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Can Great Depression Theories Explain the Great Recession?

Schlenkhoff, Georg

European Business School, Oestrich-Winkel

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EUROPEAN BUSINESS SCHOOL (EBS)

International University Schloss Reichartshausen

*CAN GREAT DEPRESSION THEORIES
EXPLAIN THE GREAT RECESSION?*

A Thesis Submitted to:

Prof. Dr. Bas van Aarle

(Professor of Macroeconomics, Department of Law, Governance & Economics,
European Business School, Germany)

Prof. Dr. Jenny Kragl

(Assistant Professor of Law and Economics, Department of Law, Governance &
Economics, European Business School, Germany)

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Georg Henrich Schlenkhoff
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Abstract

The recent recession has brought a sharp decrease in income, output, and world trade, as well as an increase in unemployment in developed and underdeveloped countries. Experts such as Paul Krugman, Christina Romer, or Barry Eichengreen, compare the current situation with the Great Depression of the 1930s. However, the current debate is whether that comparison is even applicable. Since policy makers have to understand the roots and the dimension of the crisis in order to seize the fiscal stimulus package, adjust the level of taxes, and change regulation of the financial sector, the debate is of course a reasonable one to have. The Great Depression is the archetype of a recession, so it provides policy makers with valuable insights into right and wrong reaction methods. However, if policy makers orientate at the Great Depression, they have to make sure that the roots of the crisis are similar. So this paper addresses the question: Is the current financial crisis similar to the Great Depression? For that purpose I will systematically compare the Great Recession with the Great Depression. First, by examining the theories that commonly explain the Great Depression. Subsequently I will apply these theories to the Great Recession and discuss if they are applicable. I will argue that some theories are still applicable. For example, which flaws in the monetary system contributed to the Great Recession as well as to the Great Depression? However, the economic environment has changed and applying the same policy reactions today as in the Great Depression will be a policy error. Finally I will briefly present policy recommendations that are based on the findings.

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INTRODUCTION

On March 20, 2009, Nobel Prize winner Paul Krugman (2009) sent a positive signal to his audience about the Great Recession¹: We are experiencing only “half a Great Depression” (Krugman, 2009). Comparing industrial output data from 1929 and 2007 (see figure 1), Krugman found out that the current recession did not hit industrial production as hard as previously thought. The “Four Bad Bear Markets” (see figure 2) give even more relief: the stock markets were bearish for only 17 months (if the current low holds), while the bear of the Great Depression wasted wealth for more than 34 months. To what extent is today’s recession really only half a Great Depression? If we believe policy makers they are doing everything that they “can to make sure that the word ‘great’ never applies to the current downturn” (Romer, 2009, p. 2). But do they really know what to do?

The current unemployment trend does not give relief: on November 6, 2009, The New York Times announced that unemployment rate hits 10 percent and “suddenly [it] seemed possible that the nation might yet confront the worst joblessness since the Great Depression” (Goldman, 2009, p. B1). Is it really so bad or simply a specter of the news? One must consider that the unemployment rate peaked at 25 percent in the fifth year of the Great Depression (see figure 3). So we are not even close. But Eichengreen and O’Rourke disagree: “The Great Depression was a global phenomenon” and comparing the two episodes with U.S. data only, is “misleading” (Eichengreen & O’Rourke, 2009). Indeed, in a blog entry published on June 4, 2009, the authors found out that global production², global stock markets, and the volume of trade signal a more dramatic picture now than during the Great Depression (see figure 4-6). So what is the direction of the world economy?

The global economic performance is hard to predict at this point in time. And lesson number one from the Great Recession should be that since “the economics profession apparently was unaware of the looming worldwide financial and economic crisis” (Schneider &

¹ The term Great Recession refers to the global financial crisis, which started in 2007. Paul Krugman (2008) popularized the term in his work “The Return of Depression Economics”. However, it is unclear what the current recession will be called in future history books.

² The authors confessed on October 13, 2009 that “global industrial production shows clear signs of recovery”. But they raise the question whether “increased production will materialize or whether consumer spending ... will stay weak” (Eichengreen & O’Rourke, 2009).

Kirchgässner, 2009, p. 1), they will not be able to predict the upturn. So is economics useless? Surely not, if we understand economics as interpreting the past in order to let bad history not repeat. Consequently in an economic crisis economics should be in its upturn. And the sheer number of papers published on the behalf of the Great Recession in the recent two years enriches our understanding of the economy for now and for the future. And it is important for policy makers to listen to the economists, since they study ways of how to prevent another “great” recession. The direction of investigation the paper on hand takes is to compare the roots of today’s Great Recession with those of the Great Depression of the 1930s. The purpose of the comparison is to present further lessons to economists and policy makers.

Lesson number two is that policy makers are on a good track expanding the monetary base, since economists in unison denote the monetary non-interventionist strategy of the Great Depression as gross negligent. But the degree of fiscal stimulus should be well considered, since too much stimulus may be gross negligent too, since future generations will pay for it.

Lesson number three is that the composition of the current monetary system urges policy makers to rally. History has revealed that the monetary system is one powerful mechanism that propagates crises throughout the world. To protect the domestic markets, the U.S. and European countries drifted away in protectionism during the Great Depression. But as history revealed, rising nationalism jeopardized world stability, and finally World War II emerged. Consequently, today’s economic leaders should not repeat the error of protectionism; rather they should seriously discuss alternatives to Bretton Woods II. Since the flaws of the current monetary system Bretton Woods II are too obvious to allow it to withstand during the next business cycle.

Lesson number four is that regulators in the U.S. must understand that they sacrificed stability in the name of profitability. They clearly repeated that mistake of the Great Depression. If financial innovation proceeds with a dramatically fast pace, policy makers need to innovate themselves. The recovery of the Glass-Steagall Act will probably not be the right answer, since global competition forces financial institutions to innovate. But if policy makers do not control the monetary flow, they risk that funds will be misallocating funds, to bad creditors.

Part one of the paper gives a brief overview of the Roaring Twenties, setting the stage for the Great Depression, and then describes the events following 1929. Setting the stage for the Great Depression is important in order to grasp the realm of the worst depression of the last decade. Part two and three compose a framework to analyze the Great Recession. While part two

gives explanations for the causes of the Great Depression through the lenses of the Neoclassicists, part three gives explanations out of the scope of neoclassicists. I decided to present a variety of explanations, since every theory sheds light on different aspects of the Great Depression. And analyzing the roots of the Great Depression with different approaches helps the reader to find an answer to the central question, raised in part four of the paper: is the Great Depression like the Great Recession? Finally, once I have shed light on the answer, I will discuss policy recommendations.

PART ONE: THE GREAT DEPRESSION

1. The Great Depression: Setting

1.1 The Roaring Twenties

The 1920s, or so-called Roaring Twenties, marked an era of changing values. The historical period, which ran from the end of the WWI recession to the beginning of the Wall Street Crash of 1929 not only saw stock markets reach unprecedented high peaks, but also saw a drastically altered society environment alongside radical technological developments. The 1929 Stock Market Crash revealed economic ulcers, forcing the U.S., Europe, and many other countries into the most severe economic recession of the 20th century.

This first chapter introduces and describes the backdrop of the Great Depression. In order to understand the effects of the Great Depression, one must compare the era of the 1920s, which saw huge wealth gains for the societies of many countries, with the era of the 1930s, which destroyed the wealth, employment, and faith of the same people. Two major forces are responsible for the huge wealth gains of the 1920s: technological euphoria based on the introduction of mass production; and political laissez-faire fostering both the misallocation of resources and overproduction.

1.2 Technological euphoria

Technological progress was a very important part of the cause of the wealth gains of the 1920s, since technological advancement aided mass production and therefore made available cheap products to the middle classes. Thus the overall the economy experienced unprecedented industrial growth. The most remarkable example of mass produced product during the time, was the Model T Ford, which marked the end of the “mechanistic phase” (Giedion, 1948, p.743). The progress of an efficiency movement and assembly lines paved the way for the creation of the Model T Ford, which made easy and cheap transportation available to U.S. consumers who could afford it. From 1920 to 1930, the number of registered motor vehicles in the U.S. tripled from 9,2 million to 26,7 million.³ These tremendous growth rates set off the development of related

³ Source: U.S. Federal Highway Administration, Highway Statistics, Summary 1995-1997, Table MV-200.

sectors, too. For instance, huge infrastructure investments, such as highways, were undertaken to support the rising transportation demand.

Next to mass production, films and radio played an important role in increasing the wealth of American and European people. Since mass-broadcasting mediums had become the main platform for mass marketing, aggregated demand rose accordingly in the U.S. “The Golden Age of Radio” symbolizes the period, starting in the 1920s, in which radio became a popular home entertainment medium. The Model T, movies, and radio were just the tip of the iceberg regarding technological advances in the 1920s. Many other developments, such as the first crossing of the Atlantic Ocean by airplane, and the appearance of new cultural phenomena, such as jazz music, the tango, and extravagant fashion, inspired people to believe that a fascinating new era had begun. Everything seemed to be possible with the advent of modern technology. The terms that coined these eras, such as “The Roaring Twenties,” “The Golden Twenties,” and “Goldene Zwanziger,” express an extraordinary period in history.

1.3 Political laissez-faire

The economic developments of the 1920s were facilitated by a business-friendly political laissez-faire approach in addition to an appeasement strategy. Economically speaking, Warren G. Harding, serving as the 29th American President from 1921 to 1923, attempted to boost the domestic market by cutting taxes, which were massively increased in order to finance World War I. At large, the political decisions were inspired by a laissez-faire approach. During his campaign, Harding promised less government interventions in the business sector and more business friendliness in government. Calvin Coolidge, who served from 1923 to 1929, continued the business-friendly program by cutting taxes, reducing federal expenditures, and promoting corporate productivity (Greenback, 2007).

The relative stable and friendly international political strategies of the 1920s, which focused on appeasement and stability, were another reason why the U.S. and many European economies blasted off. With the catastrophic economic effects of World War I still heavy on European and American mind, countries concentrated on their domestic problems rather than intervening in foreign affairs. Especially during the political era of Harding the U.S. a renewed national isolationism in reaction to the War. (Frederick, 1992).

Harding’s political line also diffused to Europe. The appeasement of Europe’s political conflicts was the primary aim of most European regimes. Starting in 1920, Winston Churchill

formulated a peace treaty for the war occurring between Greece and Turkey. Also, the Locarno Treaties (1925) achieved the admission of Germany to the League of Nations. Furthermore, in the Treaty of Rapallo, 1922, Germany and Soviet Russia renounced all territorial and financial claims against the other. But suddenly at the end of the 1920s that euphoric atmosphere collapsed (Frederick, 1992).

1.4 The Wall Street crash, 1929

According to historians, the Great Depression began with the sudden and total collapse of U.S. stock market prices on October 29, 1929, known as Black Tuesday. The stock market losses were immense, only on October 28, later coined as “Black Monday”, the Dow Jones Industrial Average (DJIA) lost 13 percent. On the next day, “Black Tuesday”, the DJIA lost another 12% (Galbraith, 1997). After 34 months, the DJIA lost in total 89.2 percent of its value on September 3, 1929 (see figure 2). At the time, the public did not expect such a severe crisis. Galbraith (1997, p. 89) points out that “preventive incantation required that as many important people as possible repeat as firmly as they could that it would not happen. This they did.” However, that optimism did not last long. By the autumn of 1929, not only the stock market, but also the economy, had fallen into a deep depression. The stock market crash only mirrored the fundamental economic situation. In June, indexes for industrial and factory production both reached a peak and turned down. By October, the Federal Reserve Index of industrial production stood at 117, as compared with 126, four months earlier. Steel production declined from June onwards, also homebuilding had been falling for several years, and it slumped still further in 1929 (Galbraith, 1997).

Bankers working on Wall Street sensed the real dangers to income and employment; they knew that wealth in general would be affected. Subsequently, the stock market crash reduced the U.S. GDP by 29 percent from 1929 to 1933 (see table 1), since consumer purchases and business investment fell sharply. Romer (2003) explains the decline of aggregated demand and suggests that the financial crisis generated considerable uncertainty of future income, which in turn led consumers and firms to put off purchases of durable goods. Furthermore, she argues that although the Great Crash of the stock market and the Great Depression are two separate events, the decline in stock prices was one factor that caused the decline both in production and in employment in the United States.

The wealth reduction induced by the stock market crash especially impacted the social life in America and Europe. Unemployment, poverty, and the disintegration of economies were thought to be major threats to the policy makers of the 1920s. In the U.S., homeless people built slum-like towns, called Hoovervilles (named after the president at the time, Herbert Hoover), because they could not afford to live in their highly mortgaged homes. Furthermore the bad economic situation caused people to question the capitalistic system America has in place (Romer, 2003). Roosevelt's New Deal shows aspects of the political renewal.

However, despite the social problems in the U.S., President Hoover was able to regain popularity of the U.S. citizen in 1932 when he passed the Emergency Relief and Construction Act. He enabled government to largely intervene in the market, directing funds to public work programs, under which umbrella the Hoover Dam was constructed, and the Reconstruction and Finance Corporation (RFC). One of the goals of the RFC was to stabilize financial institutions by providing them with government-secured. Nevertheless, the RFC had little impact on the economy, but President Franklin D. Roosevelt adopted the concept and expanded it as part of his New Deal (Barber, 1985).

2. Onset of the Great Depression

2.1 U.S.

After the Wall Street crash the severest economic crisis of the 20th century began, followed by one of the greatest humanitarian catastrophes of the 20th century, World War II. The Great Depression spread like a virus throughout many institutions and countries. Banks, companies, governments, and families were infected and the world's economic growth came to a long-lasting halt. Table 1 shows a basic overview of the U.S. economic environment of the 1930s. The fact that real incomes, monetary bases, and prices declined, while unemployment rose, underscores that the U.S. was in a severe recession at the beginning of the 1930s. In three years, from 1929 to 1932, real U.S. output fell by 27 percent and unemployment rose from 3.2 to 24.1 percent. At the same time, the monetary base fell by 21 percent (see table 1). But America was not the only country that suffered from such a severe depression.

2.2 Europe

The crisis quickly spread throughout the continent of North America and left devastating traces in many European economies as well. Table 2 and 3 show the basic statistics for France and United Kingdom of GDP and money supply. Considering the effects on the different economies, the statistics are dichotomous. The Great Depression did not affect every country at the same level. (Why some countries experienced a more severe downturn than others is discussed in a later chapter.)

