

The Gold Standard and the European Monetary Union (EMU)

*Are the factors that contributed to the breakdown of the gold
standard also present in the EMU?*

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1. Abstract

This thesis seeks to identify the most important factors that contributed to the breakdown of the gold standard in the 1930s, and to see if these factors are present in the European Monetary Union (EMU) today. This is done in order to find out if the same factors might create, or have created, similar instabilities and problems in the EMU as they imposed on the interwar gold standard.

The factors regarded as important for the breakdown of the gold standard are (1) the central bank's interest rate policy and the rules of the game, (2) imbalances in exchange rates and (3) debt levels, (4) the systems ability to handle fundamental changes, and the (5) credibility of the monetary union.

Comparative methods have been used in order to find out if the factors are present in both monetary unions. The countries to be analysed are in opposite positions within each union. This is done in order to highlight the differences and instabilities.

The conclusions from the discussion are that there are similarities between the gold standard and the EMU for all the five factors, and that they do impose instabilities also in the EMU.

Gold standard members interrupted gold flows as they failed to follow the rules of the game in their interest rate decisions, while the EMU countries are unable to affect the capital flows in the same manner because of their common interest rate. Differences in inflation and economic development have caused the real exchange rates to diverge between countries, affecting competitiveness and international trade. Also very high debt levels in some countries have imposed problems in both monetary unions. But the origin of the debt and the degree of future government obligations increase the severity of the debt levels in the EMU compared to the gold standard.

Rigidities in wage and price levels impede the adjustment mechanisms within both unions. This has extended the adjustment periods and made them relatively harder for the economic activity as more pressure is put on output and employment in order to adjust. The lack of cooperation and political integration has also reduced credibility in both monetary unions.

It is likely that these factors will continue to create problems within the EMU in the future, but it is difficult to predict if they are going to cause the breakdown of the monetary union.

Compared to the gold standard, the EMU is already a more politically integrated monetary union with free trade and labour agreements and a common independent central bank. This could have made the EMU more resistant to the factors compared with the gold standard, but the efforts seem to be inadequate.

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1.3 Acronyms

BOP – BALANCE OF PAYMENTS

CPI – CONSUMER PRICE INDEX

ECB – EUROPEAN CENTRAL BANK

EC – EUROPEAN COMMISSION

ECSC – EUROPEAN COAL AND STEEL COMMUNITY

ECU – EUROPEAN CURRENCY UNIT

EE – EXTERNAL EQUILIBRIUM

EEC – EUROPEAN ECONOMIC COMMUNITY

EMS – EUROPEAN MONETARY SYSTEM

EMU – EUROPEAN MONETARY UNION

ERM – EUROPEAN RATE MECHANISM

ESCB – EUROPEAN SYSTEM OF CENTRAL BANKS

EU – EUROPEAN UNION

DE – DOMESTIC EQUILIBRIUM

HICP – HARMONISED INDEX OF CONSUMER
PRICES

IMF – INTERNATIONAL MONETARY FUND

NCB – NATIONAL CENTRAL BANK

OCA – OPTIMAL CURRENCY AREA

OECD – ORGANISATION FOR ECONOMIC CO-
OPERATION AND DEVELOPMENT

PIGS – PORTUGAL, IRELAND, GREECE, SPAIN

PIIGS – PORTUGAL, ITALY, IRELAND, GREECE,
SPAIN

PPP – PURCHASING POWER PARITY

ULC – UNIT LABOUR COST

UWC – UNIT WAGE COST

WWI – WORLD WAR I

2. Introduction

2.1 Problem

Comparisons between the gold standard and the European Monetary Union (EMU) have appeared more frequently in the media since the outbreak of the European Sovereign Debt crisis in late 2009¹. It has been claimed that the burdens are unevenly divided between countries and that some of the problems seen in the EMU are similar to those that prevailed under the gold standard in the 1920s.

I want to find out whether there is any truth behind these accusations. Could the instabilities that contributed to the breakdown of the gold standard also impose similar problems for the monetary union in Europe? This assignment compares the most important factors for the collapse of the gold standard with the EMU. This will not necessarily cover all possible problems with the EMU, but rather discover similar instabilities and problems prevailing within two similar monetary unions.

The problem summarised;

“Which political and economical factors were important contributors to the breakdown of the gold standard in the 1930s? Are any of these factors present in the European Monetary Union today, and if so, is it likely that they will contribute to similar lasting instabilities and a possible breakdown of the euro in the future?”

2.2 Restrictions

The interwar period is chosen as the relevant period for the gold standard in this assignment. 1925 is often taken as the reestablishment of the international system after the World War I (WWI), while its demise is usually dated to the sterling’s devaluation in the autumn of

¹ (Rogoff, 2012)

1931². It is argued that instabilities were more evident during the interwar gold standard than during the classical era of the standard. This was also the period leading to the breakdown, making it a more relevant period for this analysis.

The Great Depression that started in 1929 also imposed huge implications for the gold standard, as the Financial Crisis in 2008-2009 and the Sovereign Debt Crisis of late 2009 have done for the EMU. I will not focus on the crisis themselves, but rather the ability for the monetary system to handle situations that arise from asymmetric shocks like that.

There were several reasons for the breakdown of the gold standard in 1931, but some imbalances and political decisions might have been more damaging than others. The five factors that I have regarded as the most important, based on relevant literature, are; (1) the central bank's interest rate policy and the rules of the game, (2) imbalances in exchange rates and (3) debt levels, (4) the systems ability to handle fundamental changes, and the (5) credibility of the monetary union.

For both monetary unions I have selected a couple of countries that are in opposite situations, as deficit and surplus countries. This is done to highlight the different impacts the problems have had on countries in different positions, and to look at the imbalances between countries within the same monetary system.

For the gold standard I will focus on the United Kingdom (UK), Germany, United States (US) and France. For the EMU the focus is on Germany, France and the PIIGS countries, i.e. Portugal, Ireland, Italy, Greece and Spain.

2.3 Outline

The first part is devoted to different economic theories relevant for later discussions and analysis. Part two is a historical and theoretical presentation of the two monetary systems, the gold standard and the EMU.

² (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 187)

Part three contains the analysis and discussion of each of the five factors mentioned under the restrictions, first discussed for the gold standard and then for the EMU. Each factor will end with a comparison of the two monetary systems based on relevant data, figures and theories.

3. Methodology

3.1 Method

I have used available literature as a source of information. A “systematic review” of the literature about each of the two monetary systems and their theoretical frameworks is done. I have also done “a critical review of the knowledge from the sources”³.

I have used comparative method for the comparisons and analysis. To compare means to describe variables, and descriptive comparisons focus on “the degree of similarity and difference between two or more cases⁴”. Comparative method can be defined as “a set of logically based procedures for systematically testing against empirical evidence alternative (or competing) hypotheses about causal connections between phenomena, and thereby either corroborate or reject them⁵”.

As several smaller topics are being analysed in this thesis, the analysis is divided into smaller comparisons that might differ in form and data material used. Some of them are based on relative numbers while others are based on non-numerical political and monetary factors.

3.2 Collection of data

There are huge amounts of available literature about the gold standard, but relevant data proved to be somewhat harder to find. Most of the data is collected from statistical and historical books. Some data have also been collected from figures and graphs, causing some small approximations. This is mentioned for the relevant figures.

³ (Blanghammer, 2003)

⁴ (Caramani, 2008, p. 3)

⁵ (Caramani, 2008, p. 3)

Data for the EMU countries are mainly collected from the Organisation for Economic Co-operation and Development (OECD) database and from the European Commission, but some figures are also found in other people's research articles. As there are daily developments in the current EMU crisis, some information is collected from recent articles and newspapers.

3.3 Reliability

Reliability is a basic fundament within all research. Reliability is relied to the data in the study, which data that is used, the way that they are collected and how they are evaluated ⁶. All the information I have used is collected from reliable books and data sources. One factor that could impair the reliability of some of the information is current news articles that might be coloured by the author's personal beliefs or political agenda, especially when it comes to the EMU.

3.4 Validity

Validity is an expression for the relevance of the data material ⁷. It expresses to which extent the collected information is relevant for the assignment's problem. The information that is used as a foundation for the discussion part is limited to answering the assignments problem. Therefore I assume the data material as relevant.

⁶ (Halvorsen, 2003)

⁷ (Halvorsen, 2003)

4. Part I - Theory

4.1 What is money?

One way of defining money is as Sir John Hicks said it; “Money is what money does⁸”. With this he said that money can be defined by its functions; anything is money which is used as money⁹.

It has been argued that a medium of exchange will arise even in an economy that starts with barter. If one commodity is traded a lot, for example onions, people that trade with relatively rare commodities can increase the chance of finding an exact match by doing an intermediate trade in onions. Then they can do another trade in the commodity of their choice with these onions. Once these people begin to trade in onions, the probability of finding someone to accept onions in trade increases. This induces more people to trade with onions. If this process continues will the majority of trades eventually involve onions and onions will become the medium of exchange or vehicle currency.¹⁰

If the chosen item is difficult to carry around there is an incentive for individuals to accept onions and issue paper claims against them. There are historical parallels here. Gold was also accepted as a medium of exchange but could be impractical to carry around. This gave banks incentives to accept gold and issue banknotes against it, a role later taken over by central banks.¹¹

Acceptability is the essence of the issue. Each person accepts payment in money only because he or she expects others to accept it in payment from him or her. We value money only because we know that others do and everybody is in the same position.

More specific we can say that money serve three functions in the economy;

⁸ (Hicks, 1967)

⁹ (Hicks, 1967)

¹⁰ (Jones, 1976)

¹¹ (MacDonald & Milbourne, 1990)

- i. a measure of value
- ii. a means of exchange or payment
- iii. a liquid store of value¹²

Money is a measure of value, and makes it possible to express and compare the values of different goods and services. Just as it is convenient to adopt common measures of length and weight, it is also convenient to adopt a common language in which to express value.

As a means of exchange, money acts as a timesaver by enabling people to sell to one person and buy from another, or to sell in one place and buy in another. The wider geographical area accepting money as a mean of payment, the greater is the saving.

Money is a store of value, and cash is generally the most liquid of all assets by virtue of its medium of exchange function. Many people over a large geographical area immediately accept cash in payment.¹³

4.2 Fixed exchange rates

The exchange rate is merely the relative price of two currencies, and each country's currency is monopolistically supplied by its central bank.

In a system with floating exchange rates, the exchange rates between two currencies are determined by the demand and supply of the currencies in the free market. In a fixed exchange rate system the government announces the buying and selling rates for its currency in terms of a foreign currency. It then promises to trade in unlimited amounts at that rate in order to keep the exchange rate fixed.¹⁴

¹² (Lewis & Mizen, 2000, p. 5)

¹³ (Lewis & Mizen, 2000, pp. 9-10)

¹⁴ (Obstfeld & Rogoff, 1995)

Monetary policy consists of the measures that affect the interest rate and supply of money and credit in an economy. Fiscal policy consists of measures related to central and local government revenue and expenditure.¹⁵ Under a fixed exchange rate, the domestic nominal interest rate must equal the foreign nominal interest rate. This implies that interest rates are determined abroad and not by domestic monetary policy. The government therefore loses control over the domestic money supply when they have a fixed exchange rate.¹⁶ Fiscal policies are not necessarily tied in the same manner due to a fixed exchange rate.

4.2.1 Why fixed exchange rate?

There are three main reasons for fixing a country's exchange rate. First, the unexpected volatility from a floating exchange rate can be very damaging, both over short and long term. The uncertainty around the exchange rates might reduce international trade and discourage investment. Workers and firms might hurt by long-term exchange rate swings, and they often demand import protection from their government.

The second major rationale for fixed exchange rates is an argument for governments. This stems from a belief that pegging to a low-inflation currency will help to restrain domestic inflation pressure. The basic idea is that an announced policy of pegging the exchange rate may serve as a commitment technology preventing the government from following excessively expansionary macroeconomic policies.

A third reason for pegging applies to countries deflating after periods of price-level instability. For countries in this situation, the fixed rates can have the attraction of anchoring price inflation for internationally traded goods. This might provide a guide for private-sector inflation expectations.¹⁷

¹⁵ (Eshag, 1983, p. 28)

¹⁶ (Obstfeld & Rogoff, 1995)

¹⁷ (Obstfeld & Rogoff, 1995, pp. 76-77)

4.2.2 Speculative attacks

Speculative attacks might become a severe problem for fixed exchange rate regimes. Speculators make bets or guesses on where they believe the market is headed regardless if it might become destabilising for a monetary system. A currency is monopolistically supplied from its central bank, and they will virtually always have the resources to crush speculators. The problem is that very few central banks will cling to an exchange rate target without regard to what is happening in the rest of the economy. This is because domestic political realities will not allow it, even when agreements with foreign governments are at stake.

The governments must be prepared to allow a sharp increase in domestic interest rates, especially in the short term, in order to fight off an attack. If this lasts for a long time, this can wreak havoc with the banking system, which typically borrows short and lends long. These unanticipated rises in the interest rate can have profound negative effects on investment, unemployment, the government budget deficit and the domestic distribution of income over the long run. A government pledge that it will ignore such side effects indefinitely to defend the exchange rate is not likely to be credible. Lack of credibility, in turn, makes a fixed exchange rate more vulnerable to speculative attack. Since it is so costly, the goal for the governments is to convince speculators as quickly as possible that it is not going to fold, so that interest rates can return to normal levels.¹⁸

4.3 Purchasing Power Parity (PPP)

The real exchange rate can be defined as the nominal exchange rate plus inflation differentials among different countries. It is often used as an indicator of competitiveness in the foreign trade of a country. The idea of the PPP theory is that monies of different countries, when measured in the same units, should be able to buy the same basket of goods.

¹⁸ (Obstfeld & Rogoff, 1995, pp. 78-80)

If this is not the case, international arbitrage should bring about adjustment in prices, exchange rates, or both, which ultimately will restore parity.¹⁹

According to the PPP theory, the real exchange rate (R) can be defined in the long run as follows:

$$R = \frac{SP^*}{P}$$

S is the nominal exchange rate that is adjusted by the ratio of the foreign price level (P*) to the domestic price level (P).

A depreciation of the real exchange rate would make the economy more competitive. This would stimulate export and discourage imports. This, in turn tends to improve the current account of the balance of payments (BOP).²⁰ An appreciation of the real exchange rate would on the other hand encourage imports and reduce the current account balance.

4.4 The (n-1) problem and credibility

In a system of n countries there are only (n – 1) independent exchange rates. In the case of two countries, they would only have one exchange rate to care about. Therefore only (n – 1) countries have to use their monetary policies to maintain all the exchange rates fixed. This implies that the system would have one degree of freedom; one monetary authority is free to set its monetary policy independently from the exchange rate constraint.

There is one good and one bad news concerning the degree of freedom, the good being that this gives the countries in the system the ability to pursue some joint objective. This could be to stimulate the economy, reduce inflation etc. The bad news is that this degree of freedom is likely to be a source of conflict between the members of the system.

¹⁹ (Diebold, Husted, & Rush, 1991)

²⁰ (Grauwe, International Money - Postwar Trends and Theories, 1996, p. 49)

A simple two-country model of the money markets can illustrate this. It is assumed that there are traditional monetary demand functions in the two countries called A and B. The money supply is given by M_A and M_B . Equilibrium in the money market implies that the demand for money equals the supply of money in both countries. Analytically, this gives:

$$P_A L_A (Y_A , r_A) = M_A$$

and

$$P_B L_B (Y_B , r_B) = M_B$$

P_A and P_B is the price level in country A and B; L_A and L_B are the liquidity preference functions; Y_A and Y_B are the levels of real income; and r_A and r_B are the levels of the nominal interest rates in the countries. Real income has a positive effect on the money demand, while the interest rate has a negative effect.

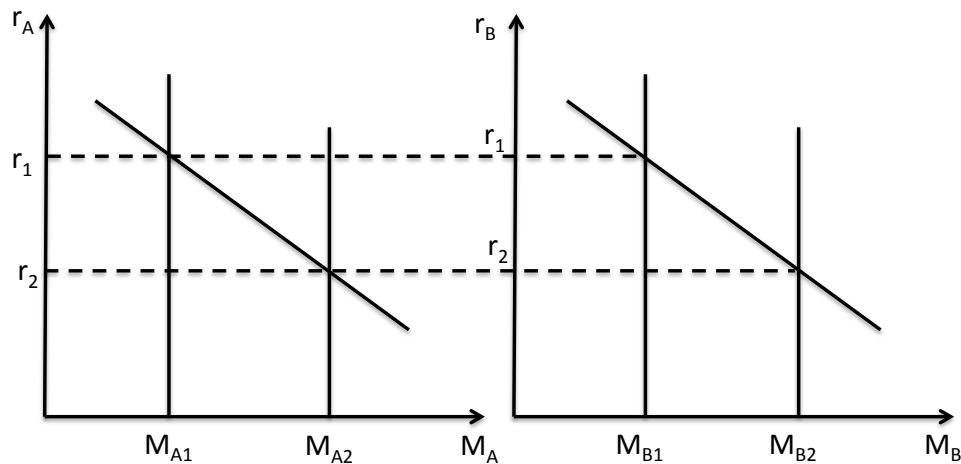
We assume that the money markets of the two countries are linked together by freely mobile capital. That is; there is full convertibility of the two currencies, both for current and capital account transactions. Then the “open” interest parity can be used, given by:

$$r_A = r_B + \mu$$

μ is the expected rate of devaluation of the currency of country A, in other words, the revaluation of currency B. The interpretation is that when the currency of country A is expected to devalue, μ becomes positive. Consequently, the interest rate of country A has to increase relative to the interest rate of country B. This is because the owners will only be willing to hold A assets if they are compensated for the expected future decline in the value of currency A by a higher interest return on A assets. This tells us that countries with weak currencies have a higher interest rate.

Let us assume that the exchange rate is fixed between the two currencies, and that this commitment is credible; μ is zero. As a result, the interest rates will have to be equal in the two countries. The interest rate can be seen on the vertical axis and the demand and supply of money on the horizontal axis in Figure 1.²¹

²¹ (Grauwe, International Money - Postwar Trends and Theories, 1996, pp. 26-29)

Figure 1: Exchange Rates and Money Supply

Source: (Grauwe, *International Money - Postwar Trends and Theories*, 1996, p. 28)

The money demand function is downward sloping because of the usual assumption that the demand for money is negatively related to the interest rate. We can see from the figure that there are many levels of interest rates and money levels that will satisfy the fixed exchange rate commitment. Both r_1 with M_{A1} and M_{B1} , and r_2 with M_{A2} and M_{B2} satisfy the same exchange rate commitment.

One can say that the fixed exchange rate commitment is compatible with any level of interest rate and money stock. The fundamental problem that follows the (n – 1) problem is then that the countries have to agree on the way monetary policies are to be conducted. Problems and conflicts will arise when the consensus about the appropriate level of the money stock breaks down.²²

The (n-1) problem might become severe for a monetary union as it arises from a conflict between the authorities of different countries. Conflicts at this level might undermine the stability of the system as a whole.²³

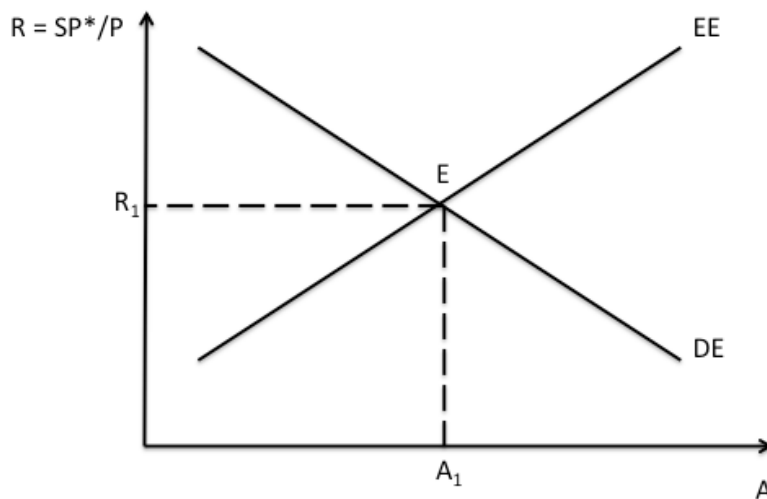
²² (Grauwe, *International Money - Postwar Trends and Theories*, 1996, pp. 26-29)

²³ (Grauwe, *International Money - Postwar Trends and Theories*, 1996, pp. 54-55)

4.5 The adjustment problem

The adjustment problem can be limited to one country as it is a conflict between the domestic and external objectives of the authorities. One way to present the adjustment problem is with a Swan – diagram, presented in Figure 2. The Figure portrays the relationship between domestic and external equilibrium in an economy.

Figure 2: Swan - Diagram



Source: (Grauwe, International Money - Postwar Trends and Theories, 1996, p. 49)

The vertical axis represents the real exchange rate, R , as explained in section 4.3. On the horizontal axis we find the total level of spending in the economy, A , which is often called “absorption”. The relation between absorption and output is given by the macroeconomic equilibrium condition;

$$Y = C + I + G + X - M$$

All variables are expressed in real terms. Y is the supply of output, C is private spending, I is private investment, G is government spending, X is the level of exports, and M is the level of imports. The equation can also be written as:

$$Y - A = X - M,$$

where

$$A = C + I + G$$

Two equilibrium conditions are defined in Figure 2. The DE line stands for domestic equilibrium. DE represents the combinations of real exchange rate and absorption for which there is domestic equilibrium. Domestic equilibrium is defined here as level of unemployment corresponding to the natural rate, which will be explained further in section 4.8.1. If the level of unemployment is below the natural level, this tends to lead to inflationary pressures, while a level above leads to a downward pressure on prices. The DE line is declining because if we let the exchange rate increase from the initial domestic equilibrium, this tends to increase exports and output. This will in turn reduce the unemployment rate below the natural rate, and trigger inflationary pressures.

