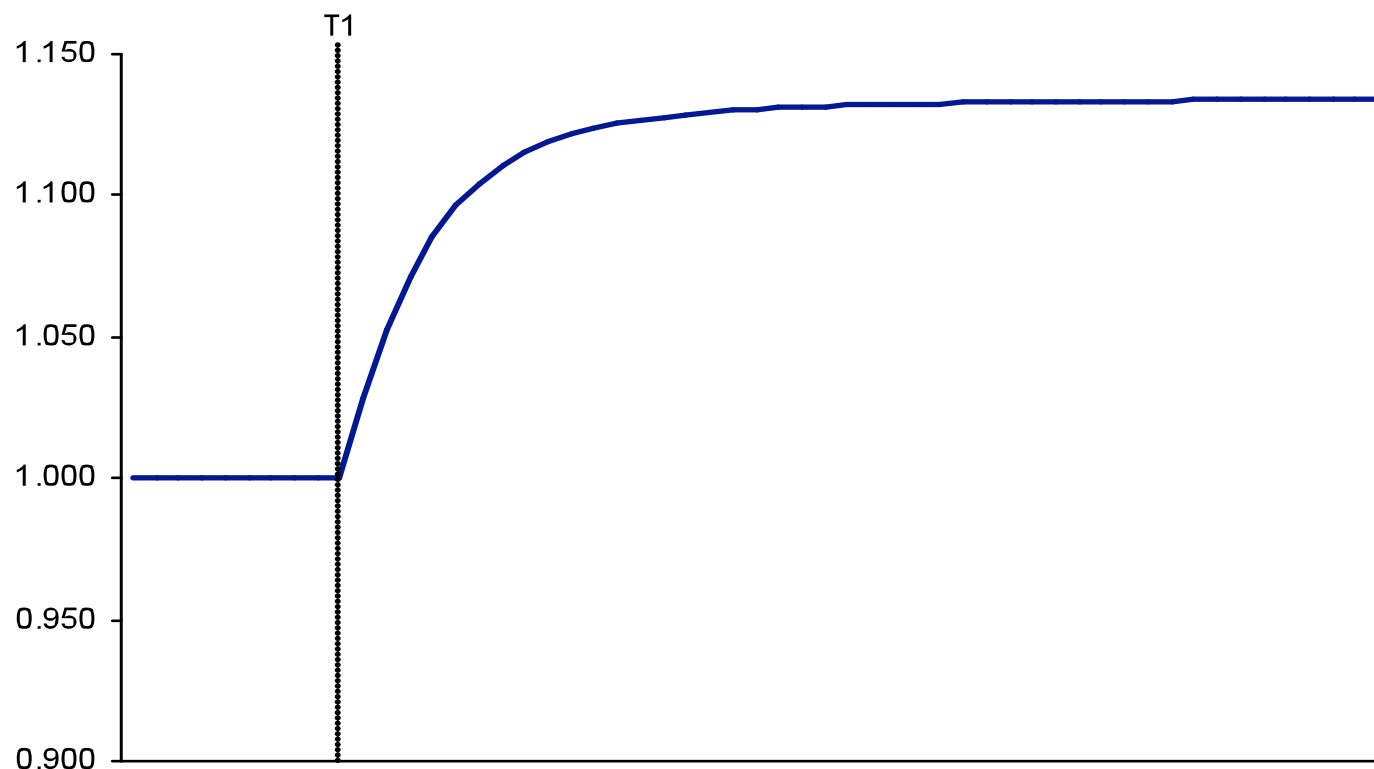
- This model has the USA on a fixed exchange rate with China, with Europe being on a flexible exchange rate with the dollar and the yuan.