Germany was hard hit by the Great Depression (see table 2), because America stopped its funds financing the development of Germany after World War I. Unemployment rates increased to 30 percent in 1932. Large social problems gave rise to the Nazi regime, which pushed unemployment back in labor programs (Stachura, 1986). Similarly, in France (see table 3) the Great Depression gave rise to a socialist regime, the Popular Front led by Léon Blum in 1936. Though France's business structure was more self-sufficient than Germany's, that is why the crisis hit France less severe than Germany (Price, 1999). The United Kingdom (see table 4) was also hard hit by the Great Depression since the demand for the U.K. products collapsed. Especially devastating was the fact that exports plummeted, since U.K.'s economy was very dependent on foreign trade (Cole & Ohanian, 2007).

3. Thoughts about depressions

3.1 Depressions and business cycles

The Great Depression is an archetypal example of a depression. In economic terms a depression is defined as a severe recession, while a recession is defined as a period of declining incomes and rising unemployment. In general, economic activity fluctuates from year to year. Generally speaking, the years in which the production of goods and services rise, are often due to advances in the labor force, the capital stock, or technological knowledge. However, in some years this kind of normal growth does not occur. In times of economic downturn, firms' sales decrease, workers are laid off, unemployment rises, and factories are left idle. Consequently, real GDP and other measures of income decline.

A typical business cycle has three phases (see figure 7). The first phase is expansion - when the economy grows in long-term trends in employment, output, and income. At some point, the economy will overheat, and suffer rising prices and interest rates, until it reaches a turning point -- a peak -- and turn downward into a contraction (the second phase). Contractions are usually brief (six to nine months) and are marked by falling employment, output, income, prices, and interest rates. Typically contractions are marked by rising unemployment. When the bottom point of the business cycle -- a trough -- is reached the economy will rebound and go over into another expansion (the third phase). The expansion will enjoy rising employment, output, and income while unemployment will fall. The expansion will gradually slow down as the economy once again directs into its long-term growth trends. (Mankiw, 2008).

3.2 U.S. economic fluctuations, 1854-2007

Statistics from the National Bureau of Economic Research (NBER) support the assertion that the Great Depression was by far the most severe economic downturn in the U.S. history. NBER's research on business cycles from December 1854 to 2007, shows that the recession began in August of 1929 and lasted until March of 1933 (43 months from peak to trough). Compared with other contractions, which lasted an average of 18 months (1919-1945) and 10 months (1945-2001), the Great Depression lasted more than double and quadruple, respectively, the average time of a typical contraction (see table 5).

PART TWO:

A NEOCLASSICAL EXPLANATION OF THE CAUSES OF THE GREAT DEPRESSION

4. The neoclassical school

4.1 Introduction

In the previous section, the stage for the Great Depression was set. Two major forces that arose during the Roaring Twenties fostered exceptional growth in all business sectors: technological advances and political laissez-faire regimes. But the tremendous growth of the Roaring Twenties came to a sudden standstill with the crash on Wall Street in 1929. As has been found, the Great Depression was the most severe economic crisis in U.S. history. Because of this, many famous economists, such as John Maynard Keynes, Paul Krugman, Ben Bernanke, Christina Romer, or Peter Temin, studied the Great Depression in order to protect the world from the recurrence of such devastating conditions. This chapter will present different explanations of these students for the Great Depression.

As discussed in the previous section, the standstill hit economies in different ways. For the U.S., the Great Depression left the biggest impact, while some European countries, such as the U.K., experienced milder effects. That leads to the question: How did the Great Depression spread and why were economies affected so differently?

Searching for literature about the Great Depression, one finds out that a wide range of theories exist from a wide range of sources. Focusing on only a few models does not create a complete understanding of the reasons the crisis occurred in the first place. The models often contradict each other, or explain only small aspects. Combining these theories, which can be seen as pieces to a puzzle, decodes the larger underlying causes of the Great Depression. Williamson (2005) asserted that business cycles can have many causes and each business cycle model allows us to study some aspects of the economy reacting to a macroeconomic shock.

In an effort to explain the Great Depression, the following two chapters introduce different business cycle theories. First, there will be a focus on the scholars that currently have great influence on policy makers around the world; they are from the neoclassical school of thought. Second, there will be an examination of the different shocks that brought supply or demand out

of equilibrium in the short run. Other explanations of the Great Depression will be presented in the following chapter.

4.2 Money's neutrality

The basic difference between the classical and neoclassical theory is based upon the role of money. From the classical theorists point of view, money is neutral; changes in the money supply affect nominal variables but not real variables. For example, if the quantity of money doubles, everything will cost twice as much, and everyone's income would be twice as high. The change would be in nominal, but not in relative terms; real GDP, and the unemployment rate would not be affected. However certain data contradict the classical view. In the short run, real and nominal variables are highly intertwined; changes in the money supply can temporarily push real GDP away from its long-term equilibrium. Thus, to understand the causes of the Great Depression, the neoclassical theory must be taken into consideration (Williamson, 2005).

4.4 Hypothesis of rational expectations

The neoclassical school of thought is based on the belief that money is not neutral, so changes in the monetary base affect real income. To explain the relation between money and real income, a reference to the hypothesis of rational expectations is needed, a hypothesis that has gained importance in macroeconomics since the early 1970s. Robert Lucas, Thomas Sargent, Neil Wallace, and Robert Barro mainly contributed to the evolution of the theory. The dichotomies of the rational expectations hypotheses are: (1) macroeconomic models should be based on microeconomic principles, such as the description of preferences, endowments, technology, and the optimizing behavior of consumers and firms; (2) equilibrium models are the most productive vehicles for studying macroeconomic phenomena. The following text will explain the causes of the Great Depression using the hypothesis of rational expectations (Williamson, 2005).

The model of aggregate demand and aggregate supply explains how the monetary base and the real income are correlated. The aggregate demand function explains the quantity of goods and services that households, firms, governments, and global customers want to buy at each price level. The aggregate supply function explains the quantity of goods and services that firms choose to produce and sell at each price level. The equilibrium of these functions determines the optimal output and price. Occasionally the equilibrium becomes distorted due to a sudden event

that temporarily increases or decreases aggregated demand or supply. Explaining the Great Depression, neoclassicists refer to such events as *external shocks*.

5. *External shocks*

5.1 *Monetary shock*

According to the neoclassical theory, the decline of the monetary base (known as monetary shock), starting in 1929 and lasting until 1933, could be attributed to the causes of the Great Depression. Figure 1 shows the correlation between monetary bases and real GDP, which jointly declined during the Great Depression. The question monetary theorists attempt to answer is exactly to what extent the money supply correlates with the output. In economic literature, there is a general consensus that monetary forces were a main factor in the development of the Great Depression. Friedman and Schwartz (1971) examine the relationship between money and real income and they provide evidence that a decline in the monetary base preceded a decline in output over nearly one century in the United States, so the factors have a strong correlation (see figure . Friedman and Schwartz assert that if policy makers would have expanded money supply the worst could have been prevented.

Friedman and Schwartz identified four grave mistakes the Federal Reserve (Fed) that led to a tightening of monetary policy, which also shows in a conjunctive proposition, the decline of money and output. First, due to excess speculation in the stock market, the Fed tightened monetary policy in 1928. Friedman and Schwartz criticize the Fed for the major intervention that not only stopped speculation, but also the growth of the U.S. economy. Second, in 1931 a speculative on the British pound, which was like many other currencies pegged to gold, forced Great Britain to leave the gold standard. The U.S. seemed to be the next victim of a speculative attack, so they decided to raise interest rates. However, the U.S. fell into a terrible recession. Third, the Fed resisted lowering interest rates despite several admonitions by the U.S. Congress. Federal officials thought that the interest rates would already be at a relative low level. Furthermore they thought that the economic slowdown was a reaction to the excess demand during the 1920s and that the economy needed to recover from overinvestment. However, at the end of 1932, the economic situation worsened even further due to high interest rates. Fourth, the reaction of the Fed to the banking panics of the Great Depression was not adequate. The Fed could have given out loans to the banks or taken bad debt to hold as securities, even simply put

more cash in circulation by printing money or opening market operations. But Fed members were irritated by the theory of liquidationism, which states that weak banks must be liquidated in order to clean up the system.

Theorists have yet to come to a consensus on policy makers' reactions to business fluctuations. In such debate, monetarists oppose neo-Keynesians. In economic literature these two main theories recommend different strategies as a reaction to output fluctuations. On the one hand, monetarists – among them are Milton Friedman, Anna Schwartz, and Ben Bernanke - argue that monetary policies should focus on providing price stability. According to these monetarists, deflation that was caused to improper monetary policies in the 1930s is a major source of business fluctuations. Conversely, John Maynard Keynes and his followers known as the neo-Keynesians (Sir John Richard Hicks, Franco Modigliani, Paul Samuelson, and Paul Krugman) believe that the government needs to take an active role, with the help of a fiscal stimulation package, in smoothing out business fluctuations (Feldstein, 2009).

5.2 Technology shock

Technology is defined as an exogenous factor that changes the efficiency with which business enterprises transform inputs into outputs (Cobb-Douglas, 1928). Thus not only changes in the technology itself, but also changes in regulation that affect work behavior can affect productivity. Technology changes can be measured by both the marginal products of capital and also the labor to total output ratio; together, they are a part of total-factor productivity.

The roaring twenties were marked by an increase in productivity. While technological progress continued at a rapid pace, productivity also rose. This is supported by Kendrick (1961) who studies U.S. productivity during this period of time. In the second half of the 1920s, the gross private investment, which averaged nearly USD 10 billion a year, was an increase mainly due to productivity gains.

With the help of an econometric model, Cone and Ohanian (1999) discovered that a negative technology shock may explain the causes of the Great Depression, and that the model explains the decline of the economy from 1929 onwards. But the neoclassical model predicts that output should have returned faster; the model does not well explain the weak recovery.

5.3 Fiscal policy shock

According to Christiano and Eichenbaum (1992), Braun (1994), and McGrattan (1994), fiscal policies shocks, such as purchase shocks or distorting taxes, have significant effects on real income. Since a decrease in government purchases leads to lower price levels, unemployment therefore increases since employees are less willing to exchange their leisure for work. If a fiscal shock contributed to the decline of the real economic activity, one should observe a similar decline in government activity. But the data (see table 8) do not support such a fact. Instead, government purchases increased from USD 41 billion in 1929 to USD 57.9 billion in 1936.

Another source of fiscal policy shock is an increase in tax rates. Since a higher tax rate on labor or capital increases labor rental costs, consequently returns will be reduced and firms will hire less. Indeed Joines (1981) found out that the average marginal tax rate on income increased from 3.5 percent to 8.3 percent, and the average marginal tax rate on capital income increased from 29.5 percent to 42.5 percent between 1929 and 1939. Referring to these findings, Cole and Ohanian assert that tax increase contributed partly to the fall of labor inputs, which impacted output.

5.4 Trade shock

Trade with other economies can be a crucial contributor to a country's GDP. If countries restrict trade policy by raising import tariffs, the economic activities in any economy will be disturbed. The effect that trade tariffs has is dependent on the share of trade in an economy as well as the elasticity of substitution between input factors. The former factor means that if an economy's export activities are high trade shocks will affect that country's economic activities. The latter factor means that if foreign intermediate products become more expensive through import tariffs, producers have to switch to domestic products. If domestic intermediate products are imperfect substitutes (which they should not be in order to have an effective trade policy) trade policies affect the domestic economy negatively.

Many countries implemented trade barriers during the Great Depression, the most notable of which was the U.S. Smoot-Hawley tariff in 1930, which lifted tariffs to historically high levels. The topic of the Smoot-Hawley tariff is widely discussed in Great Depression literature (Eichengreen, 1989; Irwin, 1998; Kindleberger, 1973; Temin, 1991). Originally the tariff was implemented to protect farmers from foreign imports. In 1930, 23 percent of the civilian labor

force was employed in the agricultural sector⁴. Farming products turned out to be a sensitive sector in the U.S. Another driver that impacted the protection of the farming sector was decreasing prices during the second half of the 1920s due to massive overproduction.

The effects of the protection of farming goods were devastating, since the industrial sector requested to protect its market from foreign products. Thus policy makers, under the presidency of Herbert Hoover, were forced to widely expand protectionism. Authors on the subject widely agree that the tariffs did not cause the Great Depression, but it did not make it better, either. The Smooth-Hawley Tariff became as a symbol for the “beggar-thy-neighbor” policy (any policy that increases the wealth of one nation on the on behalf of another one). Such policies contributed to a drastic decline in trade, observable in table 9.

The tariff policies are often blamed for contributing to the economic problems of the Great Depression period. Opposing that view, are many authors, including John Maynard Keynes. They argue that tariffs, which reduce welfare in general, neither contributed to the downward spiral of the economy, nor to a drastic decline of real income. Indeed, Ohanian and Cole (1999) found that trade shocks are not sufficient to explain the Great Depression for two reasons.

The first reason, is that policy makers would not have implemented trade policies on goods that have low elasticity since it would have been a very harmful policy to the domestic economy. The data findings of Cole and Ohanian support this reasoning (though they do not apply to the U.S.) and assert that a trade shock would have harmed real income very drastically. In 1929, exports accounted for 5.1% of all economic activity. That ratio fell until 1932 to a low of 2.9%. It should be noted that other economies more dependent on trade activities were much more affected. For example, Germany was severely hit; trade fell from 14.4% to 5.1% from 1929 to 1938.

The second reason that trade shocks are not sufficient in explaining the Great Depression, is that even if elasticity is low, an increase in real economy should take place since local producers have begun to produce the taxed goods. Nevertheless, overall, world trade declined by some 66% between 1929 and 1934. Furthermore, Smoot-Hawley did not foster trust and cooperation among nations in either the political or economic perspective, and tensions emerged amongst nations that contributed to the development of World War II.

⁴ see U.S. department of Commerce. Historical Statistics of the United States. Colonial Times to 1970, Washington D.C. Government Printing Office, 1975

PART THREE:

ADDITIONAL REASONS FOR THE CAUSE OF THE GREAT DEPRESSION

6. Failures of financial markets

6.1 Information asymmetry

A strong financial market is the backbone of a stable economy; only if the market functions well, will the economy flourish. If the financial market becomes illiquid, firms are not able to invest, expand their capacity, and pay their workers; thus households are not be able to consume. Also stream savings allocated to the banks decline; finally, governments experience a fiscal deficit due to lower tax payments that severely hurts the economy. In his speech on March 31, 2008, Henry M. Paulson, Sr., Secretary of the U.S. Department of the Treasury, explained the importance of a sound financial system:

“A strong financial system is vitally important – not for Wall Street, not for bankers, but for working Americans. When our markets work, people throughout our economy benefit – Americans seeking to buy a car or buy a home, families borrowing to pay for college, innovators borrowing on the strength of a good idea for a new product or technology, and businesses financing investments that create new jobs. And when our financial system is under stress, millions of working Americans bear the consequences” Paulson (2008).