The External Equilibrium, EE, represents the combinations of real exchange rate and absorption levels for which the current account of the balance of payments is in equilibrium. It is upward sloping because when the real exchange rate increase, i.e. competitiveness improves, the current account improves. To maintain the current account balance, the level of absorption must increase in order to increase imports. Below the EE line, the account shows deficit, and above surplus.²⁴

4.5.1 Flexibility

In a world with price and wage flexibility, there are essentially two mechanisms that will make the economy adjust back to equilibrium after a domestic inflationary shock. First, the increase in the unemployment level reduces the wage level. This will in turn make it possible for the price of domestic output to decline. Following this, the current account deficit forces the monetary authorities to intervene in the foreign exchange market and to sell foreign currency against the domestic one.²⁵

The second mechanism is to allow the rules of the game of a fixed exchange system to operate, that is to avoid sterilizing balance of payments flows²⁶. These rules state that when

²⁴ (Grauwe, *International Money - Postwar Trends and Theories*, 1996, pp. 49-51)

²⁵ (Grauwe, *International Money - Postwar Trends and Theories*, 1996, pp. 51-53)

²⁶ (Giovannini, 1988).

there is an inflationary shock, i.e. that the prices in the economy increases at a faster rate than the wage level, the money stock will decline and the domestic interest rates will increase as a result. The total effect is deflationary because it reduces absorption and decreases the price level. The desired results from these two channels are to improve competitiveness, reduce unemployment and improve the current account of the balance of payments.²⁷

4.5.2 Rigidity

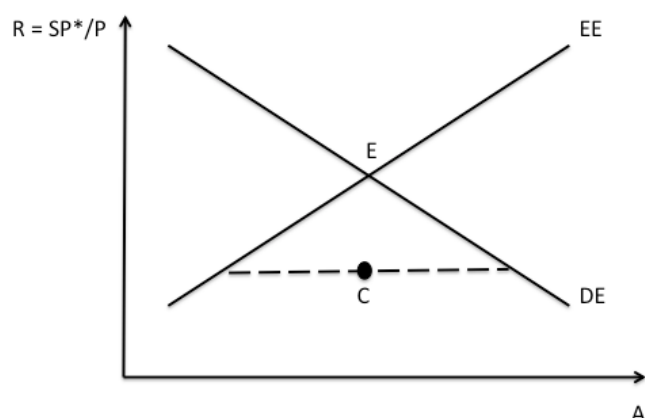
But what happens in a world with wage and price rigidity? Wage rigidity can be explained as the failure of wages to adjust to a level at which labour supply equals labour demand²⁸. The similar explanation holds for price rigidity, which is the failure of prices to move to clear the market.

If there is complete rigidity in both wage and price levels, nothing will push the real exchange rate upwards if a shock sends the economy to point C in Figure 3. The exchange rate is fixed, the domestic price level is rigid and the foreign price level is exogenous. At the heart of the dilemma is the choice between pursuing a domestic or external equilibrium.²⁹

²⁷ (Grauwe, *International Money - Postwar Trends and Theories*, 1996, pp. 51-53)

²⁸ (Mankiw & Taylor, 2008, p. 177)

²⁹ (Grauwe, *International Money - Postwar Trends and Theories*, 1996, pp. 51-53)

Figure 3: Swan – Diagram With Wage and Price Rigidity

Source: (Grauwe, International Money - Postwar Trends and Theories, 1996, p. 51)

In order to pursue a domestic equilibrium, the authorities will need to stimulate the economy by more spending or less taxation. Absorption will increase and move the economy back towards the domestic equilibrium, but at the price of an accumulated unsustainable current account deficit. The deficit is unsustainable because a continuous deficit implies a continuous declining stock of international reserves. These reserves are finite, so at one point the stock will be depleted and the authorities will be unable to intervene in the foreign exchange market and might be forced to let the exchange rate increase.

The external equilibrium can be reached by following the rules of the game, which will deflate total spending. The deflationary effect will increase unemployment. This might be an unpopular choice and will be perceived as suboptimal by policymakers that care about unemployment. Politicians will therefore have an incentive to use the exchange rate and devalue as an additional instrument in order to achieve a better balance between the domestic and external equilibrium, and to lift the economy out of its low competitiveness trap in point C.

Because the authorities have to choose between domestic and external equilibrium, the commitment to a fixed exchange rate can quickly lose its credibility when the economy is trapped on the line through C. Only if it can be assured that the government give no weight at all to unemployment is the fixed exchange rate commitment credible.³⁰

³⁰ (Grauwe, International Money - Postwar Trends and Theories, 1996, pp. 51-53)

The adjustment problem can be limited to one country as it is a conflict between the domestic and external objectives of the authorities, and will not necessarily jeopardize the whole system³¹.

4.5.3 Labour mobility

Labour mobility might increase the credibility of a fixed exchange rate system, and compensate for wage rigidity. Mobility would involve emigration of unemployed labour, and would enable a country to reach its equilibrium target without increasing unemployment.³² Labour mobility is important when shocks are permanent and structural, since adjustment inevitably requires a reallocation of production factors. Mobility might help accelerate the adjustment process and promote a more even distribution of regional incomes, wages and unemployment.³³

4.6 Optimum Currency Areas (OCA)

An ideally functioning monetary system permits producers to specialize in goods in which the nation has a comparative advantage and savers to search beyond the national borders for profitable investment opportunities³⁴.

The OCA theory weights the benefits of adopting a common currency against the costs of abandoning independent monetary policy. Some of the most important benefits from monetary integration are reduced transaction and information costs and increased price transparency that boosts trade and gives rise to competition. The more integrated the countries in the currency union are, the higher are the benefits. The costs however are

³¹ (Grauwe, *International Money - Postwar Trends and Theories*, 1996, pp. 54-55)

³² (Grauwe, *International Money - Postwar Trends and Theories*, 1996, pp. 51-53)

³³ (Coppel, Serres, & Hoeller, 1999, pp. 119-120)

³⁴ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 1)

associated with the fact that monetary policies no longer can effectively accommodate diverging cyclical positions across the involved economies.³⁵

It is important that the benefits exceed the costs for the members in a monetary union. The vertical axis in Figure 4a measures the degree of symmetry between regions, meaning correlated growth rates and employment among others. Flexibility relates to wage flexibility. The central insight of the theory of OCA is that countries or regions that experience a lot of asymmetry in output and employment growth need to have much flexibility in their labour markets if they want to benefit from the monetary union without having too large adjustment problems. The downward slope of the line OCA represents this relationship.

Figure 4a: OCA and Flexibility

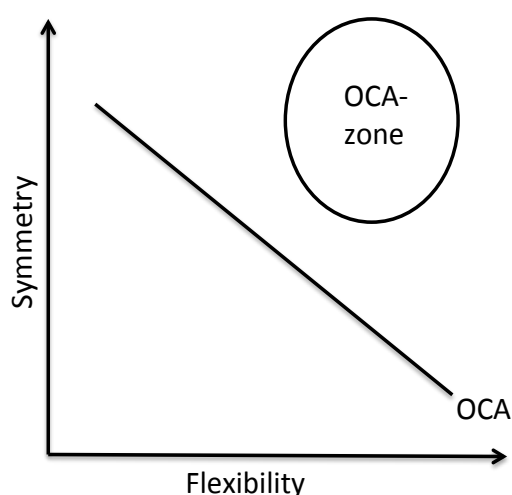
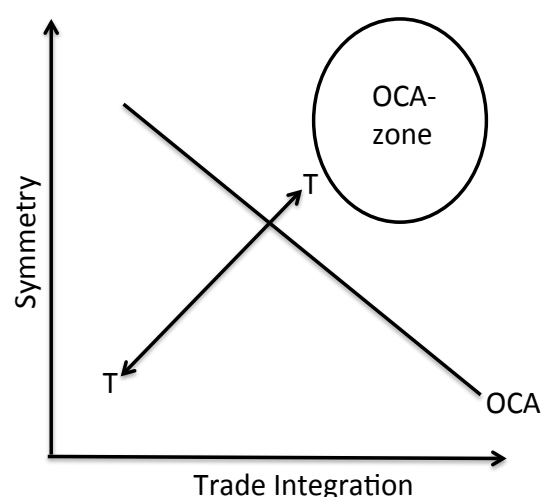


Figure 4b: OCA and Trade Integration



Source: (Grauwe, Economics of Monetary Union, 2007, p. 85)

The cost of a monetary union can be represented in Figure 4b. The symmetry on the vertical axis is the same as in the previous figure, while the degree of trade integration between groups of countries is measured on the horizontal axis. The TT line is upward sloping because the degree of symmetry increases as trade integration increases. Both symmetry and trade integration are qualities that increase the benefits of a monetary union. Countries will become more alike and therefore experience fewer asymmetric shocks when the level of trade integration is high.

³⁵ (Economic and Financial Affairs, 2008)

The OCA line represents the minimal combinations of symmetry and trade integration that equalizes the costs and benefits of a monetary union. The points on the line therefore represent combinations of symmetry and integration for which the monetary union has a zero net gain. Following this, the points to the right of the OCA line are points for which the benefits exceed the costs, the OCA - zone, and the points to the left are points where the costs exceed the benefits.³⁶

4.7 Monetary and political union

It is possible to distinguish between an institutional and a functional dimension when it comes to a political union. The institutional level concerns the institutions that govern the union. The functional level asks the question about the areas in which the member states have transferred their sovereignty to the monetary union.

It would be possible to centralise a significant part of national budgets in a political monetary union. This would make it possible to organise systems of automatic fiscal transfers that could provide some insurance against asymmetric shocks. By transferring funds from member states with good economic conditions to a member state experiencing an asymmetric negative shock, member countries could prevent lasting diverging balances within the union.

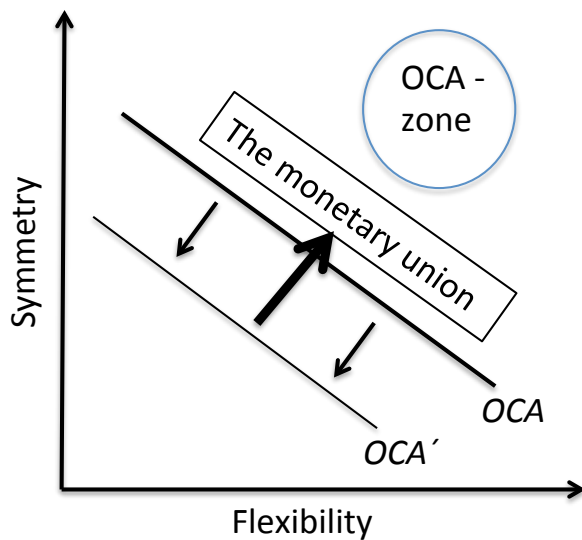
A political union would also reduce the risk of asymmetric shocks that have a political origin. Taxing and spending could be on the monetary union level instead of in the hands of national governments.

The effects of a monetary union becoming a political union can be seen in Figure 5. The centralised budget makes it possible to alleviate the plight of countries hit by a negative shock, reducing the cost of the union at any given level. Following this, the OCA shifts downwards.

³⁶ (Grauwe, Economics of Monetary Union, 2007, pp. 85-95)

The second effect is that a political union reduces the degree of asymmetry, moving the position of the monetary union upwards. These two shifts indicate that political unification increases the long-term sustainability of a monetary union.³⁷

Figure 5: Monetary and Political Union



Source: (Grauwe, Economics of Monetary Union, 2007, p. 117)

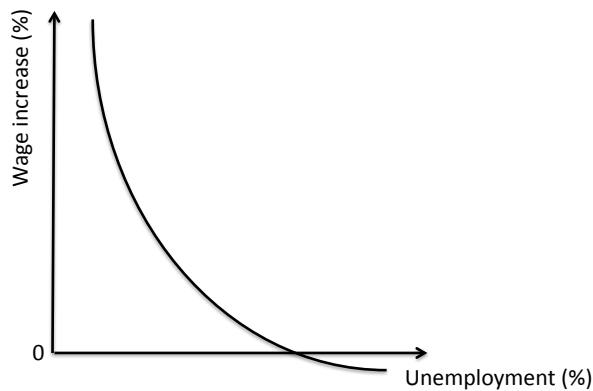
4.8 The Phillips curve

The Phillips curve gives us the relationship between wage-price inflation and the level of economic activity. It was developed based on an empirical regularity in search of a theory. The relationship between the unemployment rate and wage inflation was such that high unemployment was associated with low growth of wages, while low unemployment was combined with a rapid growth of wages. A stimulus to demand, from for example government spending, would increase output and reduce unemployment, but at the cost of

³⁷ (Grauwe, Economics of Monetary Union, 2007, pp. 113-117)

higher inflation. Conversely, a reduction in demand would reduce inflation, but at the cost of increased unemployment.³⁸

Figure 6: The Original Phillips Curve



Source: (Bain & Howells, 2009, p. 154)

4.8.1 Natural rate of unemployment

The relationship described in the original Phillips curve was later questioned, as new data appeared to indicate both rising inflation and lower economic activity. It was suggested that this happened because of the process by which wages were negotiated, which determined the inflation rate, involved expectations of future conditions. Friedman corrected the misspecifications by correcting the model for two inconsistencies. First, he specified the relationship in real terms rather than nominal terms. He also augmented it with price expectations, enabling the model to predict accurately the change to prices over the period for which wages were being negotiated.

Secondly, he specified the relationship between the level, not the change, of the wage and the rate of unemployment. Then there also needed to be a “natural rate of unemployment” to which the economy would converge in the absence of disturbances. The natural rate represents the long-run level of unemployment consistent with any level of nominal wage

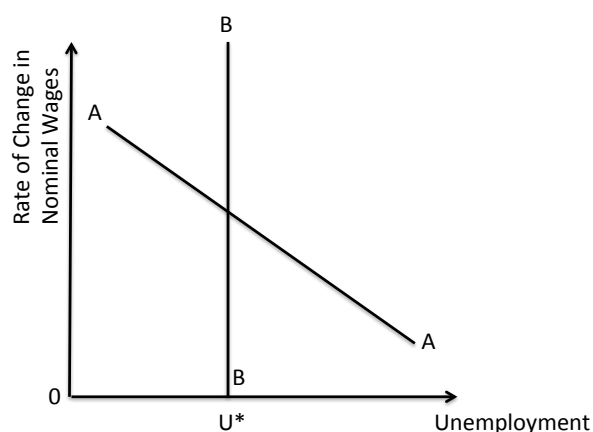
³⁸ (Lewis & Mizen, 2000, pp. 215-217)

inflation, given that there is no money illusion and that price expectations are correct for nominal changes in wages.

Friedman suggested that there were two reasons for the negative relationship in the original Phillips curve. The first reason was temporary money illusion and the second was that there was a possibility of being an exploitable trade-off between inflation and unemployment in the short run. In the long run, on the other hand, the true changes to the real wage would become apparent as nominal prices and wages were observed. Then expectations would change and the short run deviation from the natural rate of unemployment would be corrected.

There can be no money illusion in the long run in the expectations augmented version of the Phillips curve. The curve is therefore vertical at the natural rate of unemployment, as shown in Figure 7. AA is the short run expectation augmented Phillips curve, with the same negative relationship between wage inflation and unemployment as in Figure 6. BB represents the long-run Phillips curve, which is vertical above the natural rate of unemployment, U^* .³⁹

Figure 7: Natural Level of Unemployment



Source: (Lewis & Mizen, 2000, p. 217)

³⁹ (Lewis & Mizen, 2000, pp. 215-217).

4.9 Different forms of risk

Interest rate differentials on government debt can be explained by looking at the risk associated with the issuer of the debt. Two sources that can explain interest rate differentials are liquidity and default risk.

Liquidity risk is the risk of having to sell or buy a bond in a thin market, and therefore at an unfair price and with higher transaction costs. Issuers with low volumes of bonds outstanding have a smaller market than large issuers. They therefore have to compensate investors with a liquidity premium.⁴⁰

Default risk is the possibility that the counterpart in a financial contract will not fulfil its contractually stated obligations. If this happens, the party defaults. More generally the term credit risk or solvency risk can be used. This is the risk associated with any kind of credit-linked events, as a change in credit quality, which includes downgrades or upgrades in credit ratings. Credit ratings are a measure of the firm or country's propensity to default.⁴¹ Sovereign issuers that are perceived as having a greater credit risk must pay investors a default risk premium⁴².

⁴⁰ (Favero & Missale, 2011, pp. 5-6)

⁴¹ (Bielecki & Rutkowski, 2004, pp. 1-7)

⁴² (Favero & Missale, 2011, pp. 5-6)

5. Part II - History and theory of the monetary unions

5.1 The gold standard

The interwar gold standard will be presented in this section. The first section presents the history of the interwar gold standard. This will be followed by an explanation of the theoretical framework of the monetary union.

5.1.1 History of the interwar gold standard

The gold standard can be divided into the classical gold standard and the interwar gold standard. The classical gold standard lasted from 1870 and ended in 1914 at the outbreak of the WWI. Governments needed money to finance their war expenditures, and in order to mobilise resources, the authorities imposed new taxes and issued government bonds. When these resources proved inadequate, they suspended the statutes requiring them to back currency with gold or foreign exchange. They issued fiat money, which were new money unbacked by gold, to help them pay their expenses. But different rates of fiat-money creation in different countries caused exchange rates to vary widely. Exchange rates began to float when the gold market arbitrage disrupted.⁴³

Inflation levels had been relatively moderate in the US, and gold reserves were abundant. The US was the only country that maintained convertibility at the pre-war rate right after the end of the war.⁴⁴ Great Britain did not join the US back on the gold standard until 1925, but by the end of that year nearly 36 countries had also effectively restored convertibility. 1925 is often taken as the reestablishment of the international monetary system.

⁴³ (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, p. 46)

⁴⁴ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 19)

The Wall Street Crash in October 1929 and the following Great Depression did not make things easier for the hard pressured monetary union. Prices declined slowly for several years before a larger drop from 1929. Economic activity had already been in decline well before this, and countries started to struggle with high unemployment and low domestic demand. The demise of the gold standard is usually dated to the devaluation of the sterling in the autumn of 1931. Some 50 nations participated in the international gold standard during the interwar years.⁴⁵

Table 1: Interwar Period on the Gold Standard

	Gold Standard Adopted	Gold Standard Suspended
United States	1919	1933
France	1926	1936
United Kingdom	1925	1931
Germany	1924	1931

Source: (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, pp. 188-189)

The monetary history of the 1920s can be understood as a record of strenuous efforts to restore the international gold standard. There was a widespread agreement on the desirability of returning to gold. The gold standard had been synonymous with exchange-rate stability and balance of payments stability for long periods of time in large parts of the world. But even if the interwar gold standard resembled its predecessor, it shared few of its virtues.⁴⁶

Not a political union

The gold standard was a monetary union without any political integration. The rules of the game, to be explained in the next section, set the conditions for national monetary policy, but no sanctions could be imposed if countries failed to act according to these.

⁴⁵ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 187)

⁴⁶ (Eichengreen, *The Gold Standard in Theory and History*, 1985, pp. 19-20)

The role of leadership was not as clear during the interwar gold standard as it was in its classical period. Perhaps the most popular explanation for the gold standard's smooth operation during the classical gold standard is that it was a managed system, and that the Bank of England managed it. The bank also acted as a lender of last resort during this period. London's influence over international capital flows was so powerful that no other centre could afford to ignore events occurring there. When Bank Rate was raised in London, many central banks had no choice but to respond by creating further stringency in domestic credit markets so as to minimise the loss of gold.⁴⁷

But the UK saw increased competition for its leading role during the interwar period. The interwar gold standard was organised around two currencies, the British pound and the US dollar. The leadership became less clear during this period, and the Bank of England did not manage to keep its role as a stabiliser and leader of the system.⁴⁸

5.1.2 The theoretical framework of the gold standard

During the gold standard, the monetary units of all the member countries had a fixed gold content. The implication was that the value of each country's currency was fixed in terms of all other currencies, with a fixing value called "par value". The forces of demand and supply determined the market rate of exchange between currencies. Because residents in member countries freely could export or import gold, the extent to which the market rate could rise above or fall below the par rate was limited. The market rate could fluctuate between two values, termed the "gold export" and the "gold import" points. The distances between the two points could vary over time with transport costs and other costs.

For example, an arbitrage opportunity would arise if the demand for US dollars in London increased so much relative to the supply that the market rate of exchange with sterling rose above the parity rate by more than the transportation cost of gold. Then it would have been profitable for those that wanted dollars to buy gold in London, then ship it to New York and sell it for dollar in that market.

⁴⁷ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 16)

⁴⁸ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 21)

Gold flows produced short-run balancing of the supply of and demand for foreign exchange. The countries had however a finite amount of gold, preventing the gold flows from being able to continue indefinitely. The country would eventually run out of gold. Gold imports, however, could go on somewhat longer perhaps, but eventually the importing country's trading partners would exhaust their supplies of gold.⁴⁹

The adjustment mechanism

The point Hume's price-specie-flow model was to demonstrate that policymakers could rely on the gold standard to eliminate external imbalances automatically. Hume's model gives us a simplified explanation of the adjustment mechanism and how the gold standard worked. His analysis highlighted the close connection between gold movements and money supply.⁵⁰

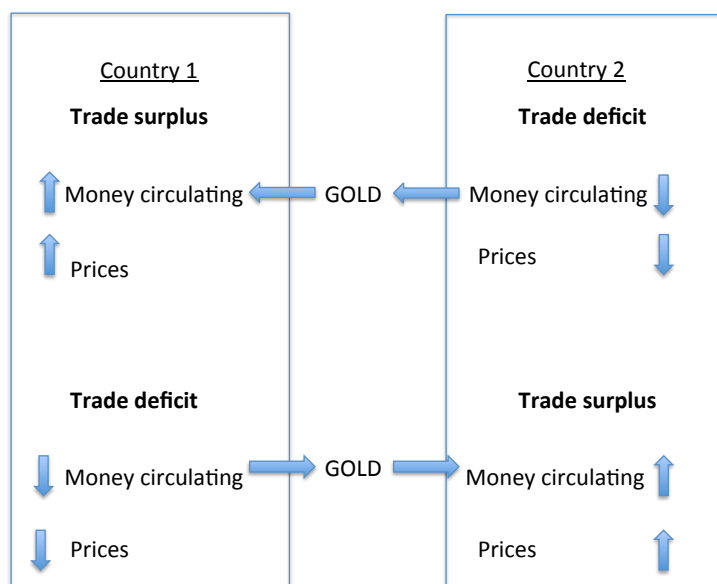
This model assumes a world where the banks were negligible and there only existed two commodities; a consumer good and gold. Each time a consumer good was exported, the exporter received payment in gold. He then took the gold to the mint to have it coined. Thereby he increased the amount of money circulating in the economy, something that would increase the prices. On the other hand, when a merchant imported the consumer good, he made the payment by exporting gold. This reduced the amount of money circulating in the economy, making the prices fall.