Another example of interdependence

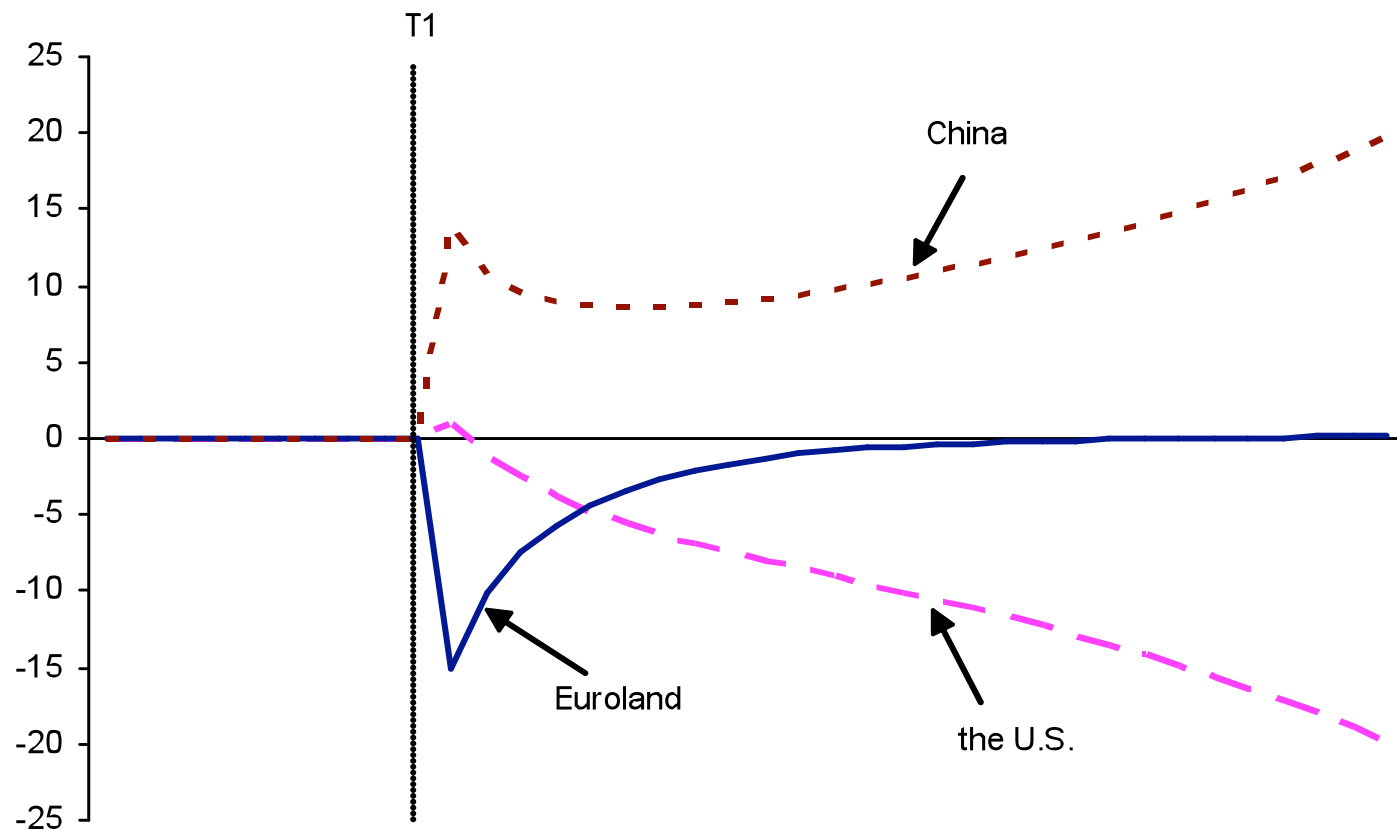
- Assume the Eurozone now has a higher propensity to import goods from China.
- This will have a feedback impact on the USA.
- The euro currency will depreciate relative to yuan, and hence, because the yuan is fixed relative to the US dollar, the euro will also depreciate relative to the US dollar.
- As a result, US exports will fall, driving the US economy into a current account deficit and a government budget deficit.
- Some **qualitative** simulations (**not calibrated**) in a 3-country SFC model.