So why do markets malfunction and create risk for society? In their theory of markets, George Akerlof, Michael Spence, and Joseph Stiglitz emphasized one problem of asymmetric information. Mishkin (1991) summarizes the findings: Asymmetric information occurs because one party to a transaction has much less accurate information than the other. This creates an imbalance of power in transactions. In financial systems, asymmetric information creates two types of problems: adverse selection and moral hazard.

Adverse selection occurs prior to a transaction, and describes a type of problem whereby a party’s demand for funds is positively correlated with the risk of credit default. The party that is most eager to engage in the transaction is the one most likely to produce an undesirable (adverse) outcome to the creditor. But due to the issue of asymmetric information, the creditor cannot assess the real risk, thus loans convert to great credit risks. If adverse selections increase in an economy, lenders may decide not to give out any loans at all, even though there are good credit

risks in the marketplace. Subsequently, liquidity will dry and parts of economic activities will come to a halt.

Moral hazard occurs after the transaction, and describes a situation in which a party behaves immorally in the point of view of the creditor. For example, if instead of investing in low-risk project A, a company invests in high-risk project B. The party that is insulated from the risk, the creditor, takes advantage of the situation whereby the creditor has only limited control over the debtor after the transaction has occurred. The debtor therefore conducts a high-risk project at the expense of the creditor.

During the Great Depression, the financial markets failed. Many banks went bankrupt due to bank runs and households lost their faith in the financial system. Since many banks had to close, and many bankers lost their jobs, the banking system became much less efficient. Bank failures represent a decline in information capital associated with specific relationships between borrowers and intermediaries. Thus agents who efficiently evaluate the risk of a business are lacking. Consequently, either the economy experiences a liquidity problem, or bad loans are created. The problems with adverse selection and moral hazard increased during the Great Depression, and worsened the effects of the crisis. These effects are well described by Bernanke (1983).

Hyman Philip Minsky is another economist explaining the Great Depression. His “Financial Instability Hypothesis” sheds light on the link between stock market fragility and speculative investment bubbles. In his paper, Minsky (1992) theoretically abandons the neoclassical assumption that the economy seeks and sustains equilibrium. Then he asserts that sometimes the economy will be a victim of chaotic time series, due to the nature of economies, which need to “reconcile a variety of dynamic processes” that are “multidimensional, intertemporal, and non-linear”. In economic terms, Minsky explains the inability of debtors unable to pay their credits, which is impacted by a downward spiral of declining debt values. That downward spiral is a reaction to excess supply and demand.

6.2 Bank runs, 1930-1933

The monetary crisis intensified with a crop of bank failures that led to widespread attempts to convert deposits into currency. Romer (2003) described how a contagion of fear spread from rural areas throughout the whole country of America. Altogether, three waves of bank failures occurred: 256 banks with 180 USD million deposits failed in November of 1930, 352 banks with

deposits of 370 USD in December, and the last wave of bank failures occurred in the late spring and early summer of 1931. The financial market reacted with a rise in the prices of government bonds (decline of bond yields) and a decline in the prices of corporate bonds (rise of corporate bond yields). This is primarily why in their search for liquidity, banks and investors were attracted to higher-grade securities, such as government bonds. As a further reserve, central banks and private holders converted substantial amounts of their local currencies into gold between September 16 and October 28. Thus the gold stock was reduced enormously, which finally contributed to the collapse of the gold standard (discussed later).

A last wave of bank runs started in the winter of 1933 and reached its peak with the national bank holiday, a special day (March 6, 1933) declared by President Franklin D. All banks were forced to close their operations, and they were allowed to reopen only after being proven solvent by government inspectors. The panics took a hard damage on the America's banks. By 1933, one-fifth of all banks had failed. (Romer, 2003).

The bank failures of the early 1930s had a huge impact on the functioning of the economy, since they involved huge capital losses and distortions in the flow of liquidity. In his paper about effects of the Great Depression, Bernanke (1983) argues that the economy experienced a severe distortion because the intermediation service between borrowers and lenders was disrupted due to the failures of banks. But banks play an important role in overcoming the objectives of information asymmetry. The breakdown of banks interrupted the efficient value creation process of an economy and investments could not be undertaken. But how could the bank runs emerge?

Calomiris (2007) asserts that two approaches explain the banks runs during the Great Depression era: the fundamentalist approach and the panic approach. According to Calomiris, the adherents of the fundamentalist approach believe that in general banks are stable and that bank runs are unwarranted events that do not reflect the economic situation of the banks. While adherents of the panic approach – e.g. Friedman and Schwartz (1971) - argue that depositors receive signals which contain complex and unnecessary information about the health of banks, then withdraw large amounts of funds from the banks, despite depositors not knowing which bank has suffered a loss, and if the bank is illiquid or insolvent. These bank failures can lead to business cycle downturns and spread panic-induced financial distress from banks to the whole economy (Bernanke, 1983).

Government can create a safety net for banks and lenders in guaranteeing that money will be insured one hundred percent if a bank fails. The disadvantage of such mechanisms is that the problem of moral hazard intensifies. In the end, it is the society that must pay for the misallocation of funds, which can lead to social unrest and lost of confidence in the current regime. This of course negatively effects the overall economy and the globalization process. In recent history, lending booms have occurred in Japan and the United States, in the 1980s and 1990s, respectively, as a consequence of secured deposits. To prevent a lending boom, government should closely monitor and regulate the financial sector to ensure that banks not take excessive risks on businesses they are not confident in. (Mishikin, 2006)

7. Further market failures

7.1 Debt deflation

Another model that attempts to explain the Great Depression is the debt-deflation model, developed by Fisher (1933). In his theory, he explains that during the Great Depression, wealth shifted from the debtor to the creditor, since debt's real value increased relative to the nominal value. Consequently, lending activities decreased (according to the definition net worth - total assets minus total liabilities) and as a result, the rate of business failures is increased. The fundamental cause of the decreasing lending activities Fisher saw in two reasons. One was the over-indebtedness of American households, and the other one was a dynamic process of price reduction, in short a deflation. According to Fisher, the mechanism of the dynamic process is that banks want to reduce their debts triggering off a downward spiral and affecting negatively the general price level of debt. So since prices fall, profits reduce, and entrepreneurs are less willing to employ labor forces.

Bernanke (1983) provides evidence for the support of the debt deflation theory. "Given that debt contracts were written in nominal terms, the protracted fall in prices and money incomes greatly increased debt burdens." He asserts that the ratio of debt service to national income went from 9 percent in 1929 to 19.8 percent in 1932-1933. Furthermore, half of all residential properties were mortgaged at the beginning of the Great Depression. As a result, a large number of defaults caused problems for lenders and borrowers.

But Fisher's model predicts a rapid recovery in economic activity once nominal prices stopped falling in 1933. Consequently, again, Fisher fails to explain the weak recovery (Ohanian and Cole, 1999) that took place after the Great Depression.

7.2 Uncertainty shock

In "The general theory of employment, interest, and money," Keynes (1936) asserts that the "propensity to consume" is a fairly stable function. But under uncommon circumstances, circumstances in which the Great Depression was in fact created, the consumer may increase his level of savings in order "to build up a reserve against unforeseen contingencies." The same behavior is observable with investments. Keynes explains the decision of consuming or investing as a result of "animal spirits – a spontaneous urge to action". However, he asserts that consumption patterns change and, according to Keynes, easy money at cheap rates will then not help to foster the economy.

Various economists referred to Keynes. For example, Romer (1990) argues that "the stock market crash caused consumers to become temporarily uncertain about future income." Spending was delayed, and she found in particular that spending on durable goods are correlated with stock market volatility. Likewise, Bernanke (1983) emphasized that a temporary increase in uncertainty can cause an immediate drop in investment spending.

7.3 Underconsumption theory

Underconsumption theories played an important role in the economic debates during the Great Depression. The underconsumption theorists – one of the earliest was Hobson (1910) - explain that a general glut occurs if supply exceeds demand. If there is more production capacity in comparison with what resources are available to consume (to purchase), resources will be underutilized, and unemployment in factories rises.

The underconsumption scholars argue that the economy produced more than it consumed due to high rates of savings. High savings diminish the demand of goods. But overproduction is the consequence of underconsumption. And it is underconsumption that is impacted by unequal income distribution. During the 1920s, productivity increased, but the wealth effects were not distributed to the employees, but to the owners of production resources. The masses therefore were not willing to buy the goods.

Policy makers during the Great Depression were largely influenced by the underconsumption theory. And their policies intended to redistribute income to the masses. For example, the large fiscal expansion program conducted by U.S. presidents Hoover and Roosevelt (e.g. New Deal) were based on the underconsumption theory.

8. The international propagation of the crisis and the gold standard

8.1 The classical gold standard, 1870-1914

The gold standard is a monetary system in which a region's common medium of exchange is pegged to the dollar and freely convertible into pre-set, fixed quantities of gold. The advantage of the gold standard is that it allows world trade to flourish, since gold acts as a stable world currency. That is why since the 18th century, European countries have pegged their paper money to a fixed quantity of gold.

The period of the classical gold standard lasted from 1870 to the outbreak of World War I. During that period, the gold standard was synonymous with exchange-rate, balance-of-payment, and price stability over much of the world (Eichengreen, 1996). Eichengreen has concluded that the gold standard during the prewar economy was the foundation of international trade's rapid expansion. To a large extent, he attributes the merits of stability to the role of the Bank of England, which served as an international lender of last resort, helping countries such as the U.S. overcome deficits in their balance of payments. The role of the Bank of England was marked with strong leadership. Due to its great success in the prewar period, the gold standard was restored after World War I. But the gold standard was unstable and beginning to destabilize. In the interwar period, the gold standard fell ill to several problems.

8.2 The interwar gold standard, 1925-1931

Due to the great success of the classical gold standard, it was reconstructed after World War I. By 1929 the gold standard was universal among world market economies. But the gold standard was far from the stability it had during the prewar period, due to numerous reasons. First, the war left behind enormous destruction, which led to hyperinflation in some countries and large government debts. The gold standard was not exposed to such problems in the first period from 1870 to 1914. Second, an effective leadership was missing from the management of the gold standard. Initially, the Bank of England managed consortium lending to countries short

of cash reserves. After the World War, the Fed took over the leadership of the American gold standard, but the institute lacked centralized management and the experienced staff needed to be able to cope with the highly complex international affairs. Third, the gold standard did not enjoy the reputation during the prewar period, since the confidence in the international community in stabilizing the gold values of the currencies had been lost. These sentiments were reflected in the political dimensions of some countries, in which a labor-friendly party argued that the gold standard takes away domestic jobs. So the political leaders hindered the central banks to maintain gold values of their currencies. Thus, speculative attacks became more likely, and – as the attack on Great Britain exemplified – actually occurred, since speculators felt that the world will get rid of the gold standard soon (Eichengreen, 1996).

8.3 International money contraction

Since the early 1980s a new body of research on the Great Depression era has emerged that focuses on the propagation of the international gold standard during the interwar period. One of the most influential was Bernanke (2000). He asserts that contractionary monetary policies propagated to other economies via the gold standard. Bernanke discovered that the monetary contraction that occurred during the Great Depression was an unintended result of poorly designed institutional framework for the gold standard; short sighted policy making; and unfavorable political and economic preconditions. Interest rates were increased in 1928 by the Federal Reserve in an effort to reduce stock market speculation on Wall Street. The policy became contractionary, not only in the U.S. but also in other countries. The effects of the policy caused large amounts of gold to be transferred to the U.S., since the interest rate returns were higher. As a result, the Bank of England was losing gold at the rate of GBP 2.5 million a day; the Kreditanstalt of Austria collapsed in May of 1931. To stop the draining of gold reserves, other countries were forced to change their monetary policies. But the direction of the policy changes was unclear.

The gold standard forced countries to harmonize their monetary policies. If a country such as the U.S. increased its interest rates, then other countries were forced to follow in order to forego the transfer of gold reserves elsewhere. If, for example, Germany had not increased its interest rates, gold reserves would have been transferred to the U.S., since investors would get a higher return there.

The gold standard was the main contributor to the international propagation of the Great Depression; countries that left the gold standard early on suffered less during the Great Depression. The level to which countries adhere to the gold standard correlates with the level of how severe the Great Depression was for each country (Bernanke, 2000). For example, the so-called gold-bloc: France, Poland, Belgium and Switzerland, remained on gold until 1935 and 1936. Some countries, such as Great Britain, and the most of the other developing countries, recovered early from the Great Depression. China for example, who used a silver standard rather than a gold standard, avoided the depression almost entirely.

When Roosevelt became president of the U.S. he was aware of the potential power monetary forces have on the economy. So he untied monetary policies by implementing three economic measures. First, he released the U.S. from the gold standard, allowing the dollar to float freely against other currencies. Second, he cleaned up the banking system by declaring a “banking holiday.” Banks were only allowed to open up again once they cleaned up their balance sheets. Third, with deposit insurance programs, Roosevelt elevated the confidence of the citizens in the economy. With these measures, since the money supply was secured, Roosevelt was able to revive the economic body and increase output and price levels. Between 1933 (when Roosevelt was elected), and the next recession (1937-38), U.S. economic was very strong.

PART FOUR: THE GREAT RECESSION

9. The Great Recession

9.1 The Great Recession: Setting

The Great Recession ended a business cycle that began in November of 2001. What was the economic performance of that period and what was the shape of the world at the beginning of the 21st century? In this chapter, we also want to find out, what were the major drivers of the latest business cycle. It is important to understand the grasp of the environment of the Great Recession in order to comprehend the underlying causes that led to the crisis.

The growth that the world experienced previous to the recession was fostered through mainly three drivers: the monetary system, Bretton Woods II, which created a unilateral dependency between the developing countries producing goods cheaply and the U.S. consuming them financed by their producers; financial innovation enabling financial institutions to securitize debt; and a lack of regulation in the U.S enabling doubtful creditors to access funds.