Hence, the price level would fall in a country with trade deficit and rise in a country with trade surplus. This was due to a self-correcting chain of events depending on the amount of gold or coins circulating in the economy. The decreased prices in the trade deficit country would make the country's goods relatively cheaper than the goods in the trade surplus country. This would increase exports from the deficit country and decrease export from the surplus country, continuing until the trade imbalance was eliminated.⁵¹ The process is explained in Figure 8 below.

⁴⁹ (Kenwood & Lougheed, 1999, pp. 111-112)

⁵⁰ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 32)

⁵¹ (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, p. 25)

Figure 8: Price – Specie – Flow Model

Source: (Brautaset, 2005), at NHH, 08.09.2005

Interest setting - The rules of the game

The price-specie-flow model was developed further in the late nineteenth century in a number of ways. The most important elaboration concerned the effects of gold movements on the monetary policy of the central banks. The central bank's discount rate was the instrument controlling the adjustment mechanisms that made sure that the balance of payments was in balance.⁵²

As the economist H. F Fraser (1933) put it, *“The successful working of the gold standard does not require the value of the goods exported and imported to balance. What it requires is that the debits and credits of a nation should equalize one another... It is not the balance of trade in the narrow sense of the word but the balance of payments which matters”*⁵³.

The balancing of payments should be done by setting the central bank interest rate according to the rules of the game, similar in function as described in section 4.5.1 under the

⁵² (Eichengreen, Golden Fetters - The Gold Standard and the Great Depression, 1919-1939, 1992, p. 35)

⁵³ (Eichengreen, Golden Fetters - The Gold Standard and the Great Depression, 1919-1939, 1992, p. 35)

adjustment problem with flexibility. If the ratio of gold reserves in a central bank persistently declined due to high import levels, the central bank interest rate should be raised. This would prevent further depletion of the reserves because it would place an upward pressure on market interest rates. Higher market interest rates would attract capital from abroad, stopping the draining of gold reserves.

But if the interest rates were repeatedly raised to attract foreign capital, the volume of foreign indebtedness would eventually be unsustainable. Hence, in order to eliminate the imbalance created by a permanent disturbance it would have to be done through altering domestic conditions as well. This effect worked through the restriction on capital from the higher interest rate.⁵⁴ This restriction would have an adverse effect on business activity and employment and lead to a fall in prices and wages, which would reinforce the direct effects of the price-specie-flow mechanism. If gold on the other hand were flowing in increasing the reserves, the central bank interest rate should decrease. This would stimulate the domestic activity and generate an upward pressure on wages and prices.

The rules of the game required the central banks to raise the interest rates when facing gold outflows, and reduce interest rates when facing gold inflows. The central banks should reinforce the impact on domestic financial markets, thereby promoting adjustment. The opposite would be to neutralize the impacts, called sterilisation.⁵⁵

Conditions for the system

There are four essential conditions for the operation of the gold standard. First, for every country within the system, a gold value must be fixed for the currency. The second condition is that there must be free movement of gold between countries and within the system. Thirdly, the monetary system of all member countries must be such that the domestic money supply is linked more or less automatically to movements of gold in and out of the country. If these rules are satisfied, the adjustment functions of the system will be satisfied and they will reach external equilibrium. But if this is to be accompanied by domestic equilibrium, a

⁵⁴ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 35)

⁵⁵ (Scammell, 1985)

forth condition is necessary; there must be a high degree of wage flexibility within each country.⁵⁶

For the countries within the system, this model involved a conflict between member countries' external and domestic stability. External stability means the stability of its balance of payments while domestic stability refers to a steady price level, full employment and some measure of economic growth, as explained in section 4.5. Price changes following adjustments in the balance of payments could be accompanied by changes in output and employment if rigidities were present in the economy. This could be seriously destabilising. Only if prices and wage costs were infinitely flexible would gold standard adjustment be a tolerable process for a participant country.⁵⁷

5.2 The European Monetary Union

The first section presents the history leading to the EMU, followed by the theoretical framework of the union.

5.2.1 The history leading to the euro

The idea of establishing an economic and monetary union in Europe goes back a long time. Already in 1952, six countries founded the European Coal and Steel Community (ECSC). The same six countries established the European Economic Community (EEC) in 1958⁵⁸. Its initial objective was to remove trade barriers rather than usurping the dollar's international role. But the plans for greater European integration advanced through the 1960s, leading up to ambitions of an economic and monetary union with an irrevocable fixing of the European exchange rates.

⁵⁶ (Scammell, 1985)

⁵⁷ (Scammell, 1985)

⁵⁸ (European Central Bank, 2011a, p. 4)

The European Monetary System (EMS) was established in 1979. This was a system of arrangements to coordinate and enhance the effectiveness of currency market management. They wanted to create a “zone of monetary stability in Europe”. By March 1979, eight currencies were trading according to rules that were dictated by the new Exchange Rate Mechanism (ERM)⁵⁹.

The ERM system was not intended to be a regime of fixed exchange rates before the Maastricht treaty put a new gloss on it in February 1992. The Treaty adopted a timetable, eventually leading up toward a single currency and established the European Union (EU) under its current name. The European Currency Unit (ECU), later known as the euro, was planned to be introduced in 1999, and would replace national currencies.⁶⁰

National requirements

Four criteria for new applicant countries were agreed upon in the Maastricht Treaty. The first concerned price stability and stated that the country’s inflation could not exceed 1½-percentage points the average of the three best performing states.

The second requirement was that the annual budget deficit should not be larger than 3 per cent and outstanding government debt should be kept below 60 per cent of GDP.⁶¹ These requirements are also guiding for member countries through the rule-based framework of the Stability and Growth Pact. This is meant to safeguard sound public finances in member states. The original Pact imposed a fine if public debt and annual budget deficits were not kept within these limits.⁶²

Third, the applicant had to be an ERM member and maintain its currency within a narrow band for at least two years. The fourth criteria was that the average long-term interest rates

⁵⁹ (Minikin, 1993, p. 11)

⁶⁰ (Minikin, 1993, p. 38)

⁶¹ (Minikin, 1993, p. 48)

⁶² (March, 2009, p. 212)

should not exceed the average for the three best performing Member States by more than 2 per cent.

The signing of the Maastricht Treaty represented a high point in hopes that there would be speedy progress toward a monetary union. Despite many political disagreements and obstacles, as the EMS crisis in the early 1990, the euro was introduced as planned on 1 January 1999.⁶³

The Euro area

At the introduction date, eleven EU member states – Belgium, Germany, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal and Finland – adopted the euro. This was considered a radical move. Together the member countries formed the second largest single currency area in the world, and it has become the second most important international currency since then. Only the US is ranked above.⁶⁴

Several countries have joined since the introduction in 1999, among them Greece in 2001. In 2012, the euro is shared by 17 of the EU member states, and together they make up the euro area⁶⁵. The euro is breaking down barriers between people, companies and markets, and is the first currency that has not only severed its link to gold, but also its link to the nation-state.⁶⁶

Not a political union

EMU is responsible for the monetary policy and assigns it to its independent central bank, the European Central Bank (ECB). However, the member countries still have a large degree of political sovereignty in most other areas. The union is only a monetary union, and fiscal

⁶³ (Minikin, 1993, p. 48)

⁶⁴ (Economic and Financial Affairs, 2008)

⁶⁵ (European Central Bank, 2011b)

⁶⁶ (March, 2009, pp. 2-3)

and general economic policies remain in the hands of separate governments. This allows them to pursue domestic stabilisation goals, albeit within some bounds and in line with the Growth and Stability Pact. They have committed to conduct their fiscal policies in a manner that is consistent with the goal of ensuring sustainability of public finances and maintaining price stability.⁶⁷

If a potential economic shock has implications for euro area-wide inflation, the primary instrument should be monetary policy from ECB. If the shock instead is country-specific, temporary and does not impinge on the euro average, the appropriate instrument is national fiscal policy, where there is no clear case for coordination.⁶⁸

5.2.2 The theoretical framework of the European Monetary Union

The European System of Central Banks (ESCB) comprises the ECB and the National Central Banks (NCBs) of all EU member states. The NCB's have legal personalities, which are separate from that of the ECB, but they operate in line with the ECB's guidelines and instructions. The decision-making bodies within ECB are the Governing Council and the Executive Board.

The Governing Council makes the monetary decisions within the ECB and formulates the single monetary policy of the union. The Executive Board implements their decisions as the organ responsible for the daily management of ECB. They also give instructions to the NCB's, whose main tasks are to contribute to the policy decisions of the Governing Council and to execute the decisions within its own countries.⁶⁹

⁶⁷ (Economic and Financial Affairs, 2008, p. 64)

⁶⁸ (Coppel, Serres, & Hoeller, 1999, pp. 12-13)

⁶⁹ (Coppel, Serres, & Hoeller, 1999, p. 57)

Interest setting

The interest-rate setting is unified across the EMU area⁷⁰. The ECB established a single basic interest rate based on average conditions throughout the relatively heterogeneous currency area. They pursue a quantitative definition of price stability rather than an explicit inflation target. The interest rate should be set in order to achieve a rate of change of the Harmonised Index of Consumer Prices (HICP) close to, but below 2 per cent per annum.⁷¹

Differences in EMU member's interest rates would arise if countries could set its interest rate in order to meet purely domestic targets. The economic performance across the currency block would have to be completely smooth in order to get perfect interest rate conditions. But the union operates with a "one-rate-fits-all" interest policy because of the fundamental tenet within EMU; that one size manifestly does not fit all. The principal adjustment mechanism in the monetary union is based on this insight.⁷²

The adjustment mechanisms

Disharmonised interest rates are designed to act as a means of adjustment for euro members in a similar way as the flows of gold regulated economic behaviour during the gold standard.

Countries that are expanding slower than the euro average, and therefore have a lower inflation rate, will be constrained by a higher interest rate than would normally be required. Incentives to increase efficiency and productivity, which eventually will reduce production costs, will arise. This will improve the country's competitiveness over time, and lead to higher economic growth. But the adjustment mechanism has the negative side effect of higher unemployment in the transition phase to higher growth.

The countries that are expanding faster than the euro average, with a higher inflation rate, will have a lower interest rate than would otherwise be the case. This tends to increase inflation. The following reduced competitiveness will increase imports and worsen their

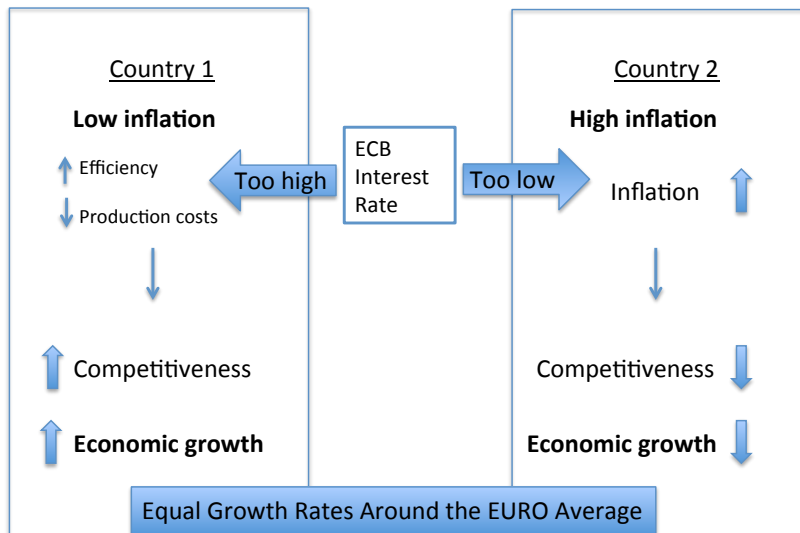
⁷⁰ (March, 2009, p.7)

⁷¹ (Economic and Financial Affairs, 2008, p. 65)

⁷² (March, 2009, pp. 244-245)

balance of payments positions. Eventually these effects will reduce growth rates toward more sustainable levels around the euro average.⁷³ The adjustments are presented in Figure 9 below.

Figure 9: Adjustment in the EMU



Conditions of the system

There are four main “shock absorber” mechanisms that might limit the potential cost of foregoing national monetary policy independence. The first mechanism is more flexible factor markets, where especially labour is important. This compromises both wage flexibility and labour mobility. The three others are more flexible product markets, national fiscal policy and greater integration of capital and credit markets, which would permit consumption smoothing.⁷⁴

⁷³ (March, 2009, pp. 244-245)

⁷⁴ (Coppel, Serres, & Hoeller, 1999, p. 114)

6. Part III - Discussion and analysis

In this part the factors presented in section 2.2 will be discussed for the gold standard and the EMU according to the problem of this assignment. First I will look at the gold standard, then at the EMU, and then a comparison of the two follow.

The factors I will discuss are (1) the central bank interest rate policy and the rules of the game, (2) imbalances in exchange rates and (3) debt levels between member countries, (4) the system's ability to handle fundamental changes and the (5) credibility of the monetary union. Are these factors present in the EMU today?

6.1 Interest setting and the rules of the game

I want to look at the interest rates of the monetary unions and see if they were set according to the rules of the game, explained in section 5.1.2 about the theoretical framework of the gold standard. Central theory for the discussion is the difficulty of obtaining both domestic and external equilibriums, explained in the adjustment problem in section 4.5.2. The relationship between unemployment and inflation, explained by the Phillips curve in section 4.8, is also important for the understanding of the problem.

I will first look at the interest setting in the two periods in each of the monetary unions. Then I will compare this with gold reserves for gold member countries and with balance of payments for the EMU countries.

6.1.1 The gold standard

Interest setting

Each country had its own central bank that decided the national interest rates. The interest rates were however required to be set according to the rules of the game in order for the mechanisms to work and make to gold flow in stabilising directions. The system's resilience

was attributed to the willingness of national monetary authorities to refrain from preventing this international adjustment process in its workings.⁷⁵

But following the reestablishment of the gold standard after WWI, it is alleged that central banks failed to play as faithful by these rules as they did in the pre-war period⁷⁶. After 1925 several central banks started sterilising gold flows instead of following the rules of the game. This caused them to intervene in ways that disrupted the international adjustment mechanism⁷⁷. It was essential to the safety of the reserves to maintain the connection between a gold drain and a rise in the rate of discount. Unless this twofold check was kept in working order, the whole currency system could be imperilled⁷⁸.

One of the explanations for this development was changed political circumstances in the 1920s. One of the most significant developments of the period was according to Robert Triffin the growing importance of domestic factors as the final determinant of monetary policies. The economic consequences from following the rules of the game could be harsh on the domestic economy because it depressed the economy in hard times by increasing interest rates and contracting money supply. The central banks faced a short-term trade-off between unemployment and inflation. An interest rate increase would increase unemployment and also the government's cost of servicing its public debt, while a decrease would reduce inflation. Even though most central banks were independent, they were not immune from pressure to protect the government from its burdens.⁷⁹ This made it more difficult to follow the rules as mechanically as demanded by the theory of the gold standard.

If they had decided to cut the link to gold they would have had greater freedom to pursue independent economic policies. A depreciation of the currency would for many countries have removed the urgent need of cutting government spending and raising taxes in order to defend the exchange rate.⁸⁰ Before the war it had been clear that the governments of the gold

⁷⁵ (Eichengreen, Watson, & Grossman, *Bank Rate Policy Under the Interwar Gold Standard*, 1993)

⁷⁶ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 36)

⁷⁷ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 21)

⁷⁸ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 177)

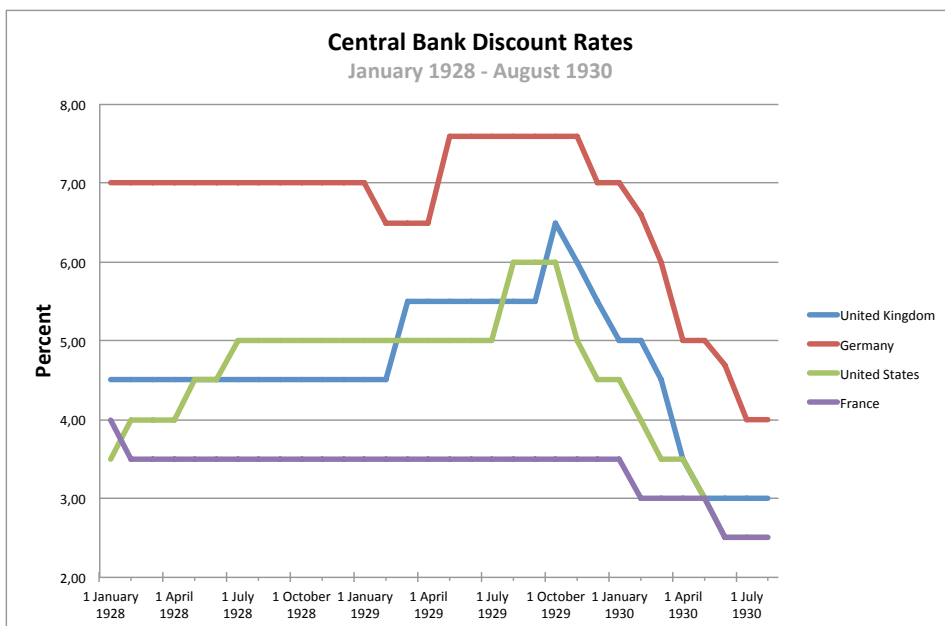
⁷⁹ (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, p. 29)

⁸⁰ (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, p. 88)

standard's industrial core were prepared to defend the system⁸¹. When this was not as obvious anymore, central banks were facing a more difficult dilemma. Why would they depress their economies in order to defend the monetary system if they were not sure that the other governments did the same?

From Figure 10 we can see that Germany kept its interest rate higher than the other gold standard countries. This was partly because of their fear and resent experience with hyperinflation, but it also made them an attractive destination for funds. France and Germany absorbed nearly all of the increase in global monetary reserves in the second half of 1920s, but Germany was still struggling with war reparation payments to the US, France and UK.

Figure 10: Central Bank Discount Rates, January 1928 – August 1930



Source: (Board of Governors of the Federal Reserve System, 1943, pp. 439, 656-659)

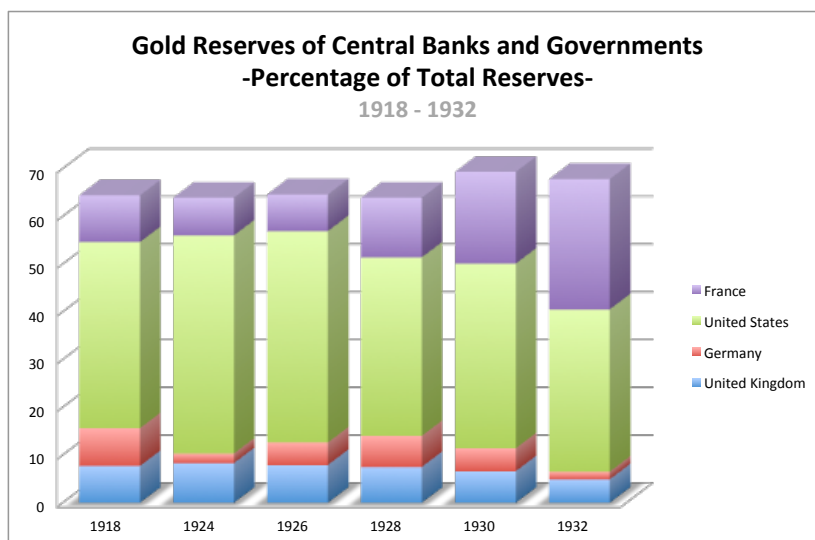
⁸¹ (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, p. 72)

Unbalances

The purpose of the rules of the game was to even out imbalances between countries. In this new policy environment with countries sterilising the gold flows, these imbalances were not corrected with the same speed as before. It was therefore no longer obvious that a currency's weakness was temporary.⁸² The consequence of refusing to follow the rules was more lasting unbalances between surplus and deficit countries because they prevented the adjustment mechanisms from working efficiently.

The asymmetries in possible responses of surplus and deficit countries further increased the imbalances. The deficit countries could not conduct sterilisation operations to the same extent as the surplus countries could. They were constrained to raise interest rates and contract their money supply in order to hold enough gold reserves to maintain their gold parities. There were no such constraints for the surplus countries, which could sterilise gold flows and accumulate gold.⁸³ This asymmetry shifted the burden of adjustment onto those with relatively weak external positions⁸⁴.

Figure 11: Gold Reserves of Central Banks and Governments, 1918 - 1932



Source: (Hardy, 1936, p. 93)

⁸² (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, p. 88)

⁸³ (Eichengreen, Watson, & Grossman, *Bank Rate Policy Under the Interwar Gold Standard*, 1993, p. 57)

⁸⁴ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 21)

As we can see from Figure 11, the US and France accumulated massive amounts of gold over the period between 1918 and 1932. Countries as Britain and Germany were squeezed as intense balance of payment pressure were placed on them.⁸⁵ The worldwide misdistribution of gold stocks shifted the burden of adjustment onto countries with precarious reserve positions⁸⁶. This made it difficult for them to increase the activity level in their economies. This unbalance was partly because central banks failed to set the interest rates according to the rules of the game.

6.1.2 The EMU

Interest setting

Since the EMU excludes sovereign monetary policy, the countries cannot set their own national interest rates. The interest rate is set on average conditions of the member states and is equal for all member states⁸⁷. This makes it impossible for the countries in the EMU to play by the rules of the game as described for the gold standard countries. Instead, the countries need to rely on other adjustment mechanisms in order to make the capital flow in stabilising directions, as explained in section 5.2.2.