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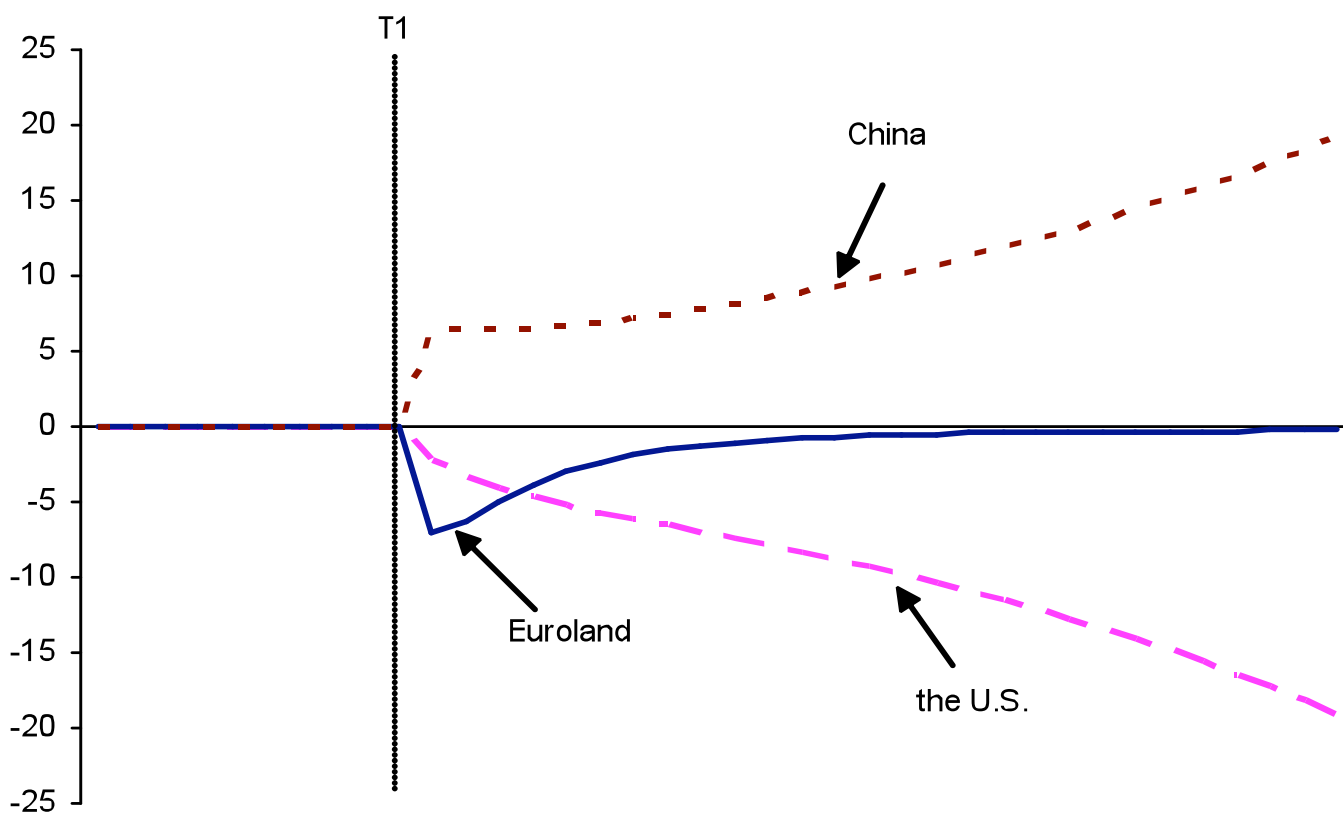
The impact of the greater desire of Europe to buy Chinese goods on the value of the Dollar in terms of the Euro



The impact on current account balances of the greater desire of Europe to buy Chinese goods



The impact on government budget balances of the greater desire of Europe to buy Chinese goods