The first driver of the growth of the recent business cycle, starting in 2001, was a good example for the peculiarity of the monetary system, coined by the name Bretton Woods II. Analyzing selected GDP growth rates (figure 9), the extraordinary growth rates of the emerging market economies, such as China or India, are exceptionally high. Generating high surpluses through exports, the developing world accumulated high currency reserves due to high saving rates.⁵ The excess savings were then directed to the U.S., which consumed cheaply produced goods financed by their producers. Furthermore, the low interest rates around the created an environment of cheap money, contributing to the asset bubbles (Jagannathan, Kapoor & Schaumberg., 2009).

The second driver of growth was financial innovation and financial globalization. Banks created new investment vehicles offering higher returns, but also higher risks. The financial innovation fostered a shift from loans on the balance sheet to securitisation of loans. Thus risk was sold to institutions worldwide veiling the real credit-worthiness of the debtor (Barrel and Davis, 2008). Furthermore, information technology eased the access to global financial markets

⁵ The experiences of the Asian financial crisis was one reason that influenced the saving behavior of the emerging economies.

easing the import and export of funds. The advantage of the financial globalization is the protection against national shocks, and more efficient allocation of resources, but the disadvantage is the exposure to real economic shocks due to interdependencies of economies (Mishkin, 2006).

The third driver of growth was a lack of regulation, especially in the U.S. The regulations that were implemented after the events of the Great Depression were relaxed at the end of the last decade, promoting deregulation. Therefore bad debtors were often funded through the secondary market, an unregulated “shadow market” adding a systemic risk to financial markets through intensifying the problem of information asymmetry (Schneider & Kirchgässner, 2009).

The shadow market conjunct with financial innovation was largely responsible for the large housing bubble, and the emerging economies provided liquidity to that unsustainable market. Finally the market participants lost their confidence and in August 2007 the interbank lending market was frozen. The Great Recession starts.

9.2 Onset of the Great Recession

The crisis started in the U.S. in midst of 2007 when assets backed by subprime loans were largely recapitalized by their holders and plummeted in value. The crisis worsened with the fall of big institutions, such as Bear Stearns, which was rescued in March of 2008 by JP Morgan; Fannie and Freddie Mac, which was bailed out and partially nationalized by the Federal Reserve Treasury in July of 2009; Lehman Brothers, which filed for Chapter 11 bankruptcy on September 15, 2008; and American International Group (AIG), which was bailed out and nationalized on September 16, 2008 (Bordo, 2008). The stock markets reacted harshly on the news, the Dow Jones Industrial Average declined to its twelve years low of 6,626 in March 2009. The massive destruction of household wealth led to a sharp decline in consumer, as well as investment expenditures.

Soon the crisis became an international twist, affecting nearly all economies around the globe. For example, in Iceland three of the major banks had problems to refinance their short-term debt and collapsed, in Belgium two of the largest banks, Fortis and Daxia, collapsed, Latvia asked the IMF for a financial bailout of EUR7.5 billion and the country was later down-graded to BB+, or “junk” by Standard & Poors (Bordo, 2008). But are these international events attributable to the financial crisis that started in the U.S.? Reinhart (2008) argues that causality and cause should not be mixed up, since some countries had their own underlying problems,

such as New Zealand having a homegrown housing bubble. But she also confesses that other countries, such as Germany or Japan have been hard-hit by problems created in the U.S. She asserts that German and Japanese banks were seeking for high returns in the U.S. subprime market, unsuspecting the underlying risks.

The following chapters will shed light on the causes of the Great Recession. While at this point in time (November of 2009) it is still hard to fully realize the realm of market failures and policy errors, this paper will attempt explore the roots of the current recession and compare them to the roots of the Great Depression of the 1930s. The following chapter will also analyze the crisis from different angles, because there is not one reason for crises. But the crisis unveiled fundamental misconceptions of the growth path starting in 2001.

10. A neoclassical explanation

10.1 Technology shock

Is a technology shock responsible for the Great Recession? Assuming that the causes of the recession are similar to those of the Great Depression, the answer is, “only little.” Bernanke (2000) said: “No one...seriously maintains that the Great Depression was primarily caused by technological shocks to industry production functions.” So will the same hold for the Great Recession? Yes, it is probably true that the major cause of the Great Recession is not a technology shock, rather malfunctions in the financial markets. But there is clear evidence that productivity declined before 2007, especially in the construction industry. The productivity losses are parts of the puzzle that explains the misallocations of scarce resources.

Analyzing the data of labor productivity in the U.S. and Europe (see figure 14), it is clear that labor productivity growth has stagnated in Europe, especially in Germany and France, since 2006. Interestingly, the country from which the Great Recession spread, the U.S., does not exhibit such a decline in productivity. Further research reveals that one sector in particular, construction, did experience a decline in productivity growth (see figure 15). An OECD report (2009) on productivity reveals “disconnections between the productivity trends and the price and financing conditions in the construction and housing services.” At the same time when productivity in the construction industry was declining in the U.S., the construction of new dwellings, the house prices, and – most alarmingly – the issuance of mortgages experienced a

peak. Consequently an excess supply of money went into an unsustainable and unproductive business sector.

The decline of overall productivity in Europe could be another factor leading to the Great Recession. An explanation given by Jagannathan, Kapoor, and Schaumburg (2009) is that much of the benefit of technological innovation did not stay in the U.S., but accrued in emerging market economies, such as India and China, who were target countries for the outsourcing of manufacturing and services. But the puzzle of productivity is less clear than other factors explaining the Great Recession. One reason is that few data on productivity is yet available. An analysis of very aggregated data by itself is not helpful in explaining the multiple causes. (This could explain why today there is not a lot of research done on technology shocks explaining the Great Recession.)

Technology shock was not a single the cause of the Great Recession, as at was during the Great Depression. However, the combination of a malfunctioning credit market misallocating funds, and the productivity losses in the construction industry both contributed to unsustainable market conditions. Policy-makers and economists analyzing the Great Recession should not only restrict their effort to the flaws in the financial market, but they should also insure that certain markets require deregulation or if innovation needs to be stimulated.

10.2 Monetary and fiscal policy shock

A monetary contraction was one of most important factors explaining cause of the Great Depression. During the Great Depression, policy makers unfortunately failed in the face of a 25% unemployment rate, to reverse the trend of the monetary contraction. According to many economists, the monetary contraction made the Great Depression longer and more severe than it might have been otherwise. Did policy makers learn from their possible mistakes during the Great Depression? Considering the large interest rate cuts and drastic fiscal policies, policy makers learned from the Great Depression that a positive monetary and fiscal policy shock must be undertaken in order to expand the monetary base and revive the economy. However, the question that must be raised is whether the large fiscal injection will help. It is important to answer that question, since current corrective measures taken by policy makers could be very costly to society and effect generations to come. Poor decisions made by policy makers could also restrain decisions made by policy makers in the future.

Counteracting a major recession, policy makers have two ways to react: either with monetary policies or fiscal policies. With monetary policies, central banks control the supply, the availability, and the cost (interest rates) of money. Different monetary policy tools are available to central banks, such as open market operations, discount rates, reserve requirements, interest rate policies, etc. (Federal Reserve, 2005). With fiscal policies, the government uses spending or revenue collection to influence the economy. Different fiscal policy tools are available to governments, such as a deficit spending shock, deficit financed cuts, and a balanced budget spending shock (Sullivan, Sheffrin, 2003). How were these tools used in the Great Depression and the Great Recession? Eichengreen and O'Rourke (2009) compare the use of policy tools of the Great Depression with that of the Great Recession. Their finding is clear: "the policy response is very different."

Figure 11 compares central banks' reaction to the crises with monetary policies. Comparing the interest rates cuts during the two crises, what stands out is that policy makers responded with a more drastic cut of interest rates during the Great Recession. In the 1930s, policy makers were not aware that a monetary contraction was responsible for the economic slowdown. Moreover, interest rates were elevated in 1931-1932 to defend currencies against a speculation attack, which happened to the Britain in the early 1930s. Consequently the monetary supplies, thanks to monetary policies, increased at a faster rate during the Great Recession, while one observes a monetary contraction during the Great Depression (see figure 10)⁶.

Figure 11 compares the fiscal policy reaction in the Great Depression to the crises. Comparing the budget deficits during the two crises, it stands out that during the Great Recession, unlike in the Great Depression, policy makers were willing to undertake more drastic activities when taking measures to improve the economic situation. Figure 12 emphasizes today's reactions of governments worldwide, inducing huge fiscal stimulus packages into the business sectors. Such a coordinated worldwide policy reaction is unique in economic history. So how did the ideology shift emerge?

Feldstein (2009) describes the historical emergence of the ideological shift and points out that a key lesson learned from the Great Depression was the willingness to run government

⁶ At a later point we will discuss that policy makers decisions were dependent on the monetary system. We will see that countries on gold standard were more restricted in their policy reaction than countries off gold standard.

deficits changed after the Great Depression. Keynes especially contributed to that shift with his General Theory, recommending governments increase government purchases during economic recessions. The idea of fiscal policy stimulating economy were harshly attacked by economists in the late 1940s. One of Keynes' biggest critics was Milton Friedman who argued that government purchases crowd out private consumption and that the lag between the decision of an expansionary fiscal policy and its actual effect are too long. Consequently it was argued that fiscal policy puts undesirable debt on the shoulders of future generations and puts an undesirable increase in demand on rapidly expanding economies. However, since the beginning of the Great Recession, policy makers have returned to Keynes' ideology of fiscal stimulus. Feldstein (2009) said: "As recently as two years ago there was a widespread consensus among economists that fiscal policy is not useful as a countercyclical instrument. Now governments in Washington and around the world are developing massive fiscal stimulus packages, supported by a wide range of universities, governments, and businesses". The monetary base in the U.S. alone (see figure 13) was increased from USD 854 billion in August of 2007 to USD 2,024 billion in November of 2009. That jump of 237% in two years equals the same increase of 15 years, from August of 1992 to August of 2007. However, "it has been argued that fiscal policy is unlikely to boost output today because it didn't work in the 1930s" (Almunia, Bénétrix, Eichengreen, O'Rourke, & Rua (2009).

According to some expert authors, fiscal policy is not effective, since the root problems, such as decreases in household debt, unsustainable production, and output in declining sectors, are not be addressed. Lacking demand simply cannot be replaced by government purchases. But various economists, including Christina Romer, a student of the Great Depression and the Chair of the Council of Economic Advisors in the Obama administration, disagree.

Examining the effectiveness of fiscal policy, economists seek after the most reasonable assessment of the multiplier, a ratio of output increase to purchase increase. Results are varied: Hall (2009) estimates a multiplier around 0.7 to 1.0, while other authors estimate it at around 0.8 (Barro, 1981), even 1.2 (Ramey, 2008). Auerbach (2009) argues that fiscal policy has "significant macroeconomic impact." Furthermore, he asserts that the large size of the package

of the American Recovery and Reinvestment Tax Act (ARRA)⁷ of 2009 is the right approach. He argues that there is uncertainty about the size of multipliers attached to different parts of the package, so the fiscal injection should rather be large.

Auerbach as well as Alumnia, Bénétrix, Eichengreen, O'Rourke, and Rua argue that a fiscal stimulus package would have made a difference during the Great Depression, but it was not deployed in a sufficient manner. In the 1930s, governments were overly concerned with keeping the fiscal house in order. Ritschl (2005) and Schön (2007) find this is true for European countries as well. Neither Nazi Germany nor Sweden, countries in which Keynesian ideas were popular, had a budget deficit large enough to stimulate the economy. But in the late 1930s, when ideology drifted to socialism in many countries, fiscal policy shows increasing popularity and success especially in Europe. Mussolini's Italy, indebted as a result of the war in Ethiopia, had budget deficit of 10 percent of GDP from 1936-1937, leading to a GDP growth of 6.8 percent in 1937 and 7.3 percent in 1938; the economy moved to full employment (Auerbach et al., 2009). Similarly in France, the government increased the budget deficit in 1935. GDP grew beginning in 1936 to 1939 from 5.8 percent to 7.2 percent. Germany is another example of fiscal policy. Adolf Hitler is speculated to have been elected because he undertook huge infrastructure projects such as the construction of highways; he was successful in decreasing unemployment (King, Rosen, Tanner, & Wagner., 2008). It must be noted that most of the fiscal stimuli are associated with military expenditures, which went toward World War II.

In support of a fiscal intervention, Feldstein asserted that the current downturn is different from previous recessions and that monetary policy alone will not help. He argues that (i) the interest rates were at a relatively low level when the Great Recession emerged, while in the Great Depression the Fed raised interest rates; as a consequence the economy fell into a recession. (ii) Bond rates and mortgage rates remained high despite a very low level of interest rates during the recession. The latter factor becomes more dramatic with the low level of housing prices (Figure 6) since house starts are like a "kick start" for the economy.

Romer (2009) also favors the fiscal stimulus saying that consumers and businesses are "not in the mood to spend" and short-term interest rates are effectively zero, leaving no room for

⁷ The American Recovery and Reinvestment Act of 2009, abbreviated ARRA (Pub.L. 111-5), is an economic stimulus package enacted by the 111th United States Congress in February 2009. The measures are nominally worth \$787 billion.

conventional monetary policy. She draws conclusions from the Great Depression and says that fiscal policy helps even if interest rates are zero. During the Great Depression peoples' fear of deflation made the cost of borrowing very high, thus monetary expansion was good for the economy. But she warns policy makers against cutting back the fiscal policy too early, since that has happened in the U.S. in 1937, which led America to a second recession. She recommends that policy makers should wait until the recovery "takes on a life of its own": rising output generates rising investment and inventory demand; and confidence and optimism replace caution and pessimism.

But Mountford and Uhlig (2009) argue on the contrary. Although they confess that a "deficit-financed expenditure stimulus is possible," the eventual costs of the fiscal stimulus are likely to be higher than the benefits. The authors discovered that the tax hike required to re-finance the fiscal stimulus results in a GDP drop of more than seven percent.

In conclusion, the environment of the Great Recession is different from that of the Great Depression, and we can hardly draw conclusions for monetary and fiscal policy makers due to two reasons. First, interest rate policy was different in Great Depression. In order to undermine speculation, central banks increased interest rates and tightened monetary policy during the Great Depression. In the Great Recession, interest rates were relatively low at the beginning and even lower during the crisis. Second, fiscal policy was rarely used during the Great Depression. Although in the late 1930s budget deficits became popular due to a decrease in unemployment. Countries like Italy even moved to full employment.

Two thoughts regarding fiscal policy must be considered. The first regards the consequences about debt burden. Policy makers were very possibly correct to react with fiscal policy, since monetary policy by itself becomes less effective with interest rates at the zero. However, the historically unique size of fiscal policy may threaten future generations (Auerbach, & Williams, 2009), who will be burdened with higher tax payments, making their work less profitable. The lesson from the Great Depression is that too little fiscal policy is bad, but perhaps the lesson of the Great Recession will be that too much fiscal policy is bad.