Unbalances

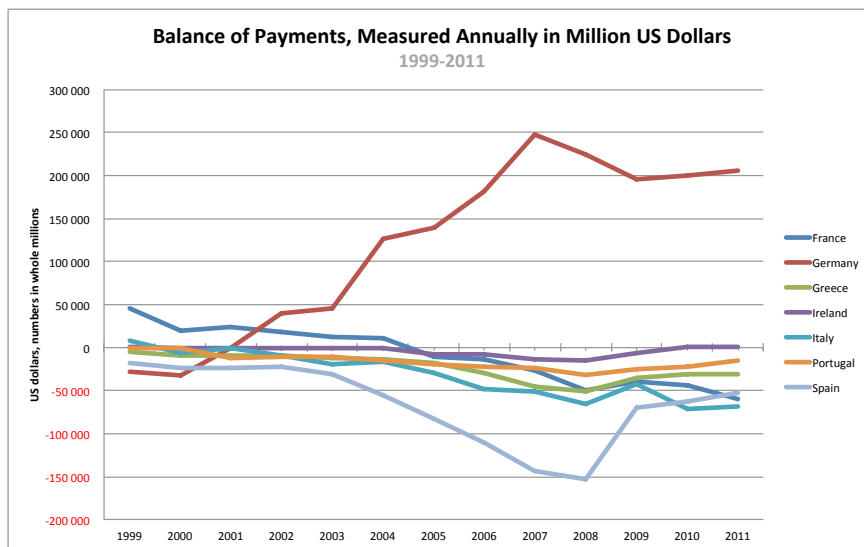
The business cycles within the union have become increasingly more synchronised across the member countries after the introduction of the EMU. Hence, the need for national stabilisation policies over and above the stabilising impact of the single monetary policy has been diminishing.⁸⁸ But there are still large differences in the economic state of the different countries as we can see from Figure 12.

⁸⁵ (Eichengreen, Golden Fetters - The Gold Standard and the Great Depression, 1919-1939, 1992, p. 192)

⁸⁶ (Eichengreen, Watson, & Grossman, Bank rate policy under the interwar gold standard, 1993, pp. 57-70)

⁸⁷ (March, 2009, p. 206)

⁸⁸ (Economic and Financial Affairs, 2008, p. 21)

Figure 12: Balance of Payments for EMU countries, 1999 – 2011

Source: (Organisation for Economic Co-operation and Development, 2012a)

Figure 12 proves how large the imbalances in the balance of payments between the member countries are. Since all the countries have the same interest rate, the deficit countries are unable to raise their interest rates to attract more capital. Some have argued that the interest rate has been too high for the northern European countries and too low for the southern European countries in the years before 2009⁸⁹. This has contributed to the large differences we see in the balance of payments between the countries, and might make it difficult for the economies to converge toward each other.

6.1.3 Comparison of the gold standard and the EMU

What to compare?

In order to determine if the rules of the game actually were broken in the interwar gold standard, I will compare gold reserves and the national interest rates of the gold member countries and see if the changes were according to the rules of the game.

⁸⁹ (James, 2012)

As the EMU does not have gold, I will compare the ECB interest rate with national balances of payments for the EMU countries. As mentioned in section 5.1.2, it can be argued that it is the balance of payments that matters. Even if they do not have the option to change their interest rates according to the rules, it is still possible to see if the common interest rate follows the rules better for some countries than others. Is the exclusion of nationally decided interest rates and the rules of the game in EMU a weakness for the EMU cooperation?

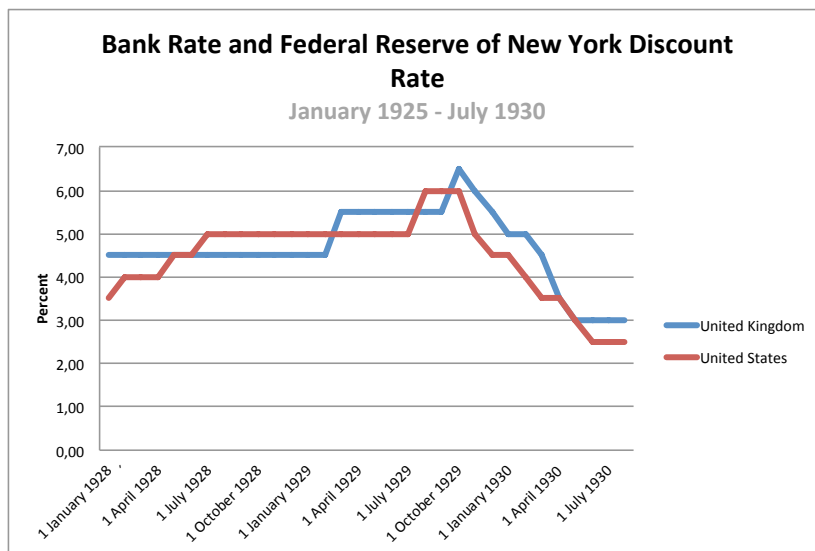
Data

In lack of data over German and French interest rates for the 1920s, I will only look at the UK's Bank Rate and the US Discount Rate for the gold standard members. Unfortunately it is difficult to find data for this period, so the estimates for the gold standard is relatively thin. The estimates range only from 1925 to 1929. Even if it is a short time interval it still gives an indication of the interest setting compared to the gold reserves in the period. For the EMU members I use data from 1999 to 2011.

I have looked at the absolute change in the gold reserves and balance of payments, and compared it to the changes in the interest rate. I have used annual data, as short-term changes normally would not require changes in the interest rates. Changes within each year are therefore not captured in this analysis.

Results

Figure 13 displays the interest rates for the gold standard countries, while Table 2 presents the interest rates, gold reserves and the results from the analysis.

Figure 13 – Bank Rate and Federal Reserve Bank of New York Discount rate, 1925 - 1930

Sources: **Bank Rate:** (Mitchell & Deane, 1962), (Board of Governors of the Federal Reserve System, 1943), (Bank of England). **US Discount rate:** (Board of Governors of the Federal Reserve System, 1943, pp. 440-441)

Table 2: Comparison of Gold Reserves and Interest Rates, 1925 – 1929

	Gold Reserves* Bank of England,			Gold Reserves* Federal Reserve		
	GR	Bank rate, i	$\Delta GR / \Delta i$	Bank, GR	US Discount Rate, i	$\Delta GR / \Delta i$
01 January 1925	7,80 %	4,29 %		44,40 %	3,00 %	
01 January 1926	7,90 %	5,00 %	+ / +	44,30 %	4,00 %	- / +
01 January 1927	7,70 %	4,61 %	- / -	41,60 %	4,00 %	- / 0
01 January 1928	7,50 %	4,50 %	- / -	37,40 %	3,50 %	- / -
01 January 1929	6,90 %	5,10 %	- / +	37,80 %	5,00 %	+ / +
Δi according to 'the rules of the game'			1			1
Total number of years			4			4
Per cent of total			25,0 %			25,0 %

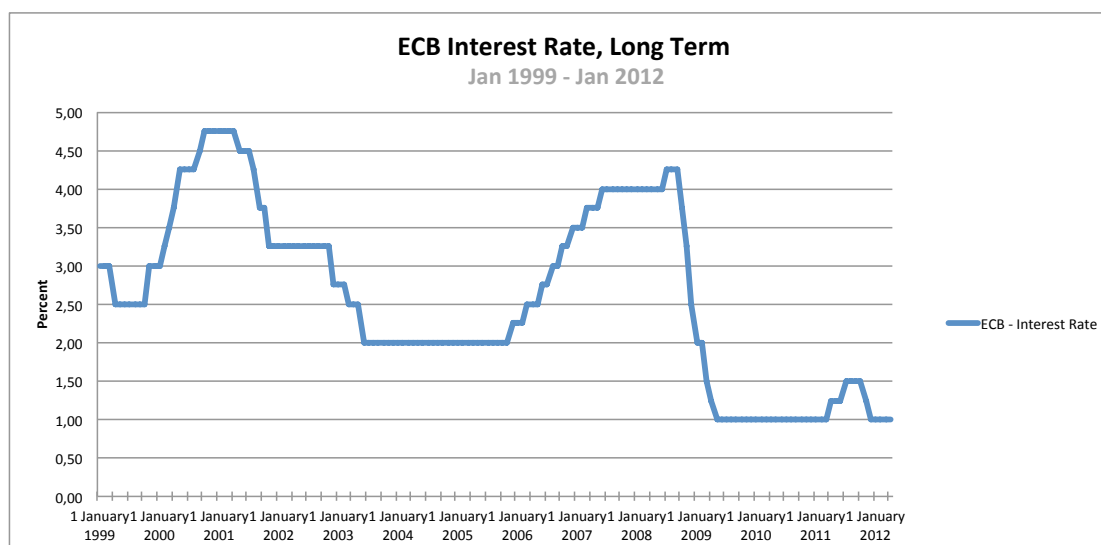
*Gold Reserves Measured as Percentage of Total Gold Reserves

Source: **Gold reserves:** (Hardy, 1936, p. 93), **Interest rates:** Same as for Figure 13

Following this simple analysis, interest rates have been changed according to the rules of the game in 25 per cent of the changes for both countries. We can see clear indications of violations of the rules from these results, even if this should be interpreted with caution due to the low volume of data material used.

Figure 14 presents the ECB long-term interest rate. Table 3 gives the comparison of this interest rate with the member countries balances of payments.

Figure 14: ECB Long Term Interest Rate, January 1999 – January 2012



Source: (European Central Bank, 2012)

Table 3: Comparison of Balance of Payments and ECB Interest Rate, 1999 – 2011

	France, BOP	Δ BOP/ Δ i	Germany, BOP	Δ BOP/ Δ i	Portugal, BOP	Δ BOP/ Δ i	Ireland, BOP	Δ BOP/ Δ i	Italy, BOP	Δ BOP/ Δ i	Greece, BOP	Δ BOP/ Δ i	Spain, BOP	Δ BOP/ Δ i	ECB Interest Rate (%), i	Δ i
1999	45 833	- / 0	-27 526	- / 0	597	- / 0	8 198	- / 0	-5 352	- / 0	-18 077	- / 0	3,00 %	
2000	19 264	- / 0	-32 678	- / 0	33	- / 0	-5 847	- / 0	-9 943	- / 0	-22 993	- / 0	3,00 %	0
2001	23 517	+ / +	-11	+ / +	-12 429	- / -	-691	- / +	-639	+ / +	-9 473	+ / +	-24 021	- / +	4,75 %	+
2002	18 128	- / -	40 214	+ / -	-10 908	+ / -	-1 106	- / -	-9 463	- / -	-9 617	- / -	-22 396	+ / -	3,25 %	-
2003	12 972	- / -	45 783	+ / -	-10 428	+ / -	74	+ / -	-19 586	- / -	-12 728	- / -	-31 040	- / -	2,75 %	-
2004	11 135	- / -	127 188	+ / -	-15 447	- / -	-1 079	- / -	-16 197	+ / -	-13 314	- / -	-54 872	- / -	2,00 %	-
2005	-10 349	- / 0	139 930	+ / 0	-19 791	- / 0	-7 134	- / 0	-29 379	- / 0	-18 323	- / 0	-83 095	- / 0	2,00 %	0
2006	-12 985	- / +	181 673	+ / +	-21 573	- / +	-7 865	- / +	-48 118	- / +	-29 821	- / +	-110 848	- / +	2,25 %	+
2007	-25 906	- / +	247 660	+ / +	-23 416	- / +	-13 837	- / +	-51 627	- / +	-44 631	- / +	-144 103	- / +	3,50 %	+
2008	-49 307	- / +	224 619	- / +	-31 779	- / +	-15 286	- / +	-66 116	- / +	-50 876	- / +	-153 039	- / +	4,00 %	+
2009	-39 456	+ / -	195 272	- / -	-25 565	+ / -	-6 291	+ / -	-41 779	+ / -	-35 869	+ / -	-70 213	+ / -	2,00 %	-
2010	-44 575	- / -	199 549	+ / -	-22 813	+ / -	961	+ / -	-71 613	- / -	-30 416	+ / -	-62 815	+ / -	1,00 %	-
2011	-59 899	- / 0	205 444	+ / 0	-15 339	+ / 0	164	+ / 0	-69 072	+ / 0	-30 980	- / 0	-52 547	+ / 0	1,00 %	0
Δ i according to 'the rules of the game'		4		5		7		7		5		5		7		Average
Total number of years		12		12		10		12		12		12		12		11,71
Per cent of total		33,3 %		41,7 %		70,0 %		58,3 %		41,7 %		41,7 %		58,3 %		48,8 %
Deflatory Δ i according to 'the rules of the game'		3		1		3		4		3		3		4		3,00
Per cent of total		25,0 %		8,3 %		30,0 %		33,3 %		25,0 %		25,0 %		33,3 %		25,6 %

*BOP Numbers in million US Dollar

Source: **Balance of Payments:** (Organisation for Economic Co-operation and Development, 2012a), **ECB Interest Rate:** (European Central Bank, 2012)

The red fields in Table 3 represent interest changes violating the rules of the game, while the green fields are interest changes that correspond to the rules of the game. We can see that the annual interest changes for France and Germany have been following the rules in 33,3 and 41,7 per cent of the years, while the average is higher for the PIIGS countries, with numbers ranging from 41,7 per cent and up to 70,0 per cent. These results can indicate that the ECB interest rate has been following the rules of the game for the PIIGS countries to a larger extent than for Germany and France. Total average tells us that the rules have been followed in around 48,8 per cent of the interest changes for the EMU countries.

The darker green fields are the interest changes that in addition have a deflationary effect on the economy, i.e. the interest rate is increased as the balance of payment is decreasing. The PIIGS countries and France have all experienced changes like this in 25 per cent to 33,3 per cent of the cases. Germany, on the other hand, has had only 8,3 per cent of these deflationary interest changes as its annual balance of payment has increased since 2000, except from in 2008-2009 during the Financial Crisis.

Following the line of the rules of the game, increased interest rate with decreasing reserves would increase competitiveness in the country by reducing the price level and attracting foreign capital. But the problem is that the deflationary effects are not met by the opposite interest changes in the surplus countries, as Germany. If the German interest rate had been decreased, this would have increased the possibility of capital flowing out from Germany and into the relatively higher interest rate countries. When the increases in interest rates in deficit countries are not met with interest rate decreases in the surplus countries, the increased capital inflow to the deficit countries will not follow in the same degree. Instead they only get the deflationary effects.

Concluding remarks

After having looked at interest rates compared to the rules of the game I found that the rules were not followed mechanically by the gold standard countries and in average only in 48,8 per cent of the interest rate changes for the EMU countries. While the gold standard countries had national interest rates, the EMU countries have one common interest rate. The implication of the common rate is that increased interest rate with deflationary effects in deficit countries will not met by decreased interest rates in surplus countries. This increases

the imbalances further because it has made it difficult for deficit countries to attract capital when their balance of payments is decreasing.

6.2 Instability in the exchange rates

In this section I will look at the real exchange rates within the monetary unions. The PPP theory in section 4.3 explains that inflation differentials between countries give divergent nominal and real exchange rates, and this is important for the discussion. Since the nominal exchange rates are fixed in the two monetary unions imbalances in the real exchange rates might give rise to diverging competitiveness and trade imbalances.

The reasons for having fixed exchange rates are listed in section 4.2.1. One of the reasons is reduced exchange rate volatility that might increase international trade. Also the OCA theory in section 4.6 says that increased trade integration increases symmetry in a monetary union, which might lead to fewer asymmetric shocks. It is therefore important to look at trade between countries to see if the fixed exchange rates benefit individual countries in the monetary unions.

Based on this theoretical foundation, I will focus the discussion on the initial fixing of the nominal exchange rates and strong economies actions influencing their domestic inflation levels. The last section is devoted to the level of international trade and possible trade barriers in the monetary unions.

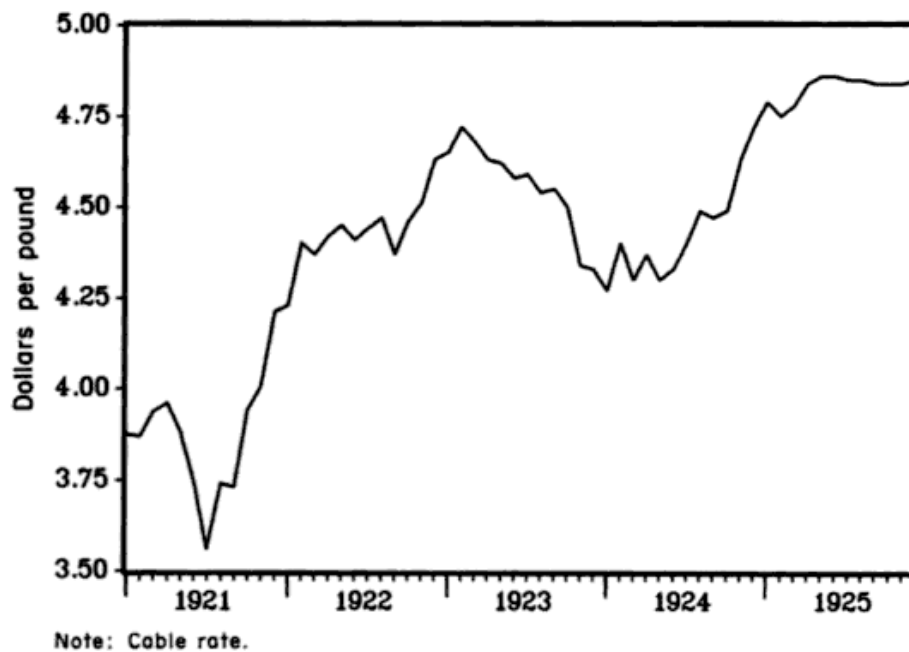
6.2.1 The gold standard

The initial fixing of the exchange rates

Most countries wanted to return to the successful pre-war monetary regime as fast as possible after the war. Due to large war expenditures and money printing during the WWI, high inflation had occurred in most countries. But the inflation varied and prices had increased less quickly in the US than in Britain, and less quickly in Britain than in many parts of Europe. These divergences in price levels had to be reversed to in order to allow the

restoration of pre-war parities.⁹⁰ Some of the countries chose to deflate their economies and go back to their pre-war parity, while others devaluated their currency. The implication of this was that the interwar gold standard started off with imbalances that might have imperilled the whole system.

Figure 15: Sterling/dollar Exchange Rate, 1921 - 1925



Source: (Morgan, 1952, pp. 351-355)

Figure 15 presents the sterling/dollar exchange rate from 1921 to 1925, when Britain was back at its par value on \$4.86. The sterling had a hard way back on pre-war parity, and the US could have made life a bit easier for them if they had adopted more inflationary policies. Unfortunately for Britain, the US continued to accumulate free gold to back their monetary expansions instead of cooperating to ease their burden.⁹¹

Churchill's argument defending the choice of returning to the pre-war parity was that if they tampered with the parity once it would send a signal that the authorities might be prepared to do so again. An eventual loss of international financial business that might follow uncertainty about gold convertibility level would damage Britain and its financial interests.

⁹⁰ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 104)

⁹¹ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, pp. 164-165)

But the relationship between British and foreign prices had not yet been restored and the fact that the exchange rate had moved before the price level meant that British prices were too high.⁹²

The US was on the gold standard throughout the 1920s, while most countries had restored their convertibility by the end of 1925⁹³. The US dollar was significantly undervalued in 1923 and 1924, and slightly undervalued in 1925⁹⁴. France returned to gold at a significantly depreciated rate relative to the pre-1913 gold standard rate⁹⁵. On a unit cost basis, in terms of sterling, the franc was undervalued by approximately 20 per cent⁹⁶. This undervaluation, combined with large speculative balances that moved out of France before the stabilisation, made life difficult for London. Also Germany had an overvalued currency⁹⁷.

The US and war repayments

About \$1 billion in war debt related transfers to the US were completed between mid-1926 and mid-1931⁹⁸. These transactions augmented the flows of gold and foreign exchange toward the US and strengthened their balance of payments, weakening that of other countries. The logical response to these flows would be increased prices and costs in the United States, but this did not take place. Instead, the US lent much of its surplus back to Europe and other parts of the world and kept its competitiveness, which can be measured by the real exchange rate. By refusing to let domestic prices increase, the US enhanced the imbalances in the real exchange rates.⁹⁹ The capital flows are to be seen in Figure 16 below.

⁹² (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, pp. 58-60)

⁹³ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 187)

⁹⁴ (Moggridge, 1972, p. 105).

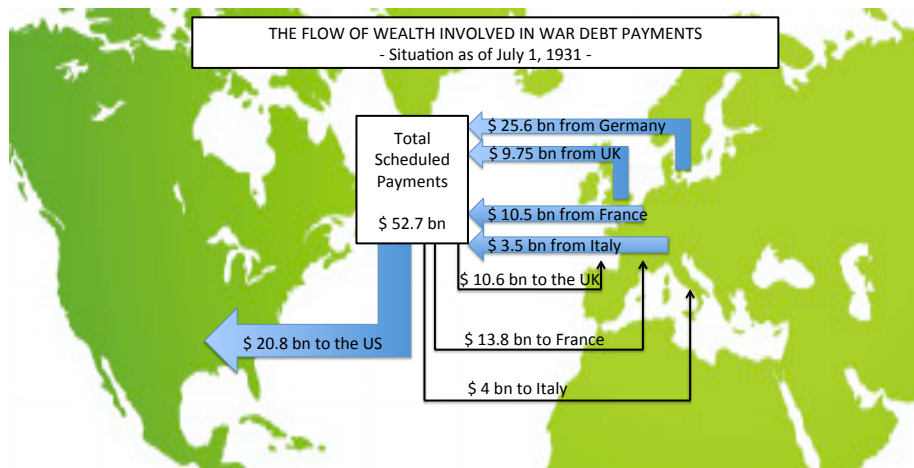
⁹⁵ (Solomou, 1996)

⁹⁶ (Moggridge, 1972, p. 105).