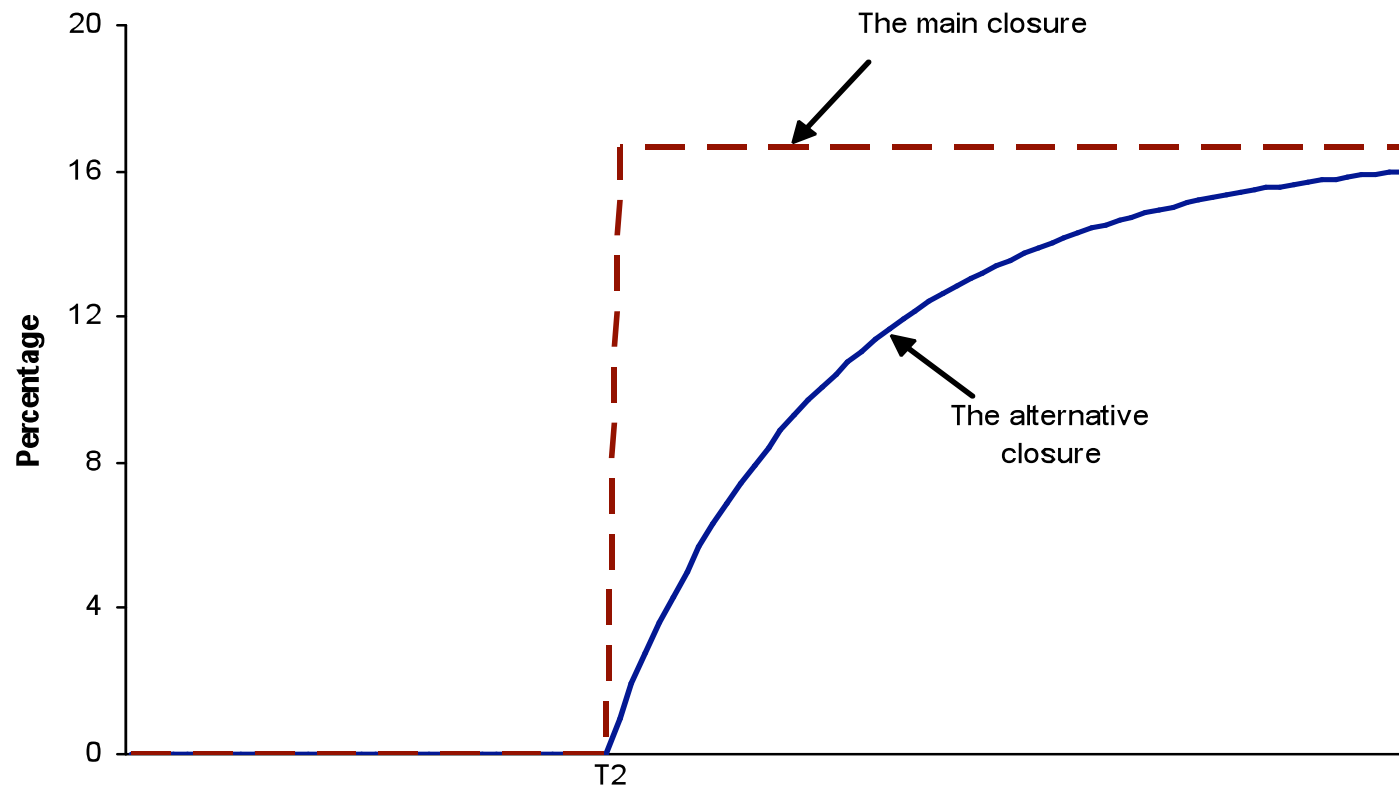
Asian foreign reserves

- The question of the diversification away from US dollar foreign exchange holdings is nothing new.
- There were important concerns in the 1970s
- These concerns arose again recently, since 2005, before the Global financial crisis.
- Chinese foreign reserves exceeded 2 trillion dollars in mid 2009. They are now said to exceed 2.5 trillions.