The second thought is about the unfortunate event of World War II, which followed the Great Depression. The huge fiscal deficits countries were accumulating were created with military buildups, thus countries were forced into a war in order to violently re-balance the fiscal house. Chances of another world war have hopefully evaporated after the dramatic experiences

of the last century. Wars are not only about land, property and resources, however, but rather about shares of trade in globalized economies. As is discussed in the next chapter, fiscal policy becomes less effective in an open economy. Thus the challenge for policy makers is to globally coordinate fiscal policies in order to avoid drifting apart in trade wars and protectionism.

10.3 Trade shock

Trade shock partly explains the Great Depression. But can a trade shock also explain the Great Recession? Trade has become an important contributor to the wealth of nations. In 1960, merchandise trade accounted for 18% of world's GDP, while in 2008 merchandise trade accounted for 53% of world's GDP (see figure 16). Trade has become increasingly important and today is even more important than during the years following the Great Depression. What this means for policy makers is that they must think about the effects of trade restrictions, should they put them in place. The question is: can we expect a decline in trade and if yes, how can we avoid it?

World trade dropped in the first quarter of 2009, and nominal trade fell by an average of 30 percent since last year. These trade declines have been widespread across different countries and industries, largely reflecting the sharp decline in global demand (World Economic, 2009). World trade problem increase when there are trade conflicts, especially between the U.S., Japan, and China. U.S. trade imbalances have been responsible for motivating the Asian economies to expand their production and export more to the U.S. market. Threatened by increasing unemployment, the U.S. has tried to reduce the growth of imports in order to increase domestic production. The situation of trade is strongly reminiscent of the trade situation before the Great Depression. This time, however, the game players have changed their roles. During the Great Depression, the U.S. flooded European markets - especially Germany - with inexpensive, mass produced products. Nowadays China uses its comparative advantage of low labor costs to expand its exports.

Recent trade literature examines the question of global decreases in trade flows. Baldwin and Evenett (2009) point out that "trade is not the cause of the current economic crisis, but is likely to be one of its most important causalities." Freund (2009) underlines their findings with the fact that elasticity of global trade volumes in relation to the real GDP increased gradually from around 2 units in the 1960s to 3 units now. In their attempt at recovering the employment

rate, policy makers tend to protect their domestic economies by increasing trade policies. The edited work of Freund has written many papers that warn policy makers of protecting their domestic economies this way. The resulting trade conflict between the U.S. and China, and the U.S. and Japan, is examined by Bown (2009). The Great Depression, especially the emergence of the Smoot-Hawley Tariff Act, can be compared with the Great Recession.

The Smoot-Hawley tariff represents the high-water mark of U.S. protectionism in the 20th century. Intended to protect domestic farmers, U.S. tariffs on over 20,000 imported goods were raised. As argued earlier, the Smoot-Hawley tariff impaired the U.S. economy and slowed its recovery during the Great Depression. In April of 2009, worldwide policy-makers sent a positive signal to those who feared another era of protectionism. The London G20 Summit communiqué says: “We [...] reaffirm our commitment to fight all forms of protectionism and to reach an ambitious and balanced conclusion to the Doha Development Round.” But did the world community hold its promise?

The data provided by the WTO Secretariat measuring tariff water, which is defined as the average bound tariff minus the average applied tariff – or simply the exhaustion of granted tariffs by the WTO – implies relief. Since, although still having negative GDP growth rates, trade bounds are not fully reached. Messerlin (2009) thus praises the effectiveness of the WTO, but at the same time he warns of early conclusions. Remarkably, the developed world has nearly no tariff waters (applied tariffs nearly equal bound tariffs), while the emerging countries do. Messerlin distinguishes between the WTO’s policies and a world trade regime’s practices, and criticizes countries with tariff waters who have not aligned their bound tariffs to the applied tariffs at the WTO. Messerlin sets this as a goal for the next series of Doha negotiations. He also criticizes the goal that was set at the London G20 Summit, since no benchmark exists to measure “slippage to protection.”

There is evidence for a slippage to protectionism. In September of 2009, the Obama Administration imposed a 35% import duties increase on Chinese tires. This was adopted under the framework of transitional product-specific safeguard (TPS).⁸ Messerlin warns that this could open the gate to new cases since it is much easier to impose measures under the TPS than under

⁸ The TPS made it legally easier for WTO members to impose safeguard measures against Chinese exports until 2014 (for a detailed description from a legal perspective, see Andersen and Lau [2001]).

other WTO safeguards. This view is similarly shared with Bown (2009), who has investigated the status quo of antidumping patterns since October 2009. Bown found evidence that industry demand for new import barriers continued to increase in the third quarter 2009 by 52.6%, in comparison to the same period in 2008. He refers to WTO data that measures newly initiated investigations in which domestic industries request the imposition of new import restrictions under trade remedy laws (see figure 17). Will global trade experience another phase of trade restrictions, as was imposed by the Smoot-Hawley tariff act?

Governments today will increase trade restrictions just as they did during the Great Depression. But since the policy framework has changed since then, the reasons for implementing the restrictions have also changed. Eichengreen and Irwin (2009) discovered that during the Great Depression, countries that did not leave the predominant monetary system – at the time, the gold standard - resorted to tariffs, import quotas, and exchange controls to a greater extent than countries that went off gold standard. Moreover, countries that left the gold standard had a greater choice of policy actions, such as cutting interest rates to reduce unemployment, where central banks could act as a lender of last resorts. They did not have to use “imperfect macroeconomic tools” such as trade restrictions to ameliorate the Great Depression. But the gold standard is abolished, so what is today’s malfunctioning policy framework?

Today, the application of fiscal policy leads policy makers into a dilemma. On the one side, Eichengreen and Irwin send a clear message to today’s policy makers: “avoid protectionism, stimulate.” They assert that the current policy range is richer than during the Great Depression since (i) fiscal policy is an instrument that was not understood during the Great Depression, (ii) and monetary stimulus negatively affected the neighboring countries of the U.S. during in the 1930s. The situation today is changed. Because of other crises, fiscal stimuli have been successfully proven. On the other side of the discussion, authors discuss the complication of spilling fiscal policy, which means that due to increased integration of economies, domestic fiscal policies stimulate not only domestically, but also internationally. Such a thing happens if, for example, consumers buy imports instead of domestic products from fiscal injections. So, they conclude, the danger of protectionism is still there, and the temptation is bigger for those countries that actively stimulate their economy. As a solution, he stresses that policy-makers should coordinate their fiscal and monetary measures to overcome the vicious circle of beggar-thy-neighbor policies.

In conclusion, we have seen that slippage to protectionism still exists in today's economic environment, although the world is much more dependent on trade. However, the large fiscal stimulus packages increase the attractiveness of slippage to protectionism. But it needed long time to decrease the barriers of trade and so to flourish world trade and wealth. Consequently, policy makers should rather cooperate than fall into protectionism.

11. Other reasons

11.1 Failures of financial markets and debt deflation

Did failures in the financial markets create the Great Recession? Eichengreen (2008) explained the Great Depression as “a tendency for the investment-banking division run by individuals with high risk tolerance to gamble the funds of small retail depositors that led to the bank runs and failures that converted a garden variety recession into the Great Depression.” Following the heated debates about the financial sector after the outbreak of the Great Recession, it might be the case that policy makers have not learned their lessons from the Great Depression by imposing stricter regulation on “gambling.” However, as Eichengreen points out, the Great Recession resulted from a problem with financial normalization and that innovation ran ahead of financial regulation.

A source of unregulated speculation during the Great Depression and during the Great Recession was a mechanism that Paul McCulley, managing director of the investment company PIMCO, coined in 2007 as “shadow banking.” Hayek (1931), who published his work “Prices and Production” during the Great Depression describes a phenomenon that is similar to recent scientific observations: “The past instability of the market economy is the consequence of the exclusion of the most important regulator of the market mechanism, money, from itself being regulated by the market process.” He describes that besides money, another form of medium of exchange may spring up and perform the same service as money. Given the convertibility to real money, how could that medium of exchange intoxicate the financial system without the attention of policy makers during the Great Recession? And in which form did it occur? It is necessary first to understand the emergence of the current regulations of the U.S. banking system.

The U.S. Congress took the lesson of Hayek seriously in 1933 when it established the Glass-Steagall Act that tightened regulation of the U.S. financial markets. In order to avoid conflicts of interest, and thus to protect household deposits, the mixing commercial banking and

investment banking in one house was crushed. But the Glass-Steagall Act was repealed in 1999. The debate about the abolishment of the Act dates back to a hearing in 1987 (Jackson, 1987), in which the U.S. Congress advocated against the preserving of the Act due to four reasons: (i) foreign financial institutions and unregulated security firms take market shares of U.S. banks; (ii) conflicts of interest can be separated by forming “distinctly separate subsidiaries of financial firms”; (iii) by their very nature, banks seek low risk security activities, thus reduce the total risk of the organization; (iv) in other countries institutions operate successfully in both banking and securities market. As a consequence of the repeal of the Glass-Steagall Act, a new “medium of exchange” was created that poisoned the global financial markets.

Trade instruments in the form of structured investment vehicles (SIV), such as mortgage-backed securities and collateralized debt obligations, emerged on the shadow market in 1999, unregarded by the U.S. policy regime. The strategy of the SIV is to issue short-term, low yielding commercial papers (asset side of the SIV) and collateralize them with high yielding securities (debt side), such as mortgage papers. The systemic risk inherited in these investment vehicles is the obligation to roll over liabilities after their maturity by issuing new commercial papers. Such an issue is a problem if the market becomes illiquid, which is what happened in 2007. The problem intensified with the fact that, in order to increase profitability, banks levered these vehicles with debt. (Eichengreen, 2008). But why did the market become suddenly illiquid?

A huge part of the SIVs were backed with mortgages, which became unattractive with increasing foreclosures rates. A report presented to Congress (U.S. Department of Housing, 2009) on the root causes of the crisis pinpoints three major reasons for these foreclosures (Figure 16): (i) the widespread slowdown in house price growth (Figure 6); (ii) weak economic conditions in selected market areas; (iii) substantial growth in the volume of risky loans. Realizing the toxic nature of the SIVs that were backed up with home owners' with loans they were unable to pay their debts, investors were unwilling to buy these mortgage-backed securities. This led to fire sales of the subprime mortgage papers.

The explanation of fire sales goes back to the theories of Fisher (1933), who argues that an excess supply of cash flows of debt securities created a speculation bubble. The U.S. households were deeply indebted due to low interest rates and the monetary flows from Bretton Woods II (see figure X). In the Great Recession, the credits were often backed with mortgages, so they were dependent on house prices. But once the housing speculation bubble burst (see figure 18),

banks tried to get rid of bad credits triggering a downward spiral of debt values. As a consequence, banks were not willing to provide firms with credits, because the banks feared declining debt values. So entrepreneurs are not able to employ the labor force, which leads to a rise in unemployment.

Friedman and Schwartz (1971) found similar evidence for the banking crisis of the Great Depression. First, they attribute the call money market in New York as a major source of the root causes of the Great Depression. Call money was impersonal and investors were unable to distinguish between speculation and commercial purposes. The same is true for SIVs, since the buyer cannot oversee the credit worthiness of the collateral. Second, huge amounts of bad loans were created during the Great Depression. During this era, farmers' land was over-mortgaged and when the corn prices declined due to large international imports, the debts defaulted. Many rural banks failed, also, which triggered nationwide bank runs. The same is true for the Great Recession. Beginning in 2005, U.S. home prices declined due to weak economic conditions, thus creating a situation in which mortgage loans defaulted.

The Pecora Commission (Richie, 1975), established by the U.S. Senate Committee on Banking, Housing, and Urban Affairs, which investigated the Wall Street Crash of 1929, found that one of the reasons for the excess in speculation is the practice of banks to underwrite unsound securities in order to pay off bad loans. For example, National City packaged bad loans into securities and sold them to unsuspecting investors in Latin American countries. Similarly, the subprime mortgage papers were sold worldwide during the Great Depression, forcing whole economies, such as Iceland, into bankruptcy.

Krugman (2008) asserts that shadow banking was the "core of what happened" to cause the Great Recession." As the shadow banking system expanded to rival or even surpass conventional banking in importance, politicians and government officials should have realized that they were re-creating the kind of financial vulnerability that made the Great Depression possible -- and they should have responded by extending regulations and the financial safety net to cover these new institutions. Influential figures should have put forth a simple rule: "anything that does what a bank does, anything that has to be rescued in crises the way banks are, should be regulated like a bank." But what can policy makers do to remedy that "malign neglect" (Krugman, 2008)?

In conclusion, the repeal of the Glass Steagall Act of 1933 caused problems that forced commercial banks to compete with investment banks, increasing competition, and inducing them

(commercial banks) to increase profitability by entering high leveraged security activities and forcing them to move liabilities off their balance sheets. Due to financial globalization, the pressures on profitability are contagious. Banks worldwide have invested in SIVs, and therefore bad loans, as if it was a risk free medium of exchange, but they have failed. One might argue that the problem is the lacking control of the financial sector. However, financial innovation, per se, is beneficial to society if it eases access to capital markets and lowers transaction costs (which justifies a higher premium for bank services). But if financial innovation becomes a measure to conceal risk it is harmful. And the shadow market, which emerged in 1999, is a perfect market for selling such harmful innovation.

Consolidated regulation, like the Glass Steagall Act, might be one option to control the shadow market, but it brings up the Congress debate of 1987. Today it is well known that Congress wrong when it argued that commercial banks are seeking low risk opportunities, which argue for a re-establishment of Glass Steagall. The argument of foreign competition still holds and has even gained in weight with financial globalization. But even if competition against the U.S. banking system decreases, the tradeoff is great: stability for the global financial system. Such stability is the foundation for the continued existence of Bretton Woods II.

11.2 Uncertainty shock

According to some economists, another key source of the current economic weakness is uncertainty, which is responsible for the harmful postponement of investment and hiring decisions for firms. Romer (1990) pointed to the fact that the Wall Street Crash of 1929 “generated temporary uncertainty about future income which led consumers to forgo purchases of durable goods.” Can similar effects be observed during the Great Recession?