⁹⁷ (Solomou, 1996, p. 29)

⁹⁸ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 224)

⁹⁹ (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, pp. 60-70)

Figure 16: The Flow of Wealth Involved in War Debt Payments

Source: (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 225) (Approximated numbers)

As long as the capital exports persisted, Europe's current account deficit could persist.¹⁰⁰ The deficit countries also spent the capital they imported on consumption rather than investment. They failed in using the capital on long-term investments that could have improved their competitiveness.¹⁰¹

Trade and imbalances

One of the benefits from having fixed exchange rates is reduced volatility and the increased international trade following this¹⁰². But there was a rise of trade barriers in the late 1920s, and this prevented trade between countries. Countries thereby missed one of the benefits from having a fixed exchange rate system.

The link between trade and gold movements was also strong, as explained in the gold standard theory in section 5.1.2, and free movement of gold within the system was one of the

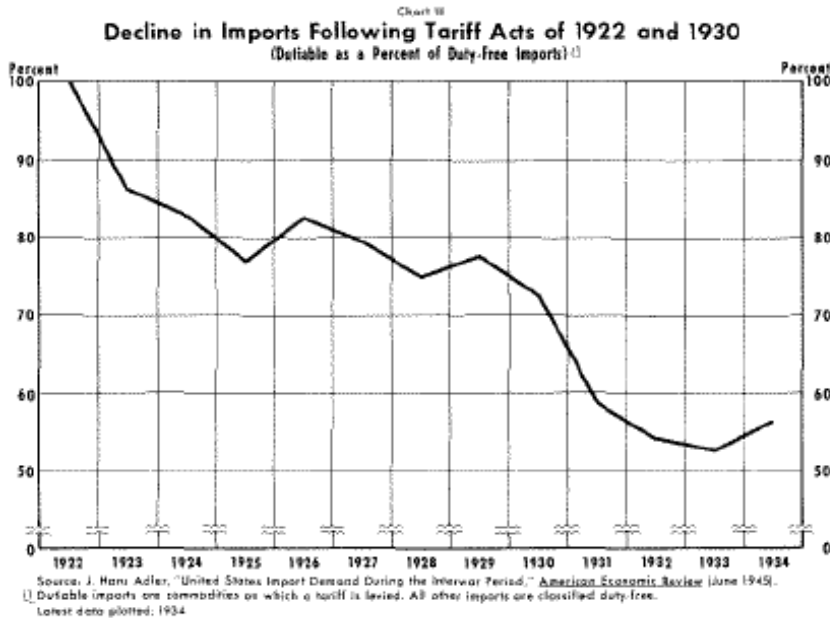
¹⁰⁰ (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, pp. 60-70)

¹⁰¹ (Eichengreen, *When Currencies Collapse*, 2012)

¹⁰² (Obstfeld & Rogoff, 1995, pp. 76-77)

conditions for the working of the gold standard¹⁰³. The trade barriers disrupted this condition. Figure 17 displays the decline in imports in the US after the Tariff Acts of 1922 and 1930.

Figure 17: Decline in US Imports Following Tariff Act of 1922 and 1930, 1922-1934



Source: (Adler, 1945)

The barriers interfered with the ability of the deficit countries to restore their balance by increasing exports and caused concentration of gold reserves in the most protectionist countries¹⁰⁴. Goods from the undervalued currency countries were relatively cheaper than the goods from the countries with overvalued currencies. When strong-currency countries as the US imposed trade barriers they were able to remain in persistent surplus. It also further depressed demand in the deficit countries. Weak-currency countries like Britain and Germany were saddled with chronic balance of payment deficits and haemorrhaged gold and exchange reserves.¹⁰⁵

¹⁰³ (Scammell, 1985)

¹⁰⁴ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 21)

¹⁰⁵ (Eichengreen, *When Currencies Collapse*, 2012)

6.2.2 The EMU

The initial fixing of the exchange rates

When the EMU finally was established, they had to set the conversion rate for each of the participating countries. As this fixing was permanent, it was crucial for the performance of the monetary union that these were fixed at the right terms.¹⁰⁶

After the monetary turmoil in 1992-93, Western Europe was effectively split across a north-south divide of “hard” and “soft” currency blocks. The hard block did not suffer devaluations and consisted of stronger currency countries, among them Germany. The weaker southern countries included the PIGS countries, i.e. Portugal, Ireland, Greece and Spain, and they were all suffering from higher inflation rates than the German-lead group. This weaker group was eager to lock exchange rates against the German D-Mark after recurring foreign exchange attacks from rumours of devaluation. This could give them protection against uncontrolled flows of global capital.¹⁰⁷

In the weeks before the permanent fixing of the exchange rates and the birth of the euro it became clear that Germany would grant its European partners a favour. They started off the new currency at a relatively high conversion rate for the D-Mark, thereby giving the other euro area countries an initial competitive boost.¹⁰⁸

Germany and wage growth

The wage cost development has differed a lot between countries, and there is little doubt that divergent national wage policies are partly to be blamed for this. Germany has followed a tight policy of wage moderation since 1999, as seen from Figure 18. The figure presents the yearly nominal wage increases in Germany compared with the rest of the Eurozone when excluding Germany. We observe a strong decline in nominal wage increases in Germany

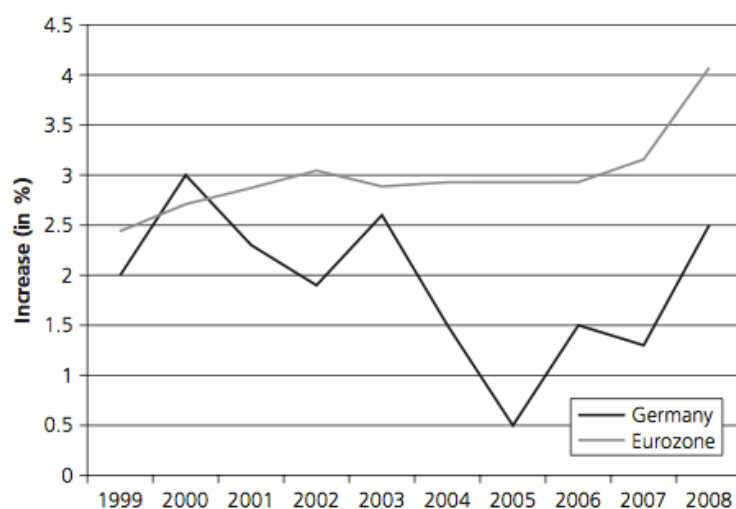
¹⁰⁶ (March, 2009, p. 176)

¹⁰⁷ (March, 2009, p. 176)

¹⁰⁸ (March, 2009, p. 204)

compared with other member countries. The rest of the Eurozone maintained wage increases that have exceeded Germany by 1 to 2 per cent per year.¹⁰⁹

Figure 18: Yearly Nominal Wage Increases in Germany and the Rest of the Eurozone, 1999 - 2008



Source: (Grauwe, International Money: Postwar Trends and Theories - Digitized version, 2008, p. 111)

Two of the reasons for Germany's lower wage increases were too high wage costs at the euro entry and decreased power of labour unions compared to other EMU countries. The lower wage increases make Germany relatively more competitive compared to the other member countries because of its relatively lower wage costs.¹¹⁰

Trade and imbalances

The initial objective of EEC when founded was to remove trade barriers¹¹¹. After a long process of eliminating tariffs and quotas, the European Single Market became a reality in

¹⁰⁹ (Grauwe, International Money: Postwar Trends and Theories - Digitized version, 2008, p. 111)

¹¹⁰ (Grauwe, International Money: Postwar Trends and Theories - Digitized version, 2008, p. 111)

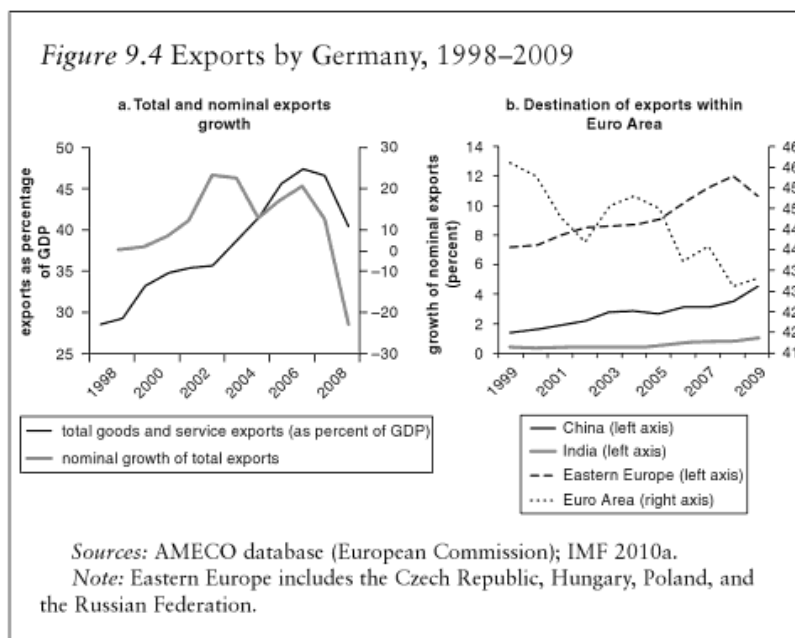
¹¹¹ (European Central Bank, 2011a, p. 4)

1993¹¹². But Germany's strong position and low wage growth has caused imbalances despite this effort and is at the heart of the imbalance problem.¹¹³

The fixed European exchange rate has provided disproportionate support for Germany's export oriented economy. By making its industrial sales very competitive throughout most of Europe, the exchange rate has increased export surplus to record levels and diverted the attention from the necessary task of stimulating domestic demand. The rebalancing of the German economy after the unification also caused a fall in worker's income. This weakened domestic demand and encouraged a shift of productivity resources towards export. A combination of the fixed exchange rates and their success in holding the costs down led to an increased price competitiveness against the other members in the union¹¹⁴.

As we can see from Figure 19, German export growth is increasing, both with the world and also within the euro area.

Figure 19: Exports by Germany, 1998 - 2009



Source: (International Monetary Fund, 2010) (European Commission, 2010)

¹¹² (European Commission, 2012c)

¹¹³ (March, 2009, p. 3)

¹¹⁴ (March, 2009, p. 3)

6.2.3 Comparison of the gold standard and the EMU

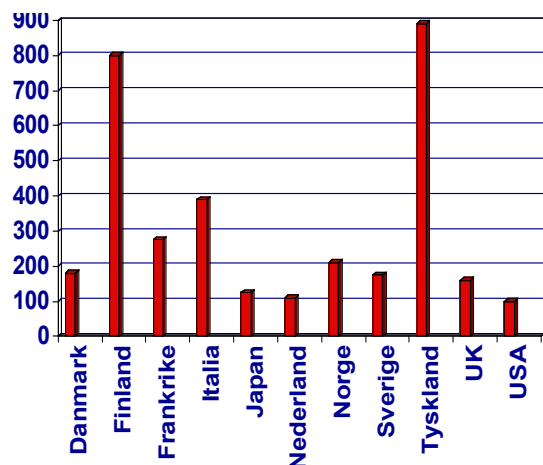
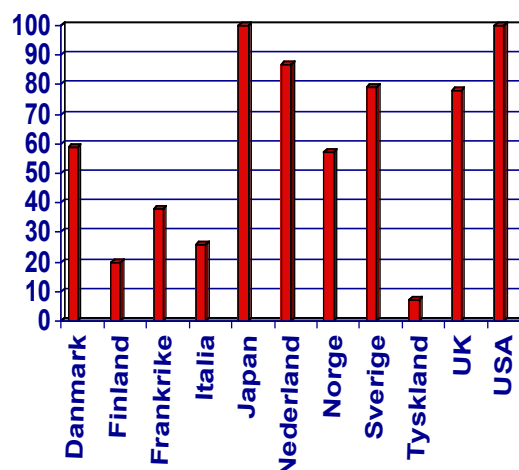
What to compare?

In both monetary unions there seem to be problems with over- and undervalued currencies. During the gold standard this happened because some countries devalued their currencies when returning to the gold standard, while others returned to their pre-war parity. In the EMU the imbalances have occurred mainly because of different economic development between countries after the fixing of the exchange rates.

The PPP theory tells us that if inflation differs between the countries, the real exchange rates will also differ. I will therefore start the comparison by looking at how the inflation levels differ between countries for both unions, and also at the real exchange rates for the EMU countries. Unfortunately I do not have the corresponding real exchange rates for the gold standard countries. Then I will look at international trade in the two unions, although with some different measurements.

Inflation and real exchange rates

The two following figures illustrate how big the differences between gold standard countries were after the WWI. Figure 20a pictures the inflation levels between 1914 and 1920. There are large differences between member countries, as Germany had inflation of almost 900 per cent while the US only had 100 per cent. And this was before the hyperinflation in Germany set in.

Figure 20a: Inflation 1914 – 1920**Figure 20b:** Exchange Rates 1920
(Par Value = 100)

Source: (Grytten, Etterkrigsdepresjonen på 1920-tallet, 2011) 04.10.2011, NHH

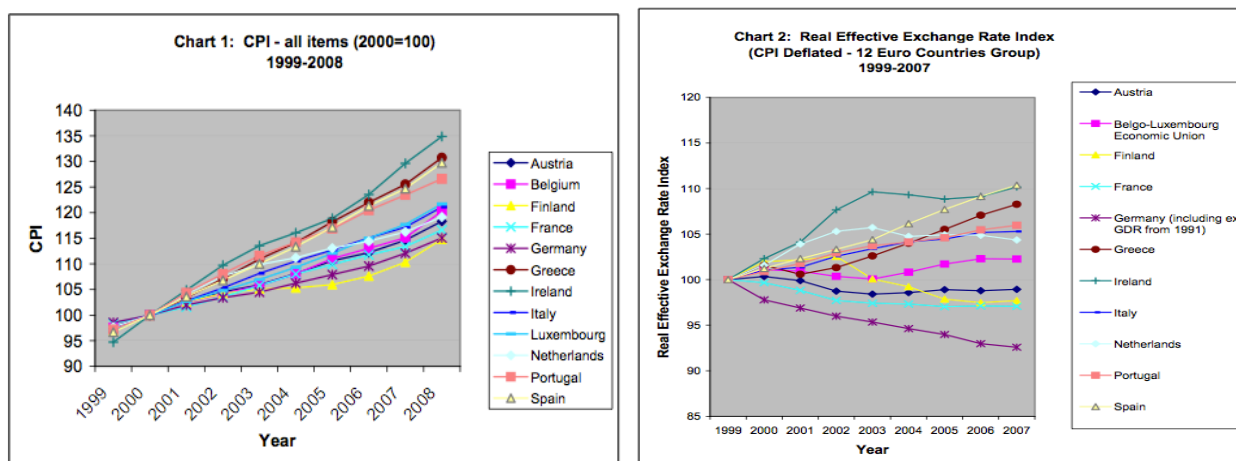
Figure 20b displays the exchange rates in 1920, where the par value is equal to 100. Germany was the country with the highest inflation during the war, and therefore the country where the money lost most of its value. The currencies that lost value had to raise interest rates and decrease its money stock in order to increase the value back to pre-war par value again. But as described in the previous section, not all countries did do this all the way. That resulted in the imbalances we saw in the interwar period.

Figure 21a shows annual changes in Consumer Price Index (CPI) in 12 of the EMU members from 1999 – 2008. We can see that there is limited evidence of CPI inflation levels reverting toward the group average. Germany is an average low inflation country, while particularly Ireland, Greece, Spain and Portugal are high average CPI inflation countries.

The numbers in Figure 21b are based on real exchange rates within the euro area. We can see that Ireland, Spain, Greece and Portugal have appreciated in real terms relative to an average of their internal trading partners. Since the nominal exchange rate is fixed, this appreciation in the real exchange rate makes these countries less competitive.¹¹⁵

¹¹⁵ (Wihlborg, Willett, & Zhang, 2009, pp. 12-13)

Figure 21a: CPI Changes, 1999–2008 (2000=100) **Figure 21b:** Real Effective Exchange Rate Index, 1999 - 2007



Source: (Wihlborg, Willett, & Zhang, 2009, pp. 12-13)

International trade

Trade tariffs reduced US imports during the 1920s, as already mentioned. The export volumes to the US and North America are indexed in Table 4, and it can be seen, as expected, that there were large decreases towards 1932.

Something worth noticing is that the British export is declining over the whole period as opposed to the French and German export that is increasing far into the 1920s. This might indicate that the UK was struggling with their overvalued exchange rate, and that this had implications for their competitiveness and international trade.

Table 4: Export to the US in the Period 1923 – 1932, Indexed Numbers (1923 = 100)

	French Export to the U.S.	German Export to the U.S.	UK Export to North America *
1923	100	100	100
1926	149	157	90
1929	135	209	86
1932	39	59	33

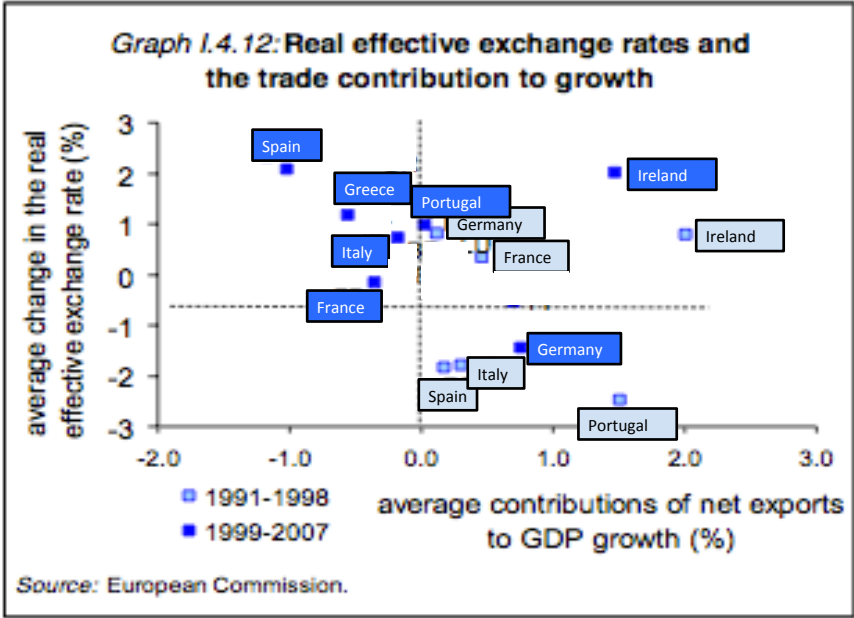
*Export from UK to North America, not only the U.S.

Sources: **Germany**; (Liesner, 1989, p. 220), **France**; (Liesner, 1989, p. 196), **UK**; (Liesner, 1989, p. 50)

Figure 22 shows that there is a negative correlation between the real exchange rates and net trade for the relevant EMU members. Countries that have seen their real exchange rates appreciate have experienced a negative development in the net export contribution to growth. The countries that have had a depreciating real exchange rate have on the other hand had a positive net export contribution to growth.

Spain, Greece and Italy belong in the former group with declining trade contribution. The net trade contribution in Portugal has been practically zero as imports slumped along with weak domestic demand. Ireland managed to sustain export-driven growth despite a loss in cost competitiveness. This might be because of strong comparative advantages in a number of specific industries.¹¹⁶

Figure 22: Real Effective Exchange Rates and the Trade Contribution to Growth



Source: (Economic and Financial Affairs, 2008, p. 58)

¹¹⁶ (Economic and Financial Affairs, 2008, p. 58)

Concluding remarks

There are inflation differentials between countries that give rise to real exchange rate instabilities in both monetary unions. The instabilities were present already at the fixing in for gold standard, while differing development has been the main reason for the instabilities in the EMU.

Strong economies within both unions also imposed policies, as sterilisation and wage moderation, preventing their domestic price levels to increase relative to foreign levels. This enforced the position of their already strong economies in international trade and made it more difficult for countries with overvalued currencies to achieve increased export levels.

Patterns in international trade also suggest that trade was influenced by the imbalances in the real exchange rates in both monetary unions. Most evident is the negative correlation between the real exchange rate and net trade for the EMU countries.

But the EMU has one advantage in trade compared to the gold standard. Since the EU started up as a trade union, the same trade tariffs as were seen in critical times during the gold standard would not arise in the EMU.

6.3 Debt imbalances

In this section I will look at debt levels in the two unions as very high debt levels in some countries might have caused imbalances. The theory of different forms of risk discussed in section 4.9 is important in order to understand the development in interest rates for indebted countries. Also the theory about the external equilibrium and rigidity in section 4.5.2 is used as it focuses on the dilemma between domestic and external equilibrium when there is rigidity present in the economy.

I will start looking at the debt development and consequences from a tighter credit market, and then look at possible ways out of the debt situation for the indebted countries. The last section is focused on the different implications of the high debt levels for deficit and surplus countries.

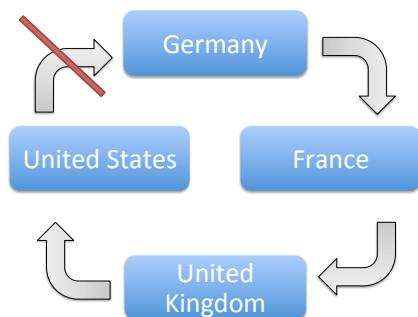
6.3.1 The gold standard

The debt development

The post-war period saw the United States emerge not merely as a net creditor country, but as the principal source of new international capital flows. This transition followed from the neutral status of the US early in the war and its expanded export to the European belligerents, paid for by the sale of American securities in New York.¹¹⁷

The new debt situation made member countries more dependent on the situation in the US, making the monetary union more fragile. If the credit stopped coming from the US to Germany, that would further stop the debt payments from Germany to France, from France to the UK, and then to the US again, as described in Figure 23. The development in debt levels and structure made the union less stable and contributed to the breakdown.