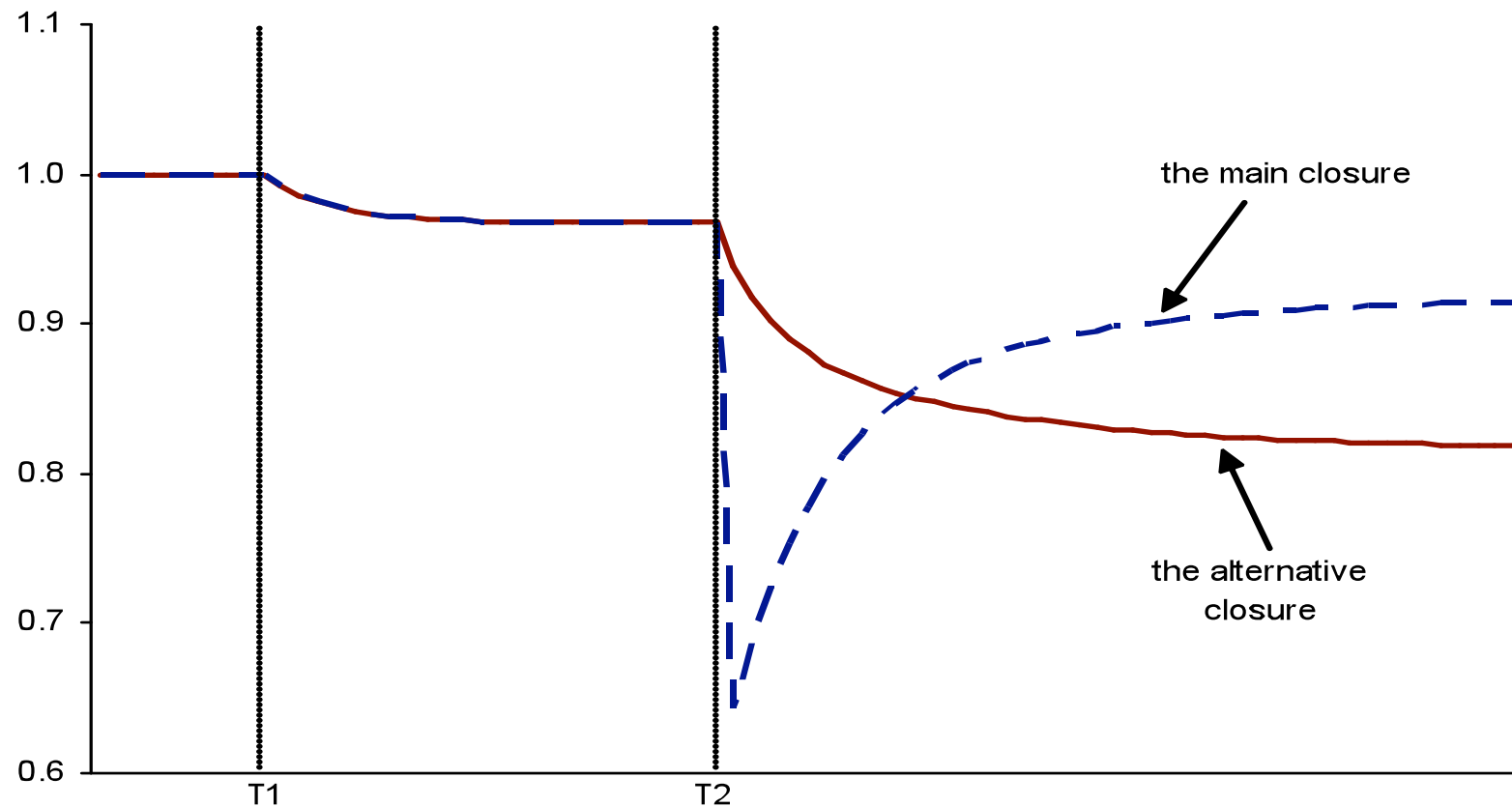
The diversification of Chinese foreign reserves

- What if the central banks of China, Japan and S. Korea decide to sell their dollar foreign reserves and purchase instead euros?
- Then obviously, the euro should appreciate relative to the dollar (Blanchard et al. 2005; Dullien 2007).
- Does it make any difference if the diversification is sudden or gradual?
- Some **qualitative** responses (**not calibrated**) in a 3-country SFC model.