Based on data on the Great Depression, Romer’s uncertainty hypothesis predicts an inverse relationship between consumer purchases on durable goods and uncertainty about future income, assuming that certainty about future income is a function of stock market volatility. Greasley, Madsen and Oxley (2001), using different measures of uncertainty, expand Romer’s hypothesis asserting that uncertainty also affects nondurable expenditures. Recently, a growing body of works suggest different ways of measuring uncertainty. Some of the most recent papers are by Bloom, Floetotto, and Jaimovich (2009), who concentrate on uncertainty modeled as the variance of innovation in a firm; Bloom (2009), who studies high-frequency uncertainty shocks; Justiniano and Primiceri (2008), focusing on low-frequency movements in volatility; and

Fernandez-Villaverde, Guerro, Rubio-Ramirez and Uribe (2009) who examine uncertainty in the exchange rate. Increased uncertainty with a measure proposed by Mishkin (1991) and Favero (2009) will be discussed later on.

Mishkin proposes a measure that reflects the monthly spread between the rates of a bond with high quality, such as a ten-year treasury bond, and a bond with lower quality, such as Moody's Baa bond. Since the bond price reflects the investor's personal belief about the soundness of the underlying asset, the spread is a measure of uncertainty in markets. If investors believe that funds are misallocated, they would rather invest their money in more high quality assets. Figure 24, showing GDP change expenditures on consumer durables and the Aaa-Baa spread, shows that measuring uncertainty is a good proxy in the Great Depression and the Great Recession for an economic decline. Favero (2009) measures uncertainty with the spread between Moody's Seasoned Baa Corporate Bond rates and Moody's Seasoned Aaa Corporate Bond yield. The result is striking (see figure 19 and 20): during the Great Depression uncertainty is more pronounced than during the Great Recession; policy makers were relatively powerless. However, Caballero (2008) suggests that policy makers should react fast with adding additional economic stimulus, since waiting makes things worse and adds uncertainty.

Increased uncertainty explains the credit crunch that occurred during both recessions better than any other explanation, since banks were unwilling to lend money out. Mishkin (1997) attributes the problem to increased information asymmetry. Lenders are not be able to distinguish between sound and unsound credit risks if uncertainty increases. Thus the problem of adverse selection accelerates since information will be distributed even more asymmetrically. Mishkin supposes that the fail of the Bank of United States in 1930, which is said to have started at the collapse of banking during the Great Depression, increased uncertainty. Similarly, the bankruptcy of Lehman Brothers in 2008, which started with the closing of its subprime lender BNC Mortgage in August of 2007, can be attributed to increased unease about the Great Recession. For investors it became unclear: was the credit risk of BNC idiosyncratic or systemic? Lehman Brothers filed for Chapter 11 bankruptcy protection on September 15, 2008. Interestingly uncertainty among U.S. citizens increased by .94 percent from September of 2009 to October of 2009, tthe largest increase observed since April 1934. In the same year, expenditures on consumer durables declined by 5.6 percent, the largest drop since 1958. But compared with a drop of 32.2 percent, the fall is still modest.

Bordo (2008) criticizes the Fed for a wrong method of addressing the problems of the Great Recession. The Fed “emphasized on providing liquidity to the market when that is not the answer to the problem of the market’s uncertainty about solvency of individual or sectoral firms. No financial market can function normally when basic information about the solvency of market participants is lacking.” The mortgaged-backed securities were seen as a systemic risk with the bankruptcy of Lehman Brothers. Bloom et al. (2007) argue in a similar way, since according to their findings uncertainty shocks typically reduce the responsiveness to monetary and fiscal policies of companies by more than half.

In conclusion, the Great Depression, like the Great Recession, increased uncertainty, which was observable in an increased spread between Aaa and Baa corporate bonds, and was a strong signal to the start of a financial crisis. However, increased uncertainty is not a cause of the recession, but a causality. The cause of the both the Great Recession and the Great Depression is located in the risky business models of banks that invested in unsustainable businesses. Because of this, a shift in focus must occur to take in the failures of the financial sector, since – according to the hypothesis of uncertainty – bad banking activity creates not only uncertainty, but paralyzes the real economy.

11.3 Underconsumption theory

The question approached in this chapter is whether or not the underconsumption theory can explain the Great Recession of 2007–2009. The underconsumption theory states that overproduction occurred because fewer buyers are willing to purchase produced goods and services. The rationale behind the theory is that productivity gains are not shared with the masses, so relative wages decline, and consumption decreases. But the underconsumption theory fails to explain the Great Recession, since we have instead observed overconsumption. In the U.S., the consumption rate, measured as percentage of GDP, remained relatively stable in face of declining wages and salaries (see figure 21⁹). This implies an increase in consumption, which is observable in the saving ratio (see figure 22). Why did consumers not cut back consumption if their wages declined?

The nominal increases of asset values, such as securities or property, have made the average U.S. citizen wealthier. And they felt wealthier, at least until the dramatic decline of the

⁹ Relative wages were decreasing in the U.S. from 2001 to 2005, while consumption increased.

Dow Jones, and in consequence a general drop of asset prices, occurred in late 2007. It is important to understand how the asset values impact the propensity to consume. The lesson for policy makers is clear: avoid excessive speculation in the markets. That rule, policy makers should have learnt from the Great Depression, but somehow the same failure, easy money policy that resulted in market speculation, was repeated.

Per capita consumption in the U.S. grew at a steady rate of roughly USD 1,994 per year between 1980 and 1999, but jumped abruptly to approximately USD 2,849 per year from 2001 to 2007. The increase happened despite the recession of 2001. In fact, households spent more than they earned (Jaganathan, Kapoor, Schaumburg, 2009). Table 8 shows the personal consumption over GDP that increased from 1998 from 67% to 70%, while personal income decreased slightly from 86% to 85%. Friedman (1957) explained in the permanent income hypothesis the relationship between income and consumption.

The permanent income hypothesis is a theory of consumption developed by Friedman (1957) that describes the relationship between consumption and longer-term income expectations. The key conclusion of the theory is that transitory, short-term changes in current income have little effect on consumption patterns. Instead, mark a value change of consumer's assets, such as physical (securities, or property) and human (education and experience), and determine the propensity to consume. An analysis of the prices of asset values in the U.S. before the financial crisis is important to take into consideration.

Jagannathan, Kapoor, and Schaumburg (2009) refer to the income hypothesis when explaining the effects of perceived increase in real estate wealth on the consumption patterns. Housing is a leveraged asset for the average household, which means that a USD 1 increase in the value of housing acts like a multiplier on consumption. Campbell and Cocco (2007) investigate in a paper the fluctuations of housing price that happen through (i) a wealth channel (ii) changes in borrowing constraints, which effect households that are homeowners as opposed to households that are renters. House price increases have a positive wealth effect on homeowners, but a negative one on renters. The findings have especially impacted the U.S. economy, since home ownership has been one of the key elements of the American dream. Today, 67% of all U.S. citizens are home owners(U.S. Census Bureau).Home prices (see figure 18) fluctuated hugely from 2002 to 2005, and home prices more than doubled. This is a partial

explanation of the boom before the crisis. But it also explains the recession, since house prices fell by almost 40% from 2007 to 2009.

In conclusion the underconsumption theory does not explain the emergence of the Great Recession, although we observe a similar phenomenon of wage inequality. Increased trade has majorly impacted wage inequality, not unshared profitability gains. However, underconsumption was definitely not a factor that caused the Great Recession, but perhaps it will explain a demand shock that occurs in the future.

11.4 Monetary system

Does today's monetary system produces negative effects on the world economy such as the gold standard in the Great Depression did? Many economists have found evidence that the gold standard was harmful because it forced unintentionally contractionary monetary policies to be implemented into countries on the gold standard. Also the weak international institutions did not permit inward-looking politics, such as "beggar thy neighbor" policies. The gold standard was the channel that was responsible for the propagation of the Great Depression. Does such a channel still exist today? It is important to answer such a question since the Great Recession is like a stress test on the monetary system, which reveals misconceptions. From these policies, there should be an improvement in the international monetary policy framework.

The experiences of the Great Depression substantially shaped today's global financial system. In July of 1944, major economies ratified the Bretton Woods Agreements, empowering the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD), a forerunner to the World Bank. The monetary system that was implemented was similar to the gold standard, obliging countries to peg their currency to gold. But the system collapsed in 1971 after the Bretton Woods the dollar became the reserve currency for international transactions. With the economic opening of the former communistic bloc, a new monetary system emerged, which is sometimes referred as "Bretton Woods II." In their paper, Dooley, Folkerts-Landau, and Garber (2003) describe the characteristics of this monetary system. It is composed of a "center country" (the U.S) and a fixed exchange rate "periphery" (the emerging market economies). The development strategy of the periphery countries is "export-led growth by undervalued exchange rates, capital controls and official capital outflows in the form of accumulation of reserve asset claims on the center country." Consequently, the strategy lead to huge account deficits for both the developed (trade deficit) and emerging economies (trade

surplus). Table 9 shows current accounts of developed and emerging economies, and reflects the authors' findings. Emerging economies accumulate a huge trade surplus, contrarily the U.S. has a huge trade deficit.

Bernanke (2007) denotes the period starting in 1996 as “global saving glut,” Afraid of the forces of financial markets, which appeared during Asian financial crisis of 1997, the Asian emerging economies accumulated enormous amounts of reserve currencies and conducted a tight fiscal policy in order to forgo heavy currency fluctuations. The result was the Bretton Woods II system: China and other emerging economies financed the excess consumption of the U.S. A quotation of Jacques Rueff (1965) depicts the behavior of the U.S.: ”Let me be more positive: If I had an agreement with my tailor that whatever money I pay him returns to me the very same day as a loan, I would have no objection at all to ordering more suits from him.” Bernanke discusses the question whether that system has structural problems controversy. On the one side he argues that these global imbalances are not problematic, since (i) they reflect the attractiveness of the U.S. economy; (ii) current account balances can reduce recessions or inflation since the demand fluctuations absorb each other in the global system; (iii) U.S. liabilities to foreigners do not represent a problem since they are relatively small in comparison to other industrial economies. On the other hand, he admits that (i) the U.S. faces a demographic problem of over-aging, so in order to finance future pensions the U.S. needs to increase its savings rate; (ii) the willingness of foreigners to hold U.S. assets are limited and the ability to serve debt service payments are limited; (iii) a reduction in trade induces costly adjustments of shifting resources, from the export oriented sectors to sectors that produce goods for the domestic market and vice versa.

Referring to Bernanke's latter argument, some economists predicted at the outbreak of the Great Recession, the downfall of Bretton Woods II. But Dooley, Folkerts-Landau, and Garber have not found evidence for the predicted downfall in their paper published in February of 2009. They assert that when foreign savings were transferred from the U.S. to other countries, real interest rates in the U.S. should increase, while in other economies they should fall. Figure 14 conversely shows interest rates have even fallen since 2009, although they increased slightly to 4.375% for 30-year U.S. treasuries in September of 2009. But the hope of falling interest rates, rising asset prices, and a higher saving rates that correct the U.S. deficit, which would induce a new “pattern of demand” in which resources are shifted to the export sectors, did not occur.

The relative stability of the U.S. economy during the last decade, its sheer size, the fact that the U.S. dollar still is the world's number one reserve currency (of which the U.S. itself is the largest stakeholder), and the U.S.' developed capitalistic system facilitating investment are all reasons the Bretton Woods II is not breaking down. But the façade will crumble with the fading away of the U.S. dollar as a reserve currency. Whether intended by policy makers¹⁰ or not, the dollar has experienced two periods of depreciation since 2006, showing a particularly clear decline in the demand for U.S. dollars. Moreover, increasing demand for gold, which is framed by the recent transaction of the Reserve Bank of India, who bought USD 6.7 billion worth of gold, could start a long-term trend of a decline in the U.S. dollar. Policy makers have confirmed the beginning of this trend. During his visit to the Asian countries in November of 2009, U.S. president Barack Obama requested Asian economies to depreciate their currencies in order to foster a recovery of the American economy. But how successful will the efforts be if the USD serves as a benchmark for many other currencies?

In March of 2009, Zhou Xiaochuan (2009), governor of the People's Bank of China, gave a speech in which he asked the world to reform its monetary system: "The frequency and increasing intensity of financial crisis suggests that the costs of such as system to the world may have exceed its benefits." He described the policy dilemma for the reserve currency issuing country, since on the one side it must achieve domestic monetary policy goals, but on the other hand it must supply the trade-conducting countries with money. Implicitly criticizing the U.S., he argues that the "issuing country" will either oversupply the world with currency due to stimulating domestic demand, or undersupply the world due to an ease in domestic inflation pressures. He recommends the implementation of Keynes' idea of the "bancor", a world currency. The idea is partly realized with the special drawing rights (SDR), issued by the IMF, but Xiachuan wants to give it a greater role.

This paper has argued that the Bretton Woods II monetary system has similarities with the gold standard of the Great Depression. To be sure, monetary policies are intertwined with each other. But in the Great Recession we see that the U.S. monetary policy does not impact the domestic monetary policy of other countries. Rather, it impacts the world trade. The emerging

¹⁰ To recover consumption, Feldstein (2009) suggests "a fall in dollar value, either spontaneous or planned, that is large enough to eliminate today's large trade deficit, thus boosting exports and substituting American made goods and services for imports from the rest of the world".

economies are too dependent on the core country, the U.S., which shows that as long as U.S. consumption is stable, Bretton Woods functions and generates wealth for the developed and emerging economies. But since U.S.' consumption has dropped, the Asian countries have experienced a sharp decline in output. What is the solution?

The aversion of Bretton Woods II is imminent in a global economic recovery. Since the monetary system is not stable in itself, the monetary flows are strange. Investment should flow from the developed world to the developing, and not vice versa. How else can the emerging economies develop if there is no investment in their markets? Such a proposition would require developing countries to give up capital controls and let their currencies appreciate in order to increase the purchase power necessary to invest in technology and education. The U.S. needs to shift resources to financing export products which, sold to the developing world, will help strengthen their domestic business structures. An alternative reserve currency would ease the realization of an urgent economic transition. During the Great Depression, the gold standard hampered the economies of a quick recovery because it took away space needed for a new development strategy. The Bretton Woods II does this today. Revive the bancor!

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Appendix

Year	GDP	M1	Percentage unemployed
1929	100	100	3.2
1930	91	97	8.9
1931	86	91	16.3
1932	73	79	24.1
1933	71	75	25.2
1934	78	82	22.0
1935	88	97	20.3
1936	97	111	17.0
1937	105	116	14.3
1938	99	115	19.1
1939	107	128	17.2

Table 1: U.S. basic statistics, 1929 – 1939

M1=monetary base; GDP=gross domestic product

Source: U.S. Department of Commerce, Historical Statistics of the United States, Colonial Times to 1970 (Washington D.C.: Government Printing Office, 1975); and Federal Reserve Bulletin, December 1959.