Figure 23: Credit and Debt Flows in the Interwar Period



Source: (Grytten, Den Store Depresjonen, 2011), at NHH, 06.10.2012

Tighter national credit markets – the Great Depression

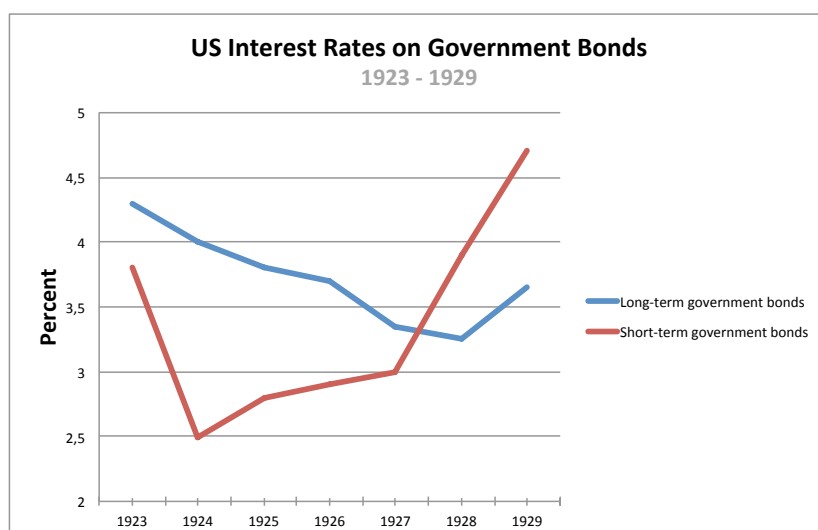
Although the US economy continued to expand, events in America were directly responsible for the slowdown in other parts of the world. The Federal Reserve became increasingly restrictive, and this curtailed US foreign lending in the summer of 1928. There was a 30 per

¹¹⁷ (Kahler, 1990, p. 71)

cent drop in US lending between 1927 and 1928, and this understates the speed of the shift.¹¹⁸

The increase in the short- and long-term interest rates can be seen from Figure 24. The short-term interest rates rose noticeably after 1927, followed by the long-term interest rates. Because of the dependency on US capital, this had repercussions for several gold standard members. As lending to Germany stopped, it became increasingly difficult for them to continue to pay their debts. This caused problems for other countries as well due to the fragile debt structure.

Figure 24: US Interest Rates, Long- and Short-term, 1923-1929



Source: (Hamilton, 1987, pp. 1-25)

As many countries already had trade deficits, they depended on capital imports from the US for their external stability. When the US foreign lending declined, a strict compression of domestic spending was often the only option consistent with continued maintenance of the gold standard.¹¹⁹ This further depressed the economy, and made it very difficult for indebted countries to get out from the debt situation they were in. They would have to continue to borrow money in order to cover their expenses because of reduced income from economic activities.

¹¹⁸ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 226)

¹¹⁹ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 222)

The domestic demand curtailed, and there was a consequent fall in relative prices along the lines of the price-specie-flow model. This should boost their exports and compress their imports, somewhat bridging the gap created by the capital inflows. But in addition to this did the lending boom in the 1920s contribute to oversupply, due to the rapid expansion of commodity production, which further intensified the downward pressure on prices.¹²⁰ The reduction in prices and costs could have priced European goods back into international markets, but there were limits to how far prices could fall without setting in motion a deflationary spiral¹²¹.

Possible ways out

There were roughly three different courses of actions that the heavily indebted countries could follow. The first option, pursued by virtually every debtor country until 1929, was to boost export and limit import, as explained above. This was done to mobilize the foreign exchange needed for defending gold convertibility and keep debt service current. Governments had to cut public spending and raise taxes, and many people blamed the policy for worsening the economic crisis or shifting its burden onto the working class. The drop in commodity prices in 1929 rendered even the most heroic effort inadequate. With falling domestic prices, debt fixed in nominal terms became increasingly burdensome.¹²²

A second option was the option most debtors turned to starting from 1931. That was to suspend external debt service in order to devote foreign exchange to essential imports. They had tried to avoid that choice for a long time, knowing that default would threaten to disrupt their access to international capital markets.¹²³

A third option would be to suspend the gold standard. If they allowed the exchange rate to depreciate, governments would not be forced to pursue policies designed to compress domestic spending. Again, the fear of losing access to international capital markets stopped

¹²⁰ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, pp. 228-230)

¹²¹ (Eichengreen, *Globalizing Capital - A history of the International Monetary System*, 1998, p. 68)

¹²² (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, pp. 228-231)

¹²³ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, pp. 230-231)

many countries from doing this earlier. Convertibility provided a visible signal that the government's financial house was in order and it created confidence between domestic savers and foreign investors.¹²⁴

Debtor versus creditor countries

The initial stages of the Great Depression took different forms in debtor and creditor nations. The same decline in lending that weakened the capital account balances of the borrowers strengthened those of the lenders. Because there were no significant sovereign defaults before 1931, the creditors continued to receive interest transfers from abroad. The reserves flowed toward the principal net foreign creditors, among them France, the United Kingdom and the United States, and their payment positions moved into strong surpluses. The actual response in these countries lay between two extremes; to sterilise international reserve flows and play by the rule of the game and decrease interest rates with gold inflows.¹²⁵ As discussed under section 6.1, one of the problems in the interwar period was the failure of countries to follow the rules of the game.

6.3.2 The EMU

The debt development

At the same time as the economic growth increased in Europe in 1997, the German Central Bank, Bundesbank, reduced its discount rate to 2,5 per cent. Interest rates throughout Europe started to converge to German levels as the financial markets became increasingly confident that the EMU would start on time with a relatively large group. The lower interest rates were helpful for some of the countries that were struggling to fulfil the conditions for qualification for the EMU.

¹²⁴ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, p. 232)

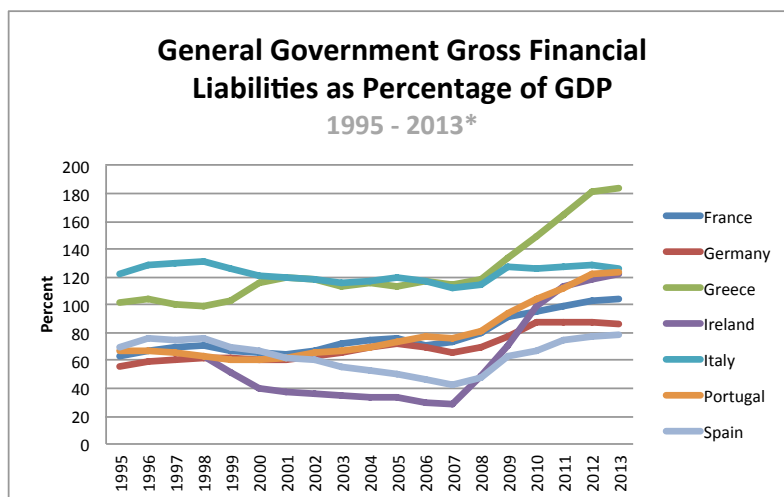
¹²⁵ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992)

Lower interest rates significantly reduced the cost of servicing debts for some of the hard-pressed southern countries, as Italy and Spain. As these traditionally were high interest countries, the lower interest rates helped them achieve the 3 per cent budget deficit target. This interest level was still in place at the final fixing of the currencies in 1998, and prefigured the “corridor” for the interest rate for the ECB in its first decade.¹²⁶

Some of the lower income countries, as Greece, used the increased leeway from the euro to increase growth. This helped them to close the prosperity gap with the wealthy EMU core, but it was achieved at the expense of much higher public- and private-sector debt.¹²⁷ Public welfare increased, and with this highly increased future government obligations followed.

Figure 25 presents the debt development since 1995 for the relevant EMU countries. The increase in debt level is particularly sharp in 1998-1999 for Greece and in 2007-2008 for Ireland, Portugal and Greece.

Figure 25: Government Gross Financial Liabilities as Percentage of GDP, 1995- 2013



*Forecasted numbers after Nov 2011

Source: (Organisation for Economic Co-operation and Development , 2011a)

The Growth and Stability Pact was broken by two of the largest countries within the EMU in 2003, namely Germany and France. Instead of accepting the originally imposed fee, the two

¹²⁶ (March, 2009, p. 192)

¹²⁷ (March, 2009, pp. 227-228)

joined forces to suspend the sanction mechanism of the Pact.¹²⁸ This weakened the Pact as a preventive mechanism. The Pact was further suspended in 2007 so that countries would be able to use expansive financial policies to offset the recessionary risks following the Financial Crisis. This further opened the way to an expansion of Europe's debt and deficit levels¹²⁹.

Tighter national credit markets – the Financial Crisis

The US financial crises of 2008-2009 made governments step in to avoid the collapse of the financial sector, forestall credit contraction and sustain aggregate demand. Expansionary fiscal policies helped limiting the decline in output and employment, but it left the governments with debt burdens of an unprecedented magnitude.¹³⁰ This has increased the risk associated with rising sovereign debt burdens and the number of sovereign debt downgrades have increased¹³¹. The global economy has experienced slow growth since the outbreak of this crisis. This has exposed the unsustainable fiscal policies of countries in Europe. When growth slows, so do tax revenues. This can make high budget deficits unsustainable.

Greece, which spent heartily for years and failed to undertake fiscal reforms, was one of the first to get in trouble. The Greek government had hid its true deficit for many years, but were forced to reveal the true size of it in late 2009. Investors responded by demanding higher yields on Greek bonds, due to higher perceived risk. This raised the cost of the country's debt burden and necessitated a series of bailouts by the European Union and ECB. Later, also the International Monetary Fund (IMF) has contributed to bailout packages. But bond yields started increasing in other heavily indebted countries in Europe as investors started to

¹²⁸ (March, 2009, p. 212)

¹²⁹ (March, 2009, pp. 230-233)

¹³⁰ (Darvas, Pisani-Ferry, & Sapir, 2011)

¹³¹ (Braga & Vincelette, 2011, p. 3)

anticipate similar problems there as had occurred in Greece. Ireland and Portugal received bailouts in November 2010 and May 2011, respectively.¹³²

As long as investors are confident that the indebted countries will receive financial assistance if debt proves too large for them to pay, they will continue to lend them money. But if this confidence disappears, investors risk of losing money increases, and they start demanding even higher yields. Also Italy and Spain have experienced problems with spiralling yields and high debt levels, but many fear that these countries are too large to be saved if problems continue.¹³³

Possible ways out

The first option, and also the one the countries currently are following, is to reduce the debt by contracting the economy. Some of the EMU members have lived beyond means, and in order to get out of the debt crisis they need to cut government spending and/or raise taxes. Some of the countries have received bailout packages, as mentioned in the last section, to enable them to pay their debt payments, but demands to cut costs comes with the deal. Fiscal contraction increases unemployment and decreases economic growth, and might lead countries into recession.¹³⁴ The more an economy grows, the smaller will the debt to GDP become and the easier will it be to gain access to fresh money. Countries with growing economies can outgrow deficits and debt. But this becomes very difficult for a country with low or decreasing economic growth.

The second option is to default on their debt and let the lenders take the loss. Defaults by renegotiations with private lenders have already been made, but an uncontrolled default on government debt would mean the end of an EMU membership. The third option would be to devalue themselves out of the crisis. Countries with their own national currency cannot run out of money, and they have the option to improve their competitiveness through

¹³² (Kenny, 2012)

¹³³ (Kenny, 2012)

¹³⁴ (Riise, 2012)

strengthening or weakening its own currency. In order to chose this option the country would have to leave the EMU and reintroduce its old currency.¹³⁵

Choosing one of the two last options would most likely mean the end of EMU membership. The EMU members are locked even closer together than the members were in the gold standard, because countries gave up their national currency in the attempt of making EMU irreversible.¹³⁶ One might say that they locked the door and threw away the key. It is difficult to predict the consequences of breaking out of the EMU since it has never happened before. Some of the mentioned consequences from a breakout are bank runs and chaos, even harder cuts in government spending due to the lack of bailout packages, many bankruptcies and difficulty of paying foreign debt due to lower domestic currency value.¹³⁷

Debtor versus creditor countries

Today the Eurozone is divided into a relatively vigorous northern tier with sound finances and a southern one with crushing debts and non-existent growth prospects.¹³⁸ When investors are demanding higher yields on the bonds issued by the more indebted countries, this increases borrowing costs and drives up their budget deficits.

At the same time as record high yields are being demanded in some of the very indebted countries, Germany hits record low borrowing costs¹³⁹. The surplus countries can easily get fresh credit, while this is increasingly difficult for the hard-pressured southern countries. This further widens the differences in growth opportunities and the future economic development. Because there is no federal fiscal system to transfer resources from prosperous

¹³⁵ (Riise, 2012)

¹³⁶ (March, 2009, p. 238)

¹³⁷ (Aale, 2012)

¹³⁸ (Eichengreen, When Currencies Collapse, 2012)

¹³⁹ (Reuters, 2012)

to troubled regions, the indebtedness creates larger imbalances between surplus and deficit countries than otherwise would have been the case.¹⁴⁰

6.3.3 Comparison of the gold standard and the EMU

What to compare?

The countries on the gold standard saw a change in lending patterns after the WWI. The same is the case for the EMU countries after the introduction of the euro. This developed into substantially high debt levels in some of the countries within both monetary unions. In the comparison of the two monetary systems I will look at the origin of the debt and how difficult it is to reduce the costs that led to the high debt levels. Then I will focus on the consequences from losing the source of credit for the deficit countries.

The rigidity of the debt

The origin of the debt is a critical factor for how long time it takes to turn the development around. The 1920s started out with very high war debts after WWI. Countries had to borrow in order to finance the war expenditures, but these costs were gradually reduced as the war was over.

The debt in many EMU countries started to build up as they were improving their welfare systems and closing the prosperity gap within the union. Increased public welfare puts large future obligations upon governments. These obligations have been a source of concern ever since the debt levels ran out of control after the Financial Crisis. Many countries have built up welfare systems they no longer can afford, and which they also find politically difficult to reduce.¹⁴¹

¹⁴⁰ (Eichengreen, *When Currencies Collapse*, 2012)

¹⁴¹ (Hannesson, 2012)

Pensions have been a much-discussed topic when it comes to cutting of government expenses after the European Sovereign Debt Crisis started. Shifting demographics are causing a lower ratio of workers per retiree. Two contributing factors are that the average retiree lives longer in addition to lower birth rates than before. Pensions represent a very large and rising share of public expenditure, for some countries more than others due to different demographic challenges¹⁴². In Table 5 we can see the development in public expenditure on pensions between 1990 and 2007 for the selected EMU countries.

Table 5: Public Expenditure on Pensions as Percentage of GDP, 1990 - 2007

Public Expenditure on Pensions as Percentage of GDP, selected years							
	France	Germany	Greece	Ireland	Italy	Portugal	Spain
1990	10,6	9,7	9,9	3,9	10,1	4,9	7,9
1995	12,0	10,7	9,6	3,5	11,3	7,2	9,0
2000	11,8	11,2	10,7	3,1	13,6	7,9	8,6
2005	12,3	11,5	11,7	3,4	14,0	10,3	8,1
2007	12,5	10,7	11,9	3,6	14,1	10,8	8,0

Source: (Organisation for Economical Co-operation and Development, 2011c)

Suggestions about necessary pension reforms are met with demonstrations and protesting citizens, and even some politicians oppose these suggestions. When the government costs are tied up in future public welfare and pensions, and this is difficult and time consuming to reduce, the governments face a challenging task.

It seems like a more politically challenging task to turn the debt development around in 2012 than it was in the 1920s, due to the origin of the expenses. This makes the debt situation in the EMU countries more severe, because it takes relatively more time to change it and reduce government obligations than in the 1920s.

¹⁴² (European Commission, 2012a)

Loss of credit

There was no international lender of last resort in the 1920s. In the early 1940s, there was an extended debate about how to establish an international credit institution to help countries finance short-term balance of payment deficits. This institution became the IMF.¹⁴³

During the 1920s the countries were very dependent on continuing borrowings from the US, and several countries were in trouble when the US became more restrictive. The options they had were to deflate the economy, default on their debt or suspend the gold standard and devalue their currency. They eventually turned to the last option.

The EMU members on the other hand, received bailouts when their access to fresh debt narrowed and they could not pay their debts. The troika, consisting of the European Commission, the ECB and the IMF, have imposed strict financial conditions for countries to follow in order to receive the financial aid. The fact that the EMU countries have financial institutions that in some ways act as “lenders of last resort” makes the debt imbalance in the EMU countries a bit less dramatic compared with the gold standard countries.¹⁴⁴

But countries cannot rely too much on this source, as there is no federal fiscal system in place to secure these payments over longer periods of time. The indebted country can never be sure that they get the funds, and will have to follow the conditions set by the lenders in order to qualify for the money. It is also important that the market believe that the countries can be saved. If they do not, even this financial assistance might prove inadequate.

Concluding remarks

After this analysis I have found that there are very high debt levels in countries within both monetary unions. But there are more rigidity and difficulties with reducing the debt levels in the EMU than there were in the gold standard. This is due to the origin of the debt and future public obligations, especially when it comes to welfare costs and pensions.

¹⁴³ (Kindleberger & Aliber, 2011, p. 247)

¹⁴⁴ (Armitstead, 2012)

But the loss of credit was still more damaging during the gold standard as there was no international lender of last resort at that time. In the EMU crisis, countries have been able to borrow money from different financial institutions, but there have been strict requirements to cut costs and raise taxes in order to get them.

6.4 Rigidity and fundamental changes

Here I will look at the monetary systems' ability to adapt to fundamental changes. Do the monetary unions enable countries to adjust their competitiveness without putting too much undue strain on economic activity in the adjustment process? Crucial for this discussion is the adjustment mechanisms for the monetary unions, explained in section 5.1.2 and 5.2.2 for the gold standard and the EMU respectively. The theory about flexibility and rigidity in section 4.5.1 and 4.5.2 is also important in the understanding of rigidity and fundamental changes.

I will start the discussion by explaining the competitive situations in the monetary unions, and then look at factors that might decrease the flexibility level of wages and costs. Then, based on the theory in section 4.5.3, I will look at labour mobility and its possibility to make up for wage rigidity in the unions.

The term natural rate of unemployment from section 4.8.1 is relevant for the discussion of unemployment in the following comparison.

6.4.1 The gold standard

The competitive situation

Economic growth in the 1920s was hampered by highly deflationary policies in countries with overvalued currencies. This policy was aimed at reducing wages and prices to levels

that were compatible with the exchange rate.¹⁴⁵ Yet contracts and conventions, among others, stood in the way of rapid downward adjustment of wages and prices.¹⁴⁶ The downward rigidity of wages and costs impeded the adjustment to deflationary pressures. Countries shortage of gold then caused falling output and employment rather than falling wages and prices.¹⁴⁷

The consequence for the deficit countries was a high level of unemployment and loss of competitiveness in export markets. British costs stood well above those of her competitors in a fiercely competitive market. The sterling was overvalued, and in addition to that they had a relatively slow rate of productivity and technological growth.¹⁴⁸

Decreased flexibility

During the interwar period more labourers got the right to vote with the universal male suffrage. Parliamentary labour parties were founded and trade unionism increased. One of the conditions of the classical gold standard was severely weakened by this development.¹⁴⁹ The governments had to a larger extent take into account what the people wanted when deciding upon political monetary strategies. It was no longer as easy to choose exchange rate stability at the expense of other domestic targets as unemployment levels. The working class got a stronger position, and with this less flexible wages and working conditions followed.

In the industrial countries, wages rose or fell on average only three-quarters as fast as wholesale prices between 1921 and 1927. So even if wholesale prices adjusted to neutralize the effects of exchange-rate changes, labour costs did not.¹⁵⁰ When prices decreased while costs remained unchanged, producer profit decreased. Increased competitiveness might not

¹⁴⁵ (Boltho, 1996)

¹⁴⁶ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, pp. 104-105)

¹⁴⁷ (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, p. 45)

¹⁴⁸ (Moggridge, 1972, p. 124)

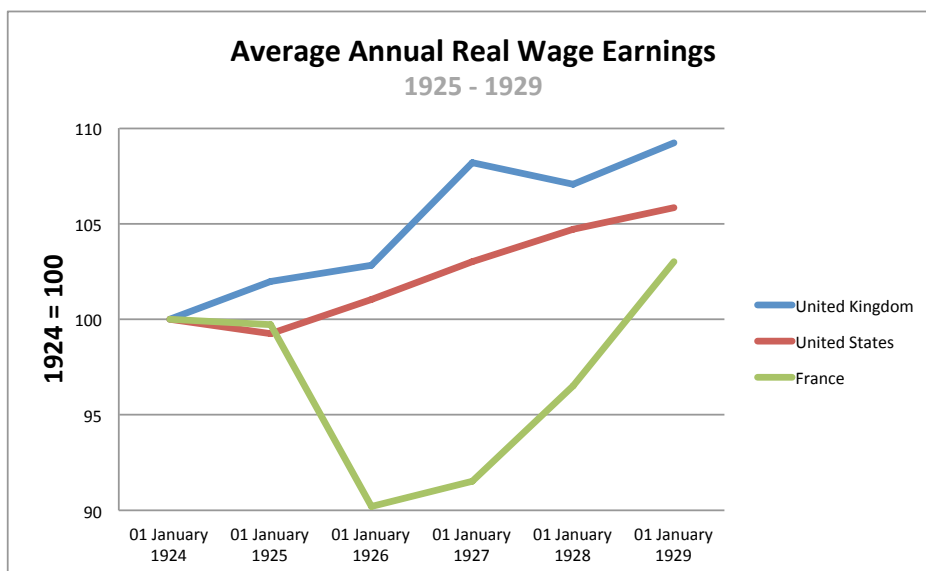
¹⁴⁹ (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, pp. 4-5)

¹⁵⁰ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, pp. 184-186)

compensate for the lower profit, and some firms might have to shut down. This would increase unemployment.

When prices increased, wages also tended to lag behind. The result was that the real earnings for the wage earner diminished in periods of increasing prices, causing falling demand.¹⁵¹ From Figure 26 we can see the average annual real wage earnings in the period between 1925 and 1929. The costs of production were reduced by the French inflation, reflecting the tendency of money wages to lag behind rising prices. Even three years after the stabilisation in 1926, there was still a gap between domestic and foreign labour costs.