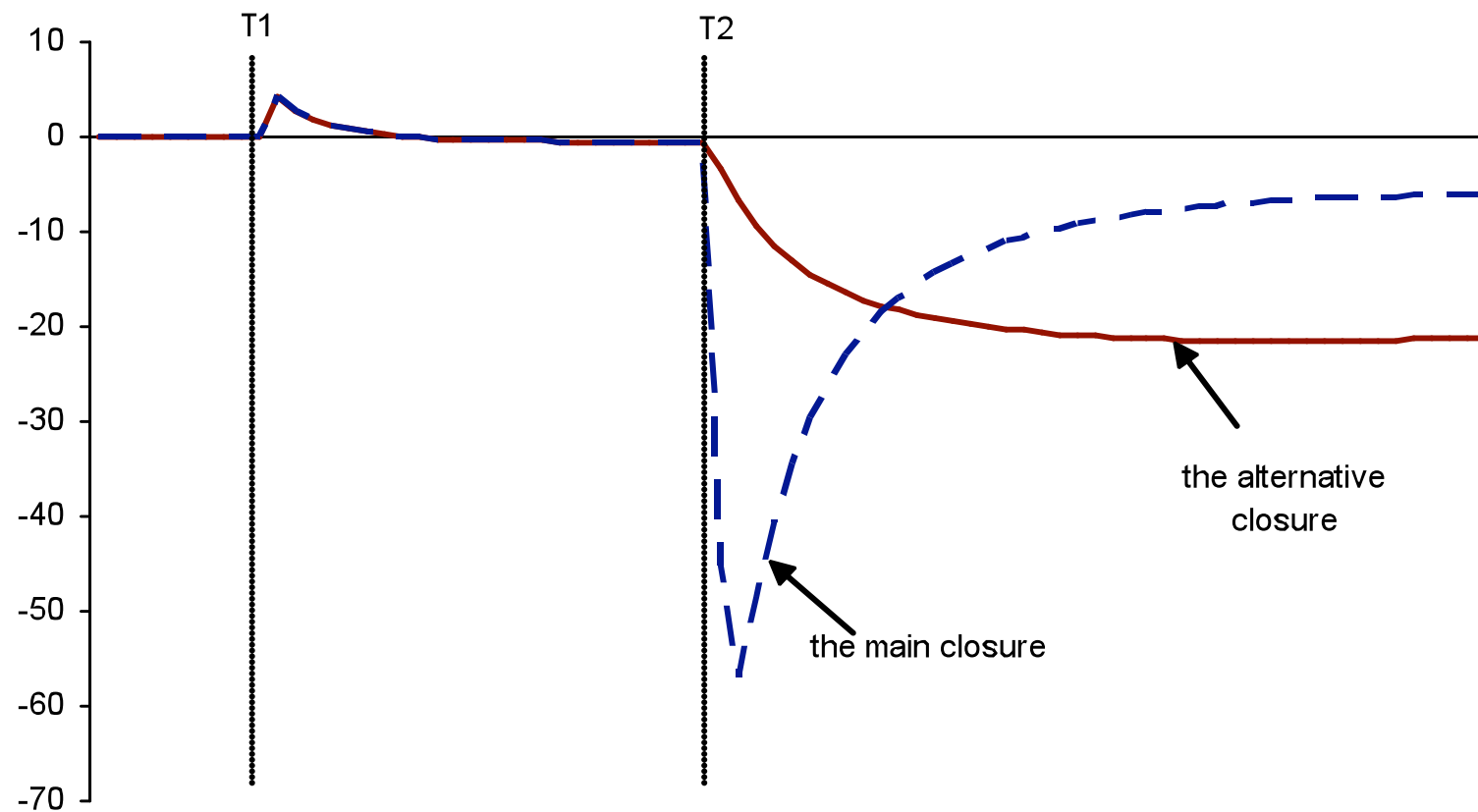
Brisk versus Gradual diversification (share of euro in China's foreign reserves)