Table 2: Germany basic statistics, 1929-1939

Year	Industrial Production	M1
1929	100	100
1930	86	97
1931	68	94
1932	53	83
1933	61	81
1934	80	89
1935	94	91
1936	106	97
1937	117	104
1938	126	n.a.

Source: Christian Saint-Etienne, La France dans la grand crise, 1929-1939 (Ph.D. diss., Sorbonne, 1981); author's calculations based on League of Nations data.

Year	GDP	M1
1929	100	100
1930	97	112
1931	93	118
1932	89	115
1933	93	108
1934	93	107
1935	90	100
1936	91	109
1937	96	118
1938	96	138

Table 3: France basic statistics, 1929-1939

Source: Jean Jacque Carré, Paul Dubois, and Edmond Malinvaud, La Croissance française (Paris: Seuil, 1972).

Year	GDP	M1
1929	100	100
1930	100	103
1931	95	97
1932	95	108
1933	96	107
1934	103	109
1935	107	115
1936	110	123
1937	115	125
1938	118	123

Table 4: U.K. basic statistics, 1929-1939

Source: C.H. Feinstein, National Income, Expenditure and Output of the United Kingdom, 1885-1965 (Cambridge, Eng.: Cambridge University Press 1972).

Business cycle reference dates		Duration in months			
Peak	Trough	Contraction	Expansion	Cycle	
Quarterly dates are in parentheses		Peak to Trough	Previous trough to this peak	Trough from Previous Trough	Peak from Previous Peak
	December 1854 (IV)	--	--	--	--
June 1857(II)	December 1858 (IV)	18	30	48	--
October 1860(III)	June 1861 (III)	8	22	30	40
April 1865(I)	December 1867 (I)	32	46	78	54
June 1869(II)	December 1870 (IV)	18	18	36	50
October 1873(III)	March 1879 (I)	65	34	99	52
March 1882(I)	May 1885 (II)	38	36	74	101
March 1887(II)	April 1888 (I)	13	22	35	60
July 1890(III)	May 1891 (II)	10	27	37	40
January 1893(I)	June 1894 (II)	17	20	37	30
December 1895(IV)	June 1897 (II)	18	18	36	35
June 1899(III)	December 1900 (IV)	18	24	42	42
September 1902(IV)	August 1904 (III)	23	21	44	39
May 1907(II)	June 1908 (II)	13	33	46	56
January 1910(I)	January 1912 (IV)	24	19	43	32
January 1913(I)	December 1914 (IV)	23	12	35	36
August 1918(III)	March 1919 (I)	7	44	51	67
January 1920(I)	July 1921 (III)	18	10	28	17
May 1923(II)	July 1924 (III)	14	22	36	40
October 1926(III)	November 1927 (IV)	13	27	40	41
August 1929(III)	March 1933 (I)	43	21	64	34
May 1937(II)	June 1938 (II)	13	50	63	93
February 1945(I)	October 1945 (IV)	8	80	88	93
November 1948(IV)	October 1949 (IV)	11	37	48	45
July 1953(II)	May 1954 (II)	10	45	55	56
August 1957(III)	April 1958 (II)	8	39	47	49
April 1960(II)	February 1961 (I)	10	24	34	32
December 1969(IV)	November 1970 (IV)	11	106	117	116
November 1973(IV)	March 1975 (I)	16	36	52	47
January 1980(I)	July 1980 (III)	6	58	64	74
July 1981(III)	November 1982 (IV)	16	12	28	18
July 1990(III)	March 1991(I)	8	92	100	108
March 2001(I)	November 2001 (IV)	8	120	128	128
December 2007 (IV)			73		81
Average, all cycles:					
1854-2001 (32 cycles)		17	38	55	56*
1854-1919 (16 cycles)		22	27	48	49**
1919-1945 (6 cycles)		18	35	53	53
1945-2001 (10 cycles)		10	57	67	67
* 31 cycles					
** 15 cycles					

Table 5: U.S. economic fluctuations, 1857-2007¹¹

Source: NBER, Initials. (2008). Business cycle expansions and contractions. Retrieved November 23, 2009 from <http://www.nber.org/cycles>.

¹¹ Contractions (recessions) start at the peak of a business cycle and end at the trough.

Year	Fiscal expenditure
1929	100
1930	106
1931	108
1932	130
1933	99
1934	144
1935	98
1936	130
1937	92
1938	87

Table 6: Index of U.S. fiscal expenditure (normalized), 1929-1938

Source: U.S. Department of Commerce, Historical Statistics of the United States, Colonial Times to 1970 (Washington D.C.: Government Printing Office, 1975).

Year	United States	United Kingdom	Germany	France
1929	5.1	14.2	14.4	13.9
1930	4.3	11.5	14.5	12
1931	3.3	8.7	13.8	9
1932	2.9	8.2	10.4	6.5
1933	3.0	8.1	8.5	6.3
1934	3.4	8.4	6.3	6.8
1935	3.3	8.5	5.8	6
1936	3.1	7.5	5.8	5.3
1937	3.9	9.2	6.4	6.8
1938	3.8	8.2	5.1	7.1

Table 7: Share of exports of goods in GDP, 1929-1938

Source: Saint-Étienne, C. (1984). The Great Depression, 1929-1938 (p. 134), Hoover Press.

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Personal consumption/GDP	0.673	0.678	0.686	0.695	0.699	0.700	0.698	0.698	0.696	0.698	0.701
Personal income/GDP	0.856	0.846	0.860	0.864	0.851	0.842	0.837	0.830	0.841	0.845	0.847
U.S. savings rate	0.053	0.031	0.029	0.027	0.035	0.035	0.034	0.014	0.024	0.017	0.027

Table 8: U.S. propensity to consume, 1998 - 2008

Source: Bureau of Economic Analysis, Tables 1.1.2, 2.1, and 1.1.5

Country or region	2004	2005	2006	2007	2008
Industrial	-493.22	-625.814	-686.306	-668.037	-707.003
United States	-665.29	-791.504	-856.661	-834.623	-866.145
Japan	172.07	165.69	170.355	166.586	159.142
Euro area	64.628	8.614	-21.119	-32.732	-52.359
France	-6.966	-33.577	-46.304	-51.972	-58.5
Germany	117.987	128.379	146.361	161.938	164.71
Italy	-15.462	-28.426	-41.604	-43.299	-46.249
Spain	-54.909	-83.001	-108.019	-127.459	-142.416
Sweden	23.978	25.239	28.447	28.06	30.096
Other	-2.312	-7.265	-17.689	-49.78	-58.975
Australia	-38.541	-41.212	-40.856	-46.24	-46.743
Canada	21.277	26.261	21.464	9.351	7.612
Switzerland	50.357	61.417	69.825	68.511	68.139
United Kingdom	-35.405	-53.731	-68.122	-81.402	-87.983
Emerging	201.326	293.519	386.075	407.201	442.655
Asia	165.005	265.747	362.653	401.486	451.814
China	68.659	160.818	238.536	303.651	358.617
Hong Kong SAR	15.728	20.268	19.388	19.449	19.924
India	0.781	-6.854	-19.298	-23.768	-24.568
Russia	58.592	83.348	95.6	72.902	67.797
Taiwan	18.478	16.019	25.187	25.924	27.875
Thailand	2.767	-7.852	3.24	3.328	2.169
Latin America	36.321	27.772	23.422	5.715	-9.159
Argentina	3.158	3.495	5.156	2.893	1.208
Brazil	11.679	14.193	13.648	8.939	3.26
Korea	28.174	14.981	6.093	3.08	-0.166
Mexico	-6.69	-4.897	-1.475	-9.197	-13.461

Table 9: Current account balances

(Billions of USD)

Source: International Monetary Fund, World Economic Outlook Database, April 2007, figures for 2007 and 2008 are estimated.

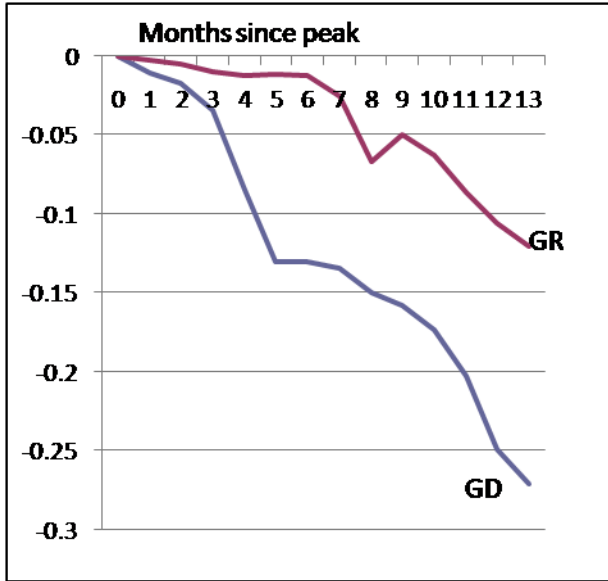


Figure 1: Global manufacturing plunge, now vs. then

GD=Great Depression, GR=Great Recession

Source: Krugman, Paul (2009, March 20). *The Great Recession versus the Great Depression.*

Retrieved November 23, 2009 from *The New York Times Website:*

<http://krugman.blogs.nytimes.com/2009/03/20/the-great-recession-versus-the-great-depression/>

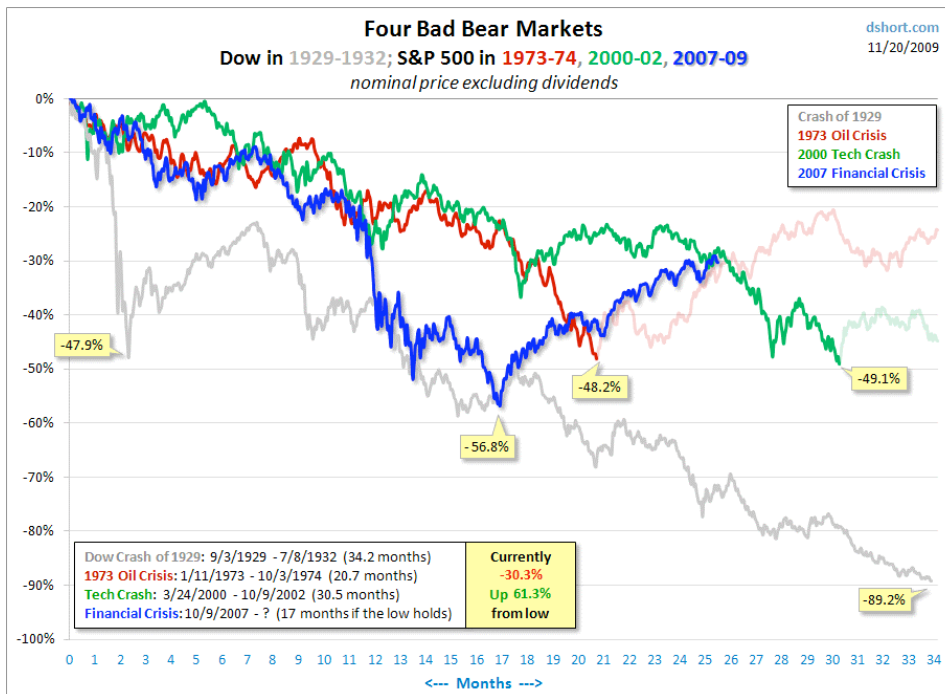


Figure 2: Four Bad Bear Markets

Source: *Four Bear Markets.* (n.d.). Retrieved November 23, 2009 from *dshort.com* web site:

<http://dshort.com/charts/bear-markets.html?four-bears>

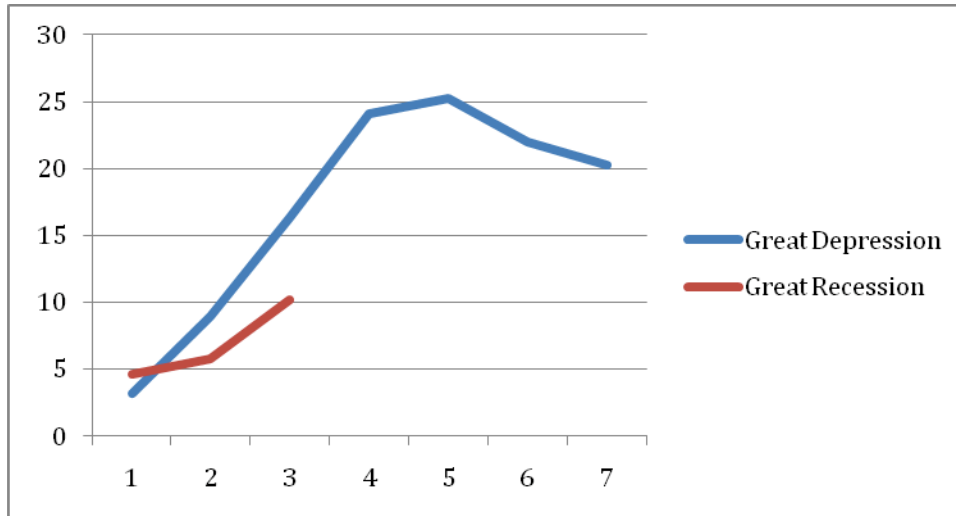


Figure 3: U.S. unemployment, now vs. then

$t_0=1929(\text{GD})/2007(\text{GR})$

Source: U.S. Bureau of Labor Statistics

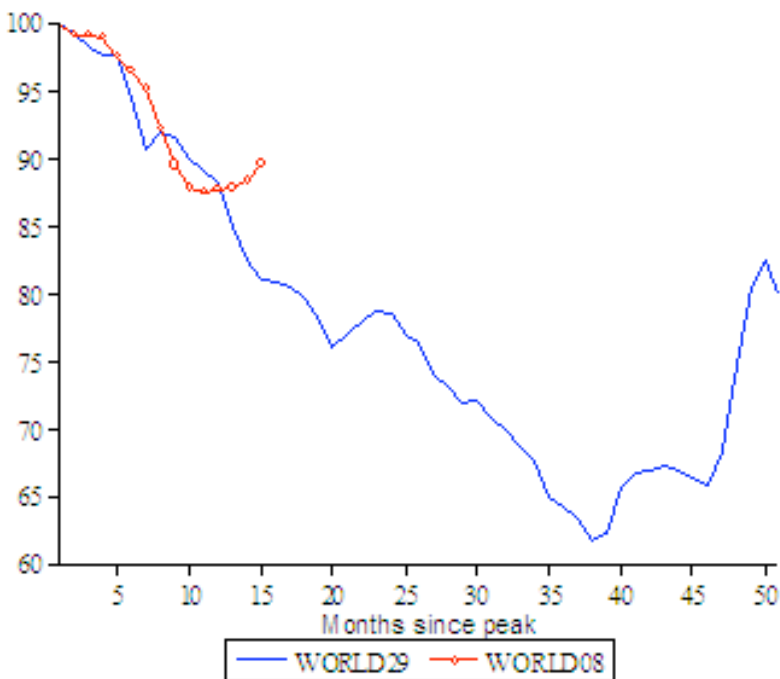


Figure 4: World industrial production, now vs. then

$t_0=1929/2008$

Source: Eichengreen, B., & O'Rourke, K. H. (September 1, 2009). *A Tale of Two Depressions*. Retrieved November 23, 2009 from <http://www.voxeu.org/index.php?q=node/3421>