Figure 26: Indexed Average Annual Real Wage Earnings, 1925-1929 (1924 = 100)



Source: (Phelps-Brown & Browne, 1968), Appendix 3

The unemployment due to the downward rigidity of wages and costs created budgetary difficulties for governments, and this further undermined the confidence in the currency. This intensified the pressure on governments to react in ways that might jeopardize the monetary standard.¹⁵²

A high degree of wage flexibility was necessary in order to achieve domestic equilibrium, as mentioned in the theory section of the gold standard. As rigidity became stronger during the

¹⁵¹ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, pp. 184-186)

¹⁵² (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 21)

interwar period, the governments were facing a difficult decision. They had to choose between external and domestic equilibrium, because without the flexibility it was very difficult to achieve both.

Labour mobility

Increased worker mobility might compensate for decreased wage rigidity and give credibility to fixed exchange rate systems, as explained in section 4.5.3. Then the unemployed work force could move to places where they were needed and countries would be able to reach equilibrium without increasing unemployment. But immigration laws in the New World during the 1920s regulated and restricted international labour movements.¹⁵³ Hence, worker mobility could not compensate for decreased wage flexibility in the interwar period.

6.4.2 The EMU

The competitive situation

The largest economy in the euro area, Germany, has portrayed a sharp fall in its relative unit labour cost and price level, which has increased German competitiveness. The reason for the sharp fall was that Germany still was coping with the unwinding of the reunification boom of the early 1990s when the euro was introduced. They had to shift back resources from the construction industry towards the tradable industries. This could only be done through further competitiveness gains and associated disinflation since the euro conversion rate was fixed. Germany turned the current account deficit from the boom into large surpluses. Between 1998 and 2007, the OECD states that Germany improved its overall competitiveness against all countries by more than 10 per cent.¹⁵⁴

According to the same source, Italy's competitiveness worsened by 34 per cent at the same time. Italy and Portugal have portrayed higher inflation than the average, but rather sluggish

¹⁵³ (Eichengreen, *Golden Fetters - The Gold Standard and the Great Depression, 1919-1939*, 1992, pp. 184-186)

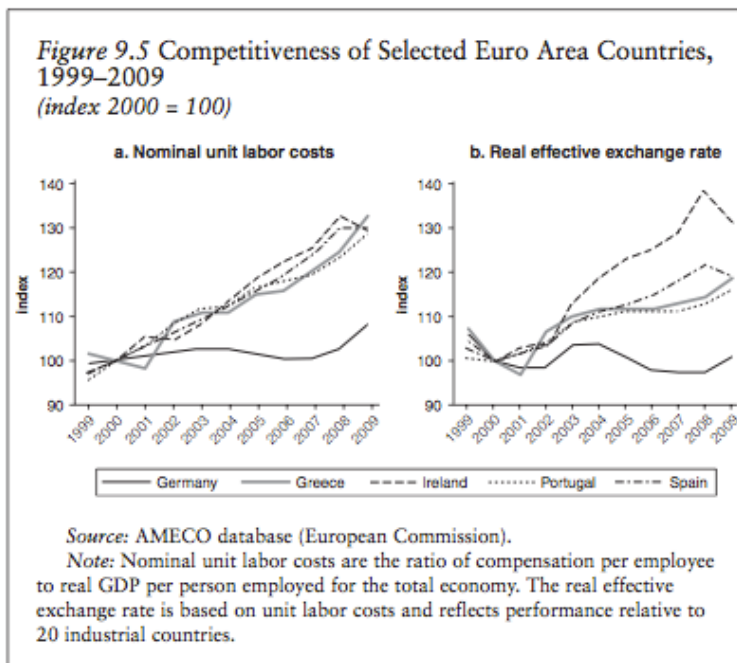
¹⁵⁴ (Economic and Financial Affairs, 2008, p. 53)

average activity levels. They have also shown weak growth in labour and total factor productivity, which has contributed to the eroding of their cost competitiveness and external positions.

Ireland, Greece and Spain have seen output growth and inflation persistently higher than the euro average. The relative unit labour cost has increased, as have their current account deficits.¹⁵⁵

In Figure 27 we see the development in competitiveness between some of the euro members. The nominal unit labour cost is significantly lower in Germany than for the other countries, as is the real effective exchange rate. Both figures indicate that Germany is relatively more competitive compared to the other countries.¹⁵⁶

Figure 27: Competitiveness of Selected Euro Area Countries, 1999 - 2009



Source: (European Commission, 2010)

¹⁵⁵ (Economic and Financial Affairs, 2008, p. 53)

¹⁵⁶ (Favaro, Li, Pradelli, & Doorn, 2011, p. 227)

Reduced flexibility

Because the member countries no longer can be rectified by devaluations, shortcomings in economic policy now need to be corrected by painful longer-term adjustments¹⁵⁷. For this process to take place without putting undue strain on economic activity, wages have to adjust rapidly to changes in labour market conditions. But high firing costs, generous unemployment benefits and strong unions with collective wage bargaining are perceived to have contributed to wage rigidity.¹⁵⁸ This prolongs the adjustment process. If this adjustment is slow, it may gradually erode the competitiveness of domestic firms since they no longer can depreciate their nominal exchange rate. This increases the unemployment level.¹⁵⁹

The adjustment channel in the EMU depends on increased efficiency and productivity in order to improve competitiveness. If wages are inflexible, it might be difficult to reduce costs following a negative shock. Continuing productivity gains, which will reduce the nominal wage, is therefore necessary in order to compensate for downward wage rigidity. Growth prospects for some of the southern countries are low, as mentioned in section 6.3.2, and this might be a difficult starting point for the task of increasing productivity.

The increased competitiveness following the union might have made inflexibility in wages even more costly for EMU countries in terms of unemployment. Higher price transparency has increased the responsiveness of employment to real wages. In case of adverse shocks, rigid wages will now lead to higher unemployment than before the EMU.¹⁶⁰

Different structural changes in labour market institutions also cause divergent movements in competitiveness between the EMU members.¹⁶¹ The differences in wage increases between Germany and the rest of the Eurozone, explained in section 6.2.2, is an example of that.

¹⁵⁷ (March, 2009, p. 4)

¹⁵⁸ (Christoffel & Linzert, 2005)

¹⁵⁹ (Coppel, Serres, & Hoeller, 1999, p. 19)

¹⁶⁰ (Arpaia & Pichelmann, 2007, p. 3)

¹⁶¹ (Grauwe, Economics of Monetary Union, 2007, pp. 32-33)

Labour mobility

The free movement of EU workers within the then European Common Market was the first of the four basic economic freedoms of the European market to be implemented in 1968¹⁶². But even though citizens of the Union has the right to work in another member state, not that many choose to do so. The labour market adjustment through geographic mobility is low in most euro area countries, both between member states and at the national level. This means that the adjustment in Europe largely is done through changes in activity and unemployment. Low mobility has also led to unemployment differentials that are large and persistent and hence of structural nature.¹⁶³

Some of the reasons for the failure of labour mobility to equalise structural unemployment reflects both policy related factors and other factors. One factor is that minimum wages are set at a single rate for all regions of a given member state. This prohibits wage adjustments to absorb differences in productivity across regions. Other barriers that may offset the incentive effects of wage differentials are restrictive employment protection legislations, housing market obstacles, lack of information about job opportunities in other regions, language barriers, lifestyle differences and limited geographic range for job search requirements without risking the loss of unemployment benefit entitlement.¹⁶⁴

6.4.3 Comparison of the gold standard and the EMU

What to compare?

Some factors are more fundamental and influence the long-run prices in a market, thereby influencing the exchange rate. The most direct fundamental factors include input costs, productivity levels, tastes and so on.¹⁶⁵ I will look at Unit Labour Costs (ULC) in the

¹⁶² (TNS Opinion & Social, 2010)

¹⁶³ (Coppel, Serres, & Hoeller, 1999, p. 17)

¹⁶⁴ (Coppel, Serres, & Hoeller, 1999, p. 17)

¹⁶⁵ (Pigott, 1981)

monetary systems. Differences in the development in countries ULCs might indicate differences in fundamental factors between countries and lead to imbalances.

If the systems are not able to correct for different changes in fundamental factors, this might lead to high and persistent levels of unemployment. Unemployment levels might therefore give an indication of the rigidity in the two monetary systems.

It is argued that labour mobility might make up for inflexible wages and prices. I will therefore look at this factor as well to see if this might be the case in these two monetary unions.

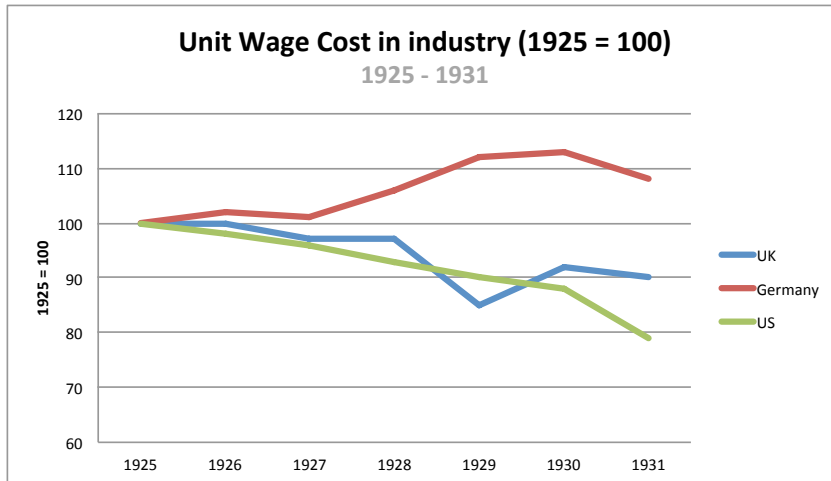
Unit wage/labor cost

ULCs measure the average cost of labour per unit of output. It is calculated as the ratio of total labour costs to real output, and provide a link between productivity and the cost of labour in producing output. An increase in ULCs indicates that growth in average employee compensation exceeds growth in labour productivity. This might create pressure on producer prices.¹⁶⁶ I assume here that Unit Wage Costs (UWC) is approximately the same measurement as ULC, as I do not have any more information about the measurement methods used for the gold standard members.

Figure 28 displays the indexed UWC in the UK, Germany and the US between 1925 and 1931. These data show that UK's and Germany's competitive position deteriorated compared with the US. Britain's 1925 competitive disadvantage with Germany had disappeared by 1929 due to Germany's relative increasing UWCs.

¹⁶⁶ (Organisation for Economic Co-operation and Development, 2012c)

Figure 28: Unit Wage Cost in Industry, 1925 – 1931 (1925 = 100)



Source: (Phelps-Brown & Browne, 1968), Appendix III.

The thick line in Figure 29a and 29b is the average unit labour cost of 10 EU member states. In Figure 29a we can see that France, and to a lesser extent, Germany showed a sharp increase in ULCs until the late 1980s, but have a similar trend as the average after the euro was introduced in 1999. Germany had however a slightly lower increase than the average in the period after the euro introduction, partly due to its wage moderation explained in section 6.2.2.

Figure 29a: Trends in Unit Labour Costs Among 'non-Convergent' Countries

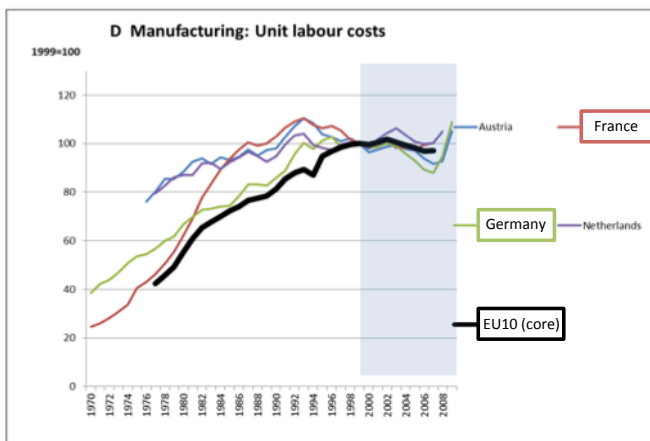
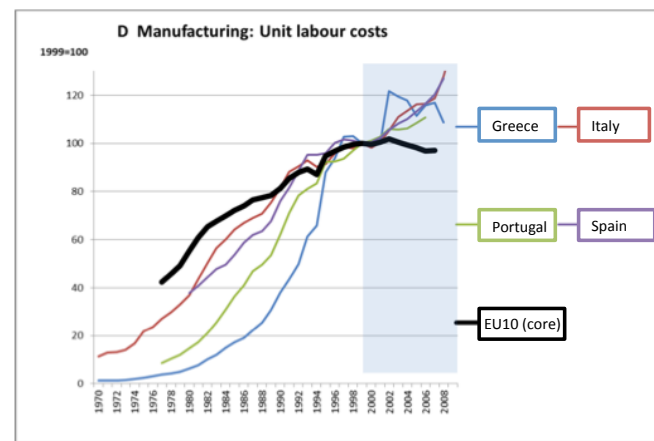


Figure 29b: Trends in Unit Labour Costs Among 'Convergent' Countries



Source: (Lewney, 2011, p. 10)

From Figure 29b we see that Greece, Portugal, Spain and Italy experienced a sharper increase in their ULCs than the average before the euro was introduced, but the cost level was still below average. After the euro introduction, when the implications for competitiveness represented by that trend could not be offset by depreciation anymore, the ULCs continued to increase more rapidly than the average.¹⁶⁷

Figures for both monetary systems indicate increasing imbalances in the ULCs between countries within the same monetary union. The countries with the highest UWCs/ULCs are also the countries that had the lowest gold reserves and balances of payments, explained in section 6.1.1 and 6.1.2. This indicates wage rigidity because these countries should have lower ULCs in order to be able to decrease price levels and become more competitive, according to the theories.

Unemployment

If the wages were inflexible during the gold standard, countries would experience unemployment above the natural level when adjusting back to external equilibrium. Also the adjustment in the EMU requires some unemployment in the transition phase as companies improve their competitiveness by increasing efficiency and productivity. Very high unemployment levels in different countries during the two periods might be an indication of too slow adjustment mechanisms.

Figure 30 shows the unemployment level in the UK from 1925 to 1931, reaching almost 2,76 million unemployed in 1931. At this point it becomes very difficult for the politicians to continue deflationary policies in order to defend the parity and the external equilibrium. This was also the point where Britain decided to leave the gold standard and focus more on the domestic equilibrium.

¹⁶⁷ (Lewney, 2011, p. 9)

Figure 30: Registered Unemployed in the UK, 1925 - 1931

Source: (Eichengreen, Watson, & Grossman, Bank Rate Policy Under the Interwar Gold Standard, 1993)

Table 6 lists unemployment in per cent of total labour force in UK, US and Germany. The level is increasing in all three countries, reaching very high levels from 1929 onwards. The highest level found is Germany with 31,1 per cent unemployment.

Table 6: Unemployment for Gold Standard Countries, 1920 – 1932

Unemployment Rate, Per Cent of Total Labour Force*			
	UK	US	Germany
1920	1,9 %	5,2 %	3,8 %
1924	7,1 %	5,0 %	13,5 %
1926	8,6 %	1,8 %	18,0 %
1928	7,4 %	4,2 %	8,4 %
1930	11,1 %	8,7 %	15,3 %
1932	15,3 %	23,6 %	31,1 %

*Are missing corresponding French rates

Source: (Liesner, 1989)

The unemployment levels are also high in the EMU, and they differ between member countries. Table 7a lists the unemployment as per cent of total labour force, while Table 7b lists the unemployment level among young people between the ages of 15 to 29.

Table 7a: Unemployment Rates for EMU Countries, 1999-2011

Unemployment Rates, Per Cent of Total Labour Force							
	France	Germany	Greece	Ireland	Italy	Portugal	Spain
1999	10,4 %	8,6 %	12,0 %	5,7 %	10,9 %	5,0 %	13,3 %
2003	8,9 %	9,8 %	9,8 %	4,6 %	8,5 %	7,1 %	11,4 %
2005	9,3 %	11,3 %	9,9 %	4,4 %	7,7 %	8,6 %	9,2 %
2007	8,4 %	8,7 %	8,3 %	4,6 %	6,2 %	8,9 %	8,3 %
2009	9,5 %	7,8 %	9,5 %	11,9 %	7,8 %	10,6 %	18,0 %
2011	9,7 %	5,9 %	17,7 %	14,5 %	8,5 %	12,9 %	21,7 %

Source: (Organisation for Economic Co-operation and Development, 2012d)

Table 7b: Youth Unemployment Rates for EMU Countries, 1999 - 2011

Young Unemployment Rates (Age 15-29), Per Cent of Total Labour Force							
	France	Germany	Greece	Ireland	Italy	Portugal	Spain
1999	26,5 %	8,6 %	31,7 %	9,8 %	31,1 %	8,8 %	28,3 %
2003	18,2 %	10,6 %	26,8 %	9,4 %	26,3 %	14,5 %	22,7 %
2005	20,3 %	15,2 %	26,0 %	9,7 %	24,0 %	16,1 %	19,7 %
2007	18,9 %	11,7 %	22,9 %	10,0 %	20,3 %	16,6 %	18,2 %
2009	22,8 %	11,0 %	25,8 %	25,9 %	25,4 %	20,0 %	37,9 %
2011	22,9 %	8,6 %	44,4 %	29,4 %	29,1 %	30,1 %	46,4 %

Source: **1999 – 2009:** (Organisation for Economic Co-operation and Development, 2012b), **Year 2011** (European Commission, 2012b)

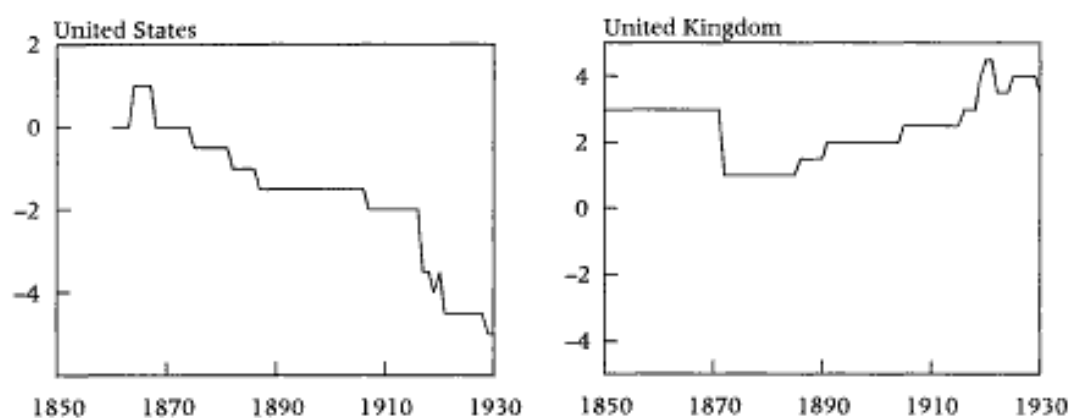
Also here we can see that the unemployment level rises as the crisis becomes more severe, and the governments need to run deflationary fiscal policy in order to reduce the debt levels. Highest for the EMU countries is the unemployment level of 21,7 per cent in Spain. But most dramatic is probably the high youth unemployment levels found in several countries, ranging from 29,1 to 46,4 per cent for the PIIGS countries. The question is how long the governments will manage to run policies like this.

If the wages and prices were more flexible, the adjustments back to more competitive economy would be faster and would generate less unemployment. There are large levels of unemployment both during the gold standard and in the EMU.

Labour movements

The general consensus is that immigration policy always has been sensitive to labour market condition, and that immigration itself always has been sensitive to wage and unemployment rate differentials between countries. Throughout the history it has been seen that during a time of economic recession and high unemployment level, there was a new push for immigration restrictions.¹⁶⁸

Figure 31: Immigration Policies in the US and UK, 1850 - 1930



Source: (Timmer & Williams, 1998, p. 743)

Figure 31 are trying to capture the intention, or political signals, of the political agents that were trying to affect the flow of immigrants in the period 1850 to 1930. Policies are scored from 5 to -5, ranging from “active worker recruitment abroad” to “closed doors, enforced”.

These graphs show policy indexes in the US and the UK. It can be seen that immigration was generally unrestricted in the 1860s, but that the doors to the New World were effectively closed by 1930. The US index fell from 0 in the early 1860s to -5 by 1930, and it did not

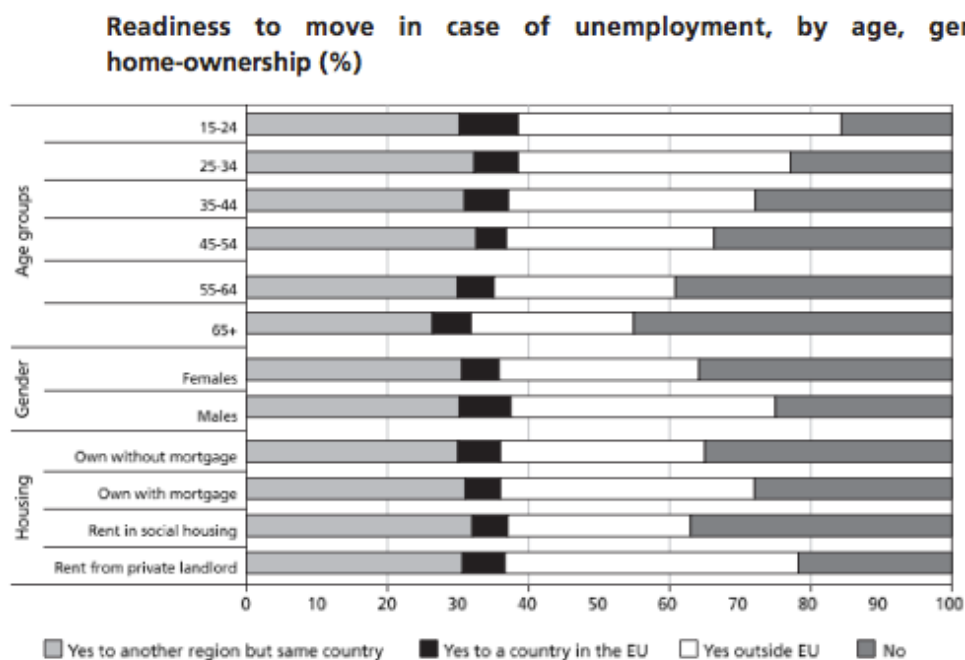
¹⁶⁸ (Timmer & Williams, 1998, pp. 742-743)

have any major policy reversal over the period. UK on the other hand promoted immigration even though they were struggling with very high levels of unemployment at that time.¹⁶⁹

This shows that the countries at the gold standard did not have free labour movements in their monetary union, and therefore did not allow this to make up for inflexible wage levels. But as both countries had high unemployment levels, unrestricted labour movements would not necessary have made it any better at this time.