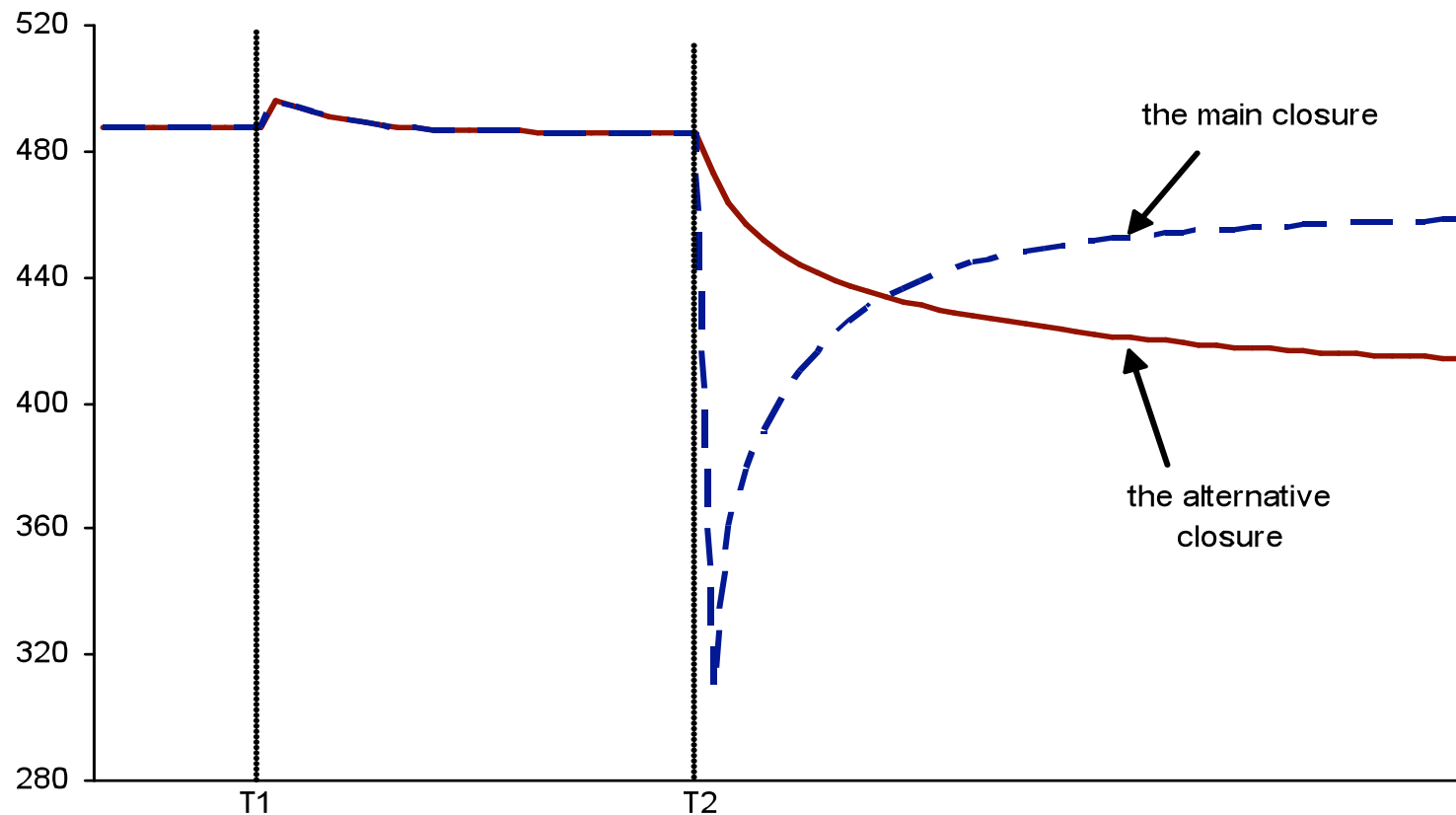
The value of the dollar in terms of the euro following diversification



Impact of the diversification on the trade balance of the eurozone



Impact of the diversification on the GDP of the eurozone



Conclusion

- Obviously, there is a form of **path dependence**. How the central bank of China achieves its target diversification rate has an impact on the steady state values of the model.
- In our models, diversification away from the US dollar has negative consequences for the Euro economy, not for the US economy, in contrast to what the popular press sometimes claims.