The EU and EMU have on the other hand worked towards free trade and labour movement since the establishment of the EEC. They have an agreement between the countries on the issue of free labour mobility, while the gold standard countries imposed immigration tariffs during the crisis. But even if the opportunity is there, the mobility is not as high as one could have hoped for.

Figure 32: Readiness of EU Workers to Move in Case of Unemployment



Source: (Vandenbrande, et al., 2006)

Figure 32 breaks down the readiness to move in case of unemployment by age and gender. Even though the results should be interpreted with caution, they show that one out of three

¹⁶⁹ (Timmer & Williams, 1998, pp. 771-744)

Europeans would not like to move even in the case of unemployment. Only 31 per cent would be ready to move, both to another region or another country within the EU.¹⁷⁰

Labour mobility is emphasised in the literature on optimal currency areas, but the mobility in either of the currency areas is clearly not as widespread as it should be. It seems clear that labour movements in the EMU cannot make up for the inflexible wages and prices, as was the case for the gold standard. Even though the EMU countries have made it possible to move across the country borders, the labour force seems unwilling to do so, even when facing unemployment. Labour movement as a solution to reduce unemployment only seems like a realistic option for a relatively restricted number of persons in the EU.¹⁷¹

Concluding remarks

After looking at flexibility in wages and costs, it seems clear that wage rigidity is present in both monetary unions. This seems obvious from both the differences in countries UWCs/ULCs and very high unemployment levels indicating slow adjustment channels.

The right to move freely within the EU makes the EMU one important step closer to a functional monetary union compared to the gold standard. Labour mobility was limited during the gold standard while it is promoted in the EMU. But as long as the labourers are unwilling to move for work, labour mobility cannot make up for the rigidities.

The fact that there are rigidities in the monetary systems makes them unable to handle changes in countries competitiveness as presented in the theoretical frameworks of the monetary unions.

¹⁷⁰ (Vandenbrande, et al., 2006)

¹⁷¹ (Vandenbrande, et al., 2006)

6.5 Credibility of the monetary system

First I will look at credibility and cooperation within each of the systems. Then I will look at contagious crisis that have arisen in the two periods. This is done in order to see how the lack of credibility affected individual parts of the monetary unions. The theory in section 4.2.2 about speculators and other market participants is relevant as their bets and guesses might have huge impact on a fixed exchange rate system. Also the theory of different forms of risk, in section 4.9, is relevant as interest spreads might increase as credibility to the system falls.

The last section is focused on the political aspect and the implications from the fact that the unions are not also political unions.

The theoretical foundation in the comparison section is based on the theory about (n-1) and credibility in section 4.4 and the adjustment problem in section 4.5. The theory about monetary and political unions is found in section 4.7.

6.5.1 The gold standard

Credibility of the system and cooperation

The pre-war system had been focused around London as its financial centre. The interwar system, on the other hand, was organized around two competing financial centres, namely London and New York.¹⁷²

Nevin (1955) linked the international monetary system in the interwar period to an automobile and characterised Britain and the US as “two quite excellent drivers... perpetually fighting to gain control of the vehicle¹⁷³”. The classical gold standard was said to work so well because of the role of the Bank of England and its Bank Rate.¹⁷⁴ But the

¹⁷² (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 21)

¹⁷³ (Nevin, 1955, p. 12)

¹⁷⁴ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 16)

interwar system was influenced by the actions of two financial centres, and like a car with two drivers; the system would only function if those centres were capable of cooperating and acting consistently.¹⁷⁵

After 1928 the authorities grew less willing to coordinate intervention in response to imbalances in the external accounts or to engage in cooperative reflationary efforts. New York also became increasingly preoccupied by domestic factors in its interest formulations. Lack of cooperation decreased the credibility to the system. When the credibility of the government's commitment to the maintenance of its gold standard peg was questionable, destabilising speculation often occurred. This increased the pressure on governments and made capital flow in destabilising directions. Where the credibility was greatest, capital still flowed in stabilising directions.¹⁷⁶

The Central European banking crisis

In the summer of 1931, instability spread to the system's industrial core. In May 1931, there was a run on Austria's leading bank, the Creditanstalt. Given the superficial similarity of the Austrian and German financial systems, investors concluded that this could likely happen in Germany as well. Austria and Germany suffered banking crises and runs on their international reserves. The more aid they extended to their banking systems, the faster the gold fled from their central banks. As capital fled and foreign credit became unavailable in Berlin, the German government was forced to respond with exchange controls and an agreement effectively freezing Germany's international loans.

Even financial aid from Britain did not prevent investors from withdrawing their money, and the bank went bankrupt in 1929. Britain's weakened balance of payments was a result of losses on overseas investments caused by the Depression. The uncertainty about the condition of the British bank system prevented them from being a credible source of credit to

¹⁷⁵ (Eichengreen, *International Policy Coordination in Historical Perspective: A View From the Interwar Years*, 1984, p. 12)

¹⁷⁶ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 21)

the hard-pressured bank. The Central European banking crisis further unsettled the British balance.¹⁷⁷

Not a political union

The first efforts to restore the international gold standard took place at conferences in Brussels in 1920 and Genoa in 1922. Some countries saw this as an opportunity to erect a formal framework for systematic international monetary cooperation, but unfortunately they failed to provide this. The credibility of each government's commitment to the gold standard was therefore subject to growing scrutiny.¹⁷⁸

The lack of a stronger framework around the monetary union made it possible for countries to break the rules of the game and act in destabilizing ways without facing any sanctions. The system was based on the belief that countries benefited from the gold standard, and therefore acted according to the rules of the game. But the exit from the gold standard was easy. Countries still had their national currency and could simply devalue.

6.5.2 The EMU

Credibility of the system and cooperation

There is a political economical aspect of the crisis in Europe. This aspect is influenced by the build-up of cross-border private and public debts, both from the external imbalances since 1999 and from the large fiscal imbalances that emerged during the Financial Crisis.

Three stakeholders play an active role in shaping the policy responses to the financial turmoil; debt holders, governments of the euro area debtor countries and governments of the stronger EU states, i.e. Germany and France.¹⁷⁹ They have conflicting interests in some

¹⁷⁷ (Eichengreen, *Globalizing Capital - A History of the International Monetary System*, 1998, p. 49)

¹⁷⁸ (Eichengreen, *International Policy Coordination in Historical Perspective: A View From the Interwar Years*, 1984, p. 3)

¹⁷⁹ (Favaro, Li, Pradelli, & Doorn, 2011)

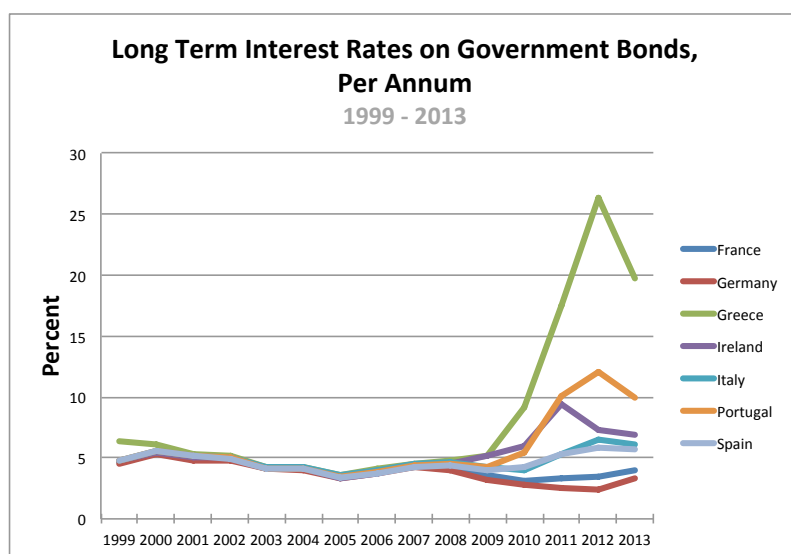
areas, and at several critical stages during the crises people have feared that stakeholders are too slow in deciding which actions to take. This can give loss of credibility to the system.

The Sovereign Debt Crisis

While banks and financial institutions borrow from the ECB, the national governments borrow money by issuing government bonds. The EMU brought to life an integrated market for fixed-income government securities in the euro area, and the bonds issued by member states was supposed to be close, but not perfect substitutes. Unfortunately, the market participants never regarded these bonds as close to perfect substitutes. There have been persistent interest rate differentials since 1999, and some have increased dramatically for since the Financial Crisis of 2008-09.¹⁸⁰ This is a clear sign of lack of confidence in some countries.

Figure 33 displays the sizeable and highly volatile yield spreads in long-term interest rates on government bonds for different member countries. Especially the Greek interest rate increased dramatically, starting in 2009.

Figure 32: Long Term Interest Rates on Government Bonds, 1999- 2013



*Forecasted numbers after Nov 2011

Source: (Organisation for Economic Co-operation and Development, 2011b)

¹⁸⁰ (Favero & Missale, 2011)

When investors start worrying that the debt of one country is too large and doubt the country's ability to pay back capital and interests, they demand higher interest rates to subscribe new public debt. The higher interest rates serve as a compensation for the insolvency risk. The higher interest rates also increase the insolvency risk, which in turn further increases the interest rates. The fear in the market is then a risk to the solvency of a country, and in turn a risk for the whole EMU. It might drive the interest rates to the point where the country just has to stop subscribing the public debt. At this point default of the debt is the only option, as they do not have the option of inflating their way out.¹⁸¹

Contagion is also a product of fear and speculation in the market in this situation. Investors started to suspect that other countries with high levels of public debt, as Portugal, Spain and Italy, would find themselves in similar situations. Even if the situation was not as bad in these countries, fears that the willingness to raise taxes above a level considered "politically sustainable" might arise. This might push the interest rates to a level so high that the prophecy eventually will come true.¹⁸²

Not a political union

It has been argued that the euro has been motivated by politics and not economics, even though the EMU is not a political union. A monetary union that is imposed under unfavourable conditions might become a barrier to political unity.¹⁸³

The tax sector in a normal country or currency area acts as an automatic stabiliser between different regions. If income increase in one region and decrease in another, the relatively wealthier region will contribute more to the federal budget than the poorer. Then the money is distributed to the rest of the country. EMU does not have such a centralized tax system, as it is not a political union. Some claim that this transfer mechanism is unnecessary because the financial market in theory can spread the risk. But the financial markets, as we have seen many times, can be unstable. They also provide few opportunities to spread the risk

¹⁸¹ (Pagano, 2010)

¹⁸² (Pagano, 2010)

¹⁸³ (March, 2009, p. 200)

concerned with work income, which is the largest part of the income in most developed countries.¹⁸⁴

The political situation within member countries might also be a concerning factor as many political areas still are in the hands of the national governments. Government elections in both Greece and France have concerned many people because a new government might impede some of the cooperation among the top politicians in the EMU.¹⁸⁵

6.5.3 Comparison of the gold standard and the EMU

What to compare?

I will start with addressing the (n-1) problem with one degree of freedom. Then I will look at the adjustment problem of a monetary union as a consequence of rigidity in wages and prices. These are theories of credibility in a monetary union.

As political unions might reduce the risk of asymmetric shocks and the costs of a monetary union at any level, political integration might increase the credibility of a monetary union. The comparison of political integration between countries is divided into institutional and functional levels, explained in the theory.

(n-1) problem

The (n-1) problem explains that there will be one degree of freedom in a monetary union with fixed exchange rates, implicating that one country might set its monetary policy independent from the others. This degree of freedom can be used to pursue some joint objective of the union, but might also become a source of conflict.

During the gold standard there were one degree of freedom in the monetary cooperation. Before the WWI Britain was the leading country, but lost this role in the interwar period. If

¹⁸⁴ (Rogoff, 2012)

¹⁸⁵ (Dagens Næringsliv, 2012)

the member countries under the gold standard had managed to agree upon one joint objective for the monetary union, this would not necessarily be a big problem. But unfortunately the US was too preoccupied with its domestic situation, and did not set the exchange rate and interest rates as would have benefited many of the other countries in the union. These actions contributed to some of the instabilities that caused the collapse of the union.

The interest rate in the EMU is set on the average economical level among the member states. The independent ECB decides the interest rate and makes the monetary policy decisions, as opposed to one individual country. There is therefore not the same (n-1) problem as it was during the gold standard. The EMU members have also agreed upon a joint objective for the union, namely price stabilisation. This have removed the source of conflict that the degree of freedom otherwise could have become.

The EMU is a stronger monetary union than the gold standard was when it comes to cooperation because of its independent financial institutions. Since the ECB set the interest rate independently, the (n-1) problem is reduced in the EMU. This increases credibility.

Adjustment problem

The adjustment problem says that if there is wage and price rigidity, the fixed exchange commitment is only credible if it is assured that the governments give no weight at all to unemployment. Wage and price inflexibility have been present in both monetary unions, as explained in section 6.4. Countries within both monetary systems have also experienced very high levels of unemployment in times of economic downturns. Then the adjustment problem might be a source leading to reduced credibility in both monetary unions.

As already mentioned, one of the most significant developments of the interwar period was the growing importance of domestic factors as the final determinant of monetary policies¹⁸⁶. Combined with very high levels of unemployment, seen in Table 6, this was a difficult situation for the policy makers in the countries at the gold standard. The high unemployment level in the UK in 1931 was surely a contributor to Britain's demise of the gold standard, proving that the government also gave weight to the unemployment level. The country

¹⁸⁶ (Eichengreen, *The Gold Standard in Theory and History*, 1985, p. 29)

devaluated its currency, and was thereby off the gold standard and was able to pursue domestic targets as reducing unemployment levels. Even if being on the gold standard signalled financial control, and therefore secured access to international financial markets, they still had their own national currency to fall back on, so the consequences of breaking out were not that radical. I therefore assume that the adjustment problem was present in the gold standard.

The unemployment levels are very high in some of the EMU member countries today, especially in the PIIGS countries, seen from Table 7a and 7b. Countries have been forced to cut costs in order to reduce their debt levels, which further increases unemployment. As noted during the section about possible ways out of the union, it is not as easy to devalue out from the EMU as it was during the gold standard. If a country does break out it will need to re-establish its old currency or a new one, and the consequences of a break out are predicted to be severe. Also, the choice to leave the union might not decrease unemployment after all. An out-breaker country would most likely have trouble borrowing money in the financial market and would have to make even harder cuts in government costs. This might reduce the adjustment problem, because the option to break is not necessarily so tempting for individual countries.

Because of the relative difficulty of breaking out of today's monetary union in Europe compared to the gold standard, I assume that the adjustment problem is slightly less prevailing within the EMU than it was during the gold standard.

Political union

Rule-based regimes cannot by themselves create credibility. It must not only be strongly backed by macroeconomic and structural policies, but it also by strong political will. Since the EMU and the gold standard are not political unions, trust might be particularly fragile.¹⁸⁷

The gold standard was not at all integrated on the institutional level. Countries relied only on that the central banks of independent member states would act accordingly to the rules of the games, having no sanction opportunities on countries breaking these rules.

¹⁸⁷ (Mooslechner & Schuerz, 2001)

The EU has on the other hand developed a whole set of institutions to which the member states have delegated part of their national sovereignty. They have a legislative branch consisting of the European Parliament and the Council, and an executive branch consisting of the Commission and the Council. They also have a judicial branch, the Court of Justice. The EU has most of the institutions of a modern democracy, capable of taking decisions that have a direct impact at the national level.¹⁸⁸

Gold standard countries did not have any political integration at the functional level either, while the countries in the EMU have made significant transfers of sovereignty in areas as agriculture, monetary policy, competition policy and external trade policy. But in other areas as taxation, social security and wage policies, the member states have maintained close to the whole sovereignty.¹⁸⁹

EMU is clearly a more politically integrated monetary union than the gold standard was. Especially at the institutional level they have come far, but at the functional level they have refused to integrate some important economical areas. This has made it possible that Germany have maintained a significantly lower wage growth than other member states and that some countries have large debts partly due to too high welfare systems compared to their national tax income, causing political asymmetric shocks. The cooperation also relies on the electors continuing to elect euro friendly political parties willing to impose necessary reforms in order to avoid crisis.

During the gold standard, even British financial aid to the Creditanstalt did not prevent the bank to failure. Some have also accused the politicians of the EMU to agree upon policy actions to slowly. This has caused fear in the markets and speculations about the presence of political will to pay for bailout packages. This has made it even more difficult to bring the interest spreads on government bonds down in the EMU.

Figure 5 in section 4.7 shows that a monetary union benefits from becoming a political union because it will increase the degree of symmetry and flexibility. But it might be a very difficult task to increase the political level as many countries oppose giving up more of their

¹⁸⁸ (Grauwe, Economics of Monetary Union, 2007, p. 114)

¹⁸⁹ (Grauwe, Economics of Monetary Union, 2007, p 114)

sovereignty than they already have. But the monetary systems might receive more credibility from the market the more politically integrated it is, and this is surely needed.

Concluding remarks

Following this analysis I found lack of credibility in both monetary unions. The (n-1) problem is however reduced in the EMU as they have agreed upon one political goal and the independent ECB is responsible for the one degree of freedom. The adjustment problem is also less severe in the EMU than in the gold standard due to higher breakout barriers. The fact that the EMU members have several common financial and political institutions also make them one step closer to a political union than they were in the gold standard.

But large political difficulties within some countries and the fact that some important political decisions still remain on national level have created, and might further create, large political problems within the EMU. The market is an important agent, and there seems to be lack of confidence from the market in both monetary unions.

7. Conclusion

“Which political and economical factors were important contributors to the breakdown of the gold standard in the 1930s? Are any of these factors present in the European Monetary Union today, and if so, is it likely that they will contribute to similar lasting instabilities and a possible breakdown of the euro in the future?”

The factors

The factors seen as being important for the breakdown of the gold standard in this assignment were (1) the central bank's interest rate policy and the rules of the game, (2) imbalances in exchange rates and (3) debt levels, (4) the systems ability to handle fundamental changes, and the (5) credibility of the monetary union.

The comparison of these factors with the EMU found that similar problems and instabilities are present also within the EMU.

The rules of the game were not followed as they should during the interwar gold standard, and since the EMU countries have given up their national interest rates they cannot be followed in the same manner in the EMU. But the ECB interest rate has imposed deflationary effects on deficit countries to a larger degree than on the surplus country Germany. The fact that deficit countries are unable to use their interest rates to attract capital from abroad might be a weakness of the EMU system, leading to lasting instabilities between countries.

As in the gold standard, there are also imbalances in the exchange rates in the EMU, and this has influenced net trade negatively for weak countries. Germany has also increased the instability by maintaining more wage moderation than the other countries, imposing similar consequences as the acts of the US during the interwar gold standard. But the EMU has integrated free trade in the monetary union. This reduces the severity of this factor relative to the gold standard, where some countries raised trade barriers in difficult times.

The debt imbalances are severe in the EMU, and the rigidity of some of the member countries public costs makes the situation politically and economically difficult. Financial institutions giving financial assistance have however prevented countries defaulting on their

debt. The loss of credit has therefore been less damaging this far in the EMU than it was in the interwar period. Still, countries do not know how long these payments will continue, and questions about the politicians will to bail out these countries have been raised several times during the crisis.

Rigidity is also present in the EMU, as it was in the gold standard, and has made it difficult for the systems to handle changes in fundamental factors. The high unemployment levels in some countries have triggered the difficult political choice between domestic and external equilibrium, as it did in the interwar period. The free labour mobility within the EMU could have made up for some of the rigidities, but people seem too unwilling to move in order to let this happen.

Investors in the market have also reacted with a lack of credibility to the systems and acted in destabilising ways. There are sources of credibility problems within both systems, but removed degree of freedom and large implications of breaking out from the EMU makes these problems less prevailing in the EMU than they were in the gold standard. But the lack of political will is still a large problem within the EMU.

Tried but failed?

The factors that led to the breakdown of the gold standard are also present in the EMU. Some important steps toward removing these factors have however been implemented in the EMU. The EMU has integrated free trade and labour movements, a common central bank and interest rate, made it more difficult to break out and agreed upon price stability as a goal, among other things, in order to remove the implications of these factors. Unfortunately it looks like it is inadequate. Even if many monetary decisions are centralised, there are still important decisions left on national level. Workers are not as willing to move, and wages do not adjust as fast as thought. The factors that led to the breakdown of the gold standard are therefore likely causes of instabilities in the EMU in the future.

The future of the EMU

It is difficult to predict whether these factors will lead to a breakdown of the EMU in the future or not, but something has to be done in order to remove the instabilities between countries. Much depends on the political will within the union.

One of the things that are mentioned in several sections in the discussion part is political integration and the problems due to the fact that some economical areas on the functional level have remained in the hands of national governments. It seems like the political area is where the most dramatic changes needs to be implemented. A more integrated tax sector could act as an automatic stabiliser between different regions, and could contribute in securing long term capital flows between countries. This could also provide a higher degree of credibility in the market, which could reduce the interest spreads for the more indebted countries.

More political integration of the EMU is however a large step for the monetary union that started up with an initial objective to reduce trade barriers. There are many challenges to overcome and political opponents to persuade on the path to become a more robust monetary and political union.

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