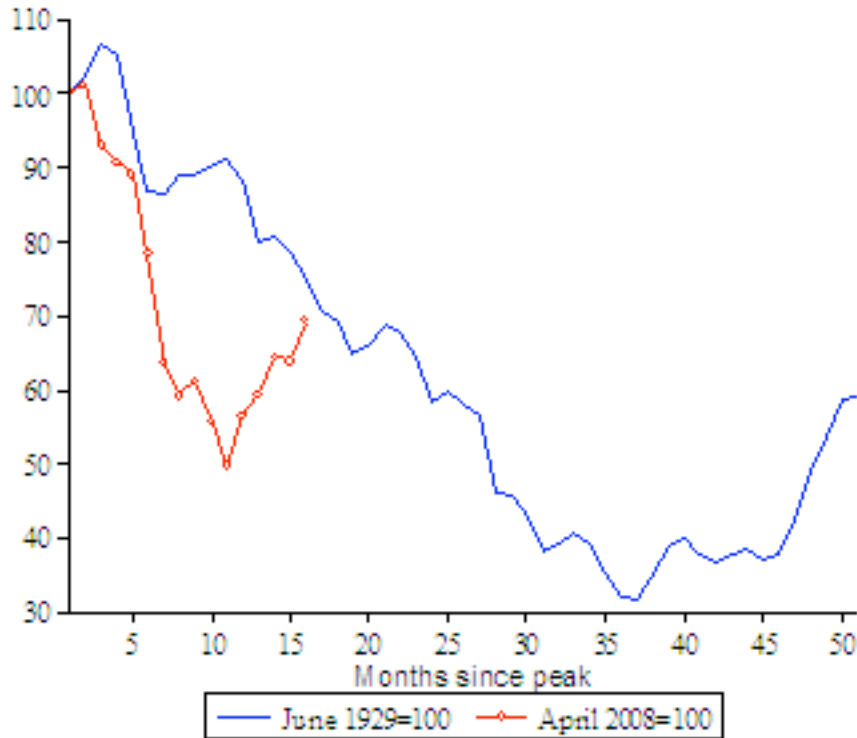


Figure 5: World stock markets, now vs. then

t0=1929/2008

Source: Eichengreen, B., & O'Rourke, K. H. (September 1, 2009). *A Tale of Two Depressions*. Retrieved November 23, 2009 from <http://www.voxeu.org/index.php?q=node/3421>

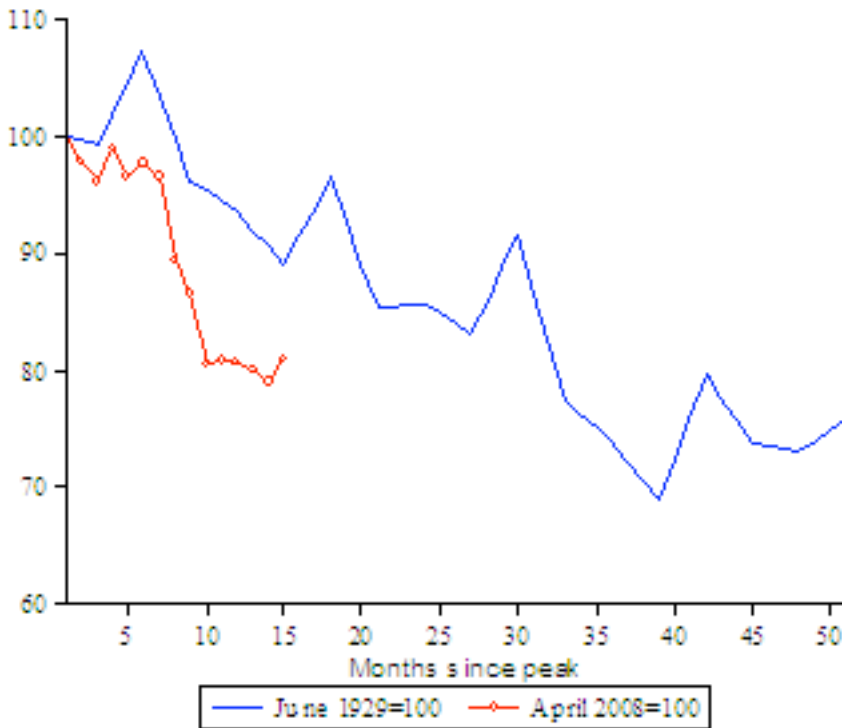


Figure 6: Volume of world trade, now vs. then

t0=1929/2008

Source: Eichengreen, B., & O'Rourke, K. H. (September 1, 2009). *A Tale of Two Depressions*. Retrieved November 23, 2009 from <http://www.voxeu.org/index.php?q=node/3421>

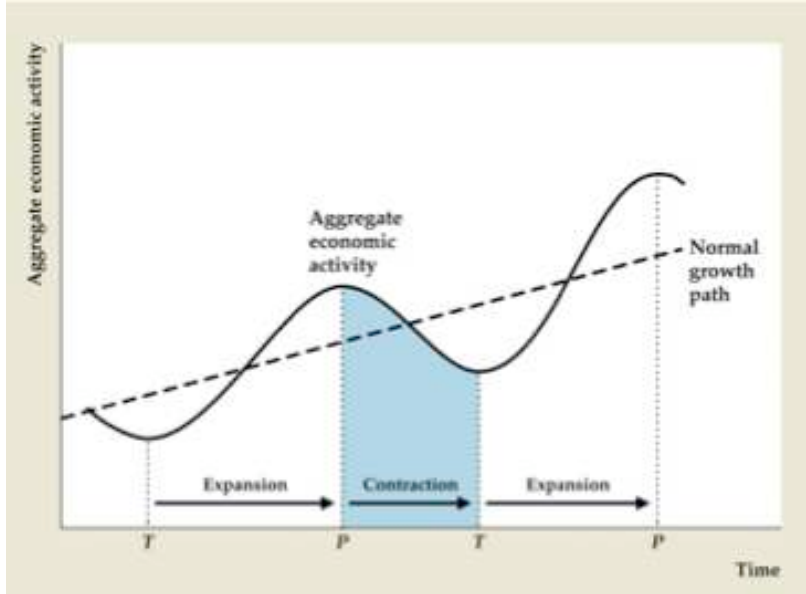


Figure 7: Phases of a business cycle

T=trough, P=peak

Source: Bernanke B., & Abel, A. B. (2000). *Macroeconomics (4th edition)*. Addison Wesley

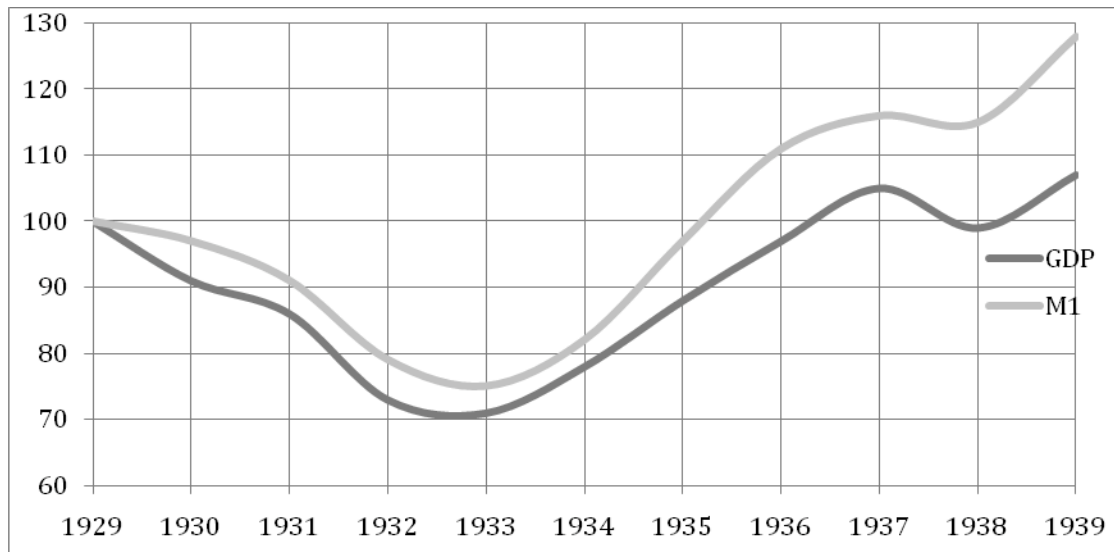


Figure 8: U.S. money supply and real income

Source: See table 1

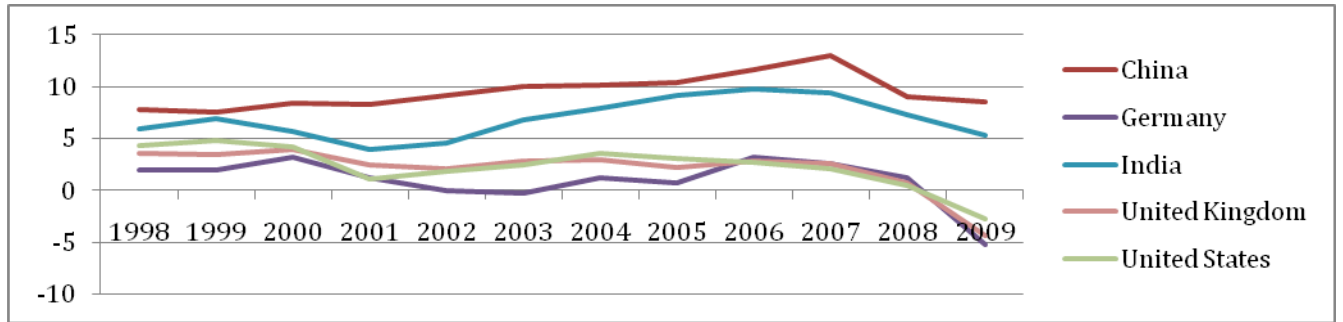


Figure 9: Selected GDPs, 1998 – 2009

Annual percent change

Source: International Monetary Fund, World Economic Outlook Database, October 2009. Note: 2009 is estimated.

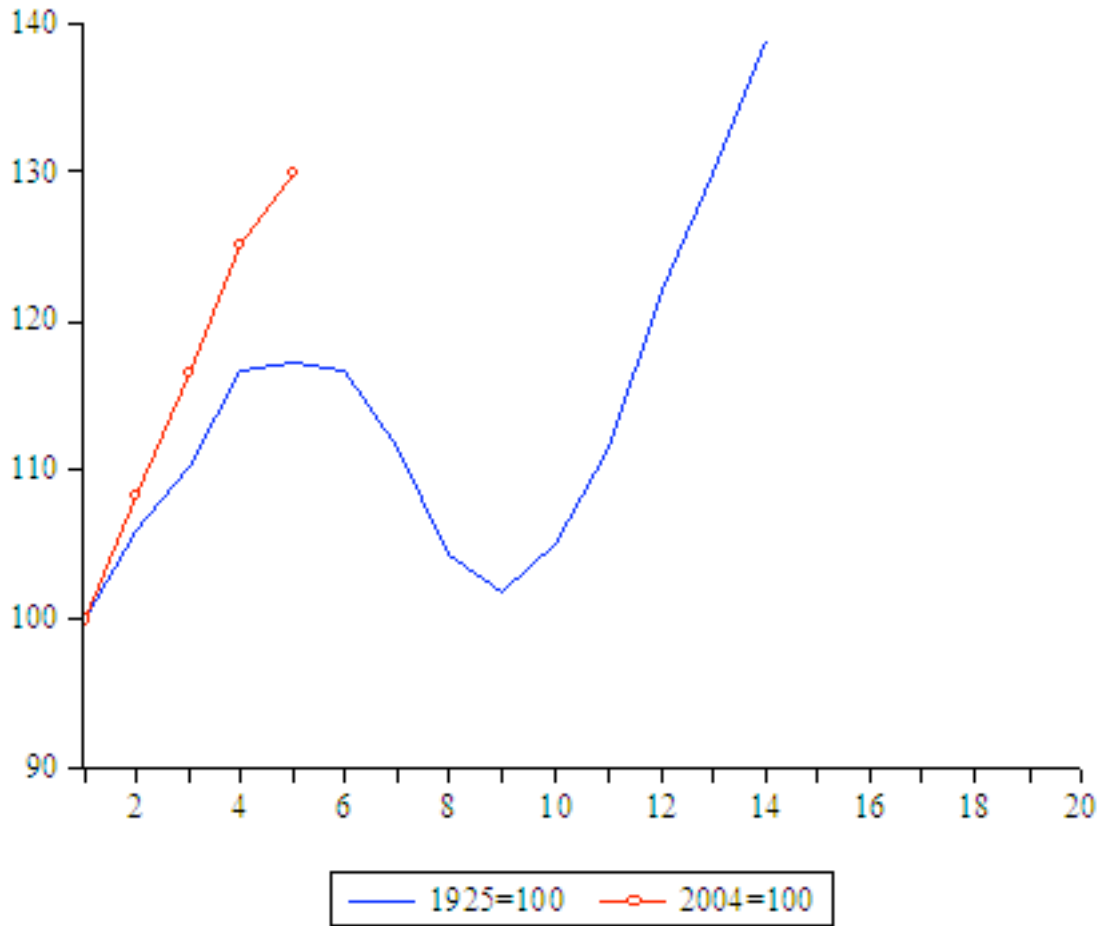


Figure 10: Money supplies, 19 countries, now vs. then
t0=1925/2004

Source: Bordo et al. (2001), IMF International Financial Statistics, OECD Monthly Economic Indicators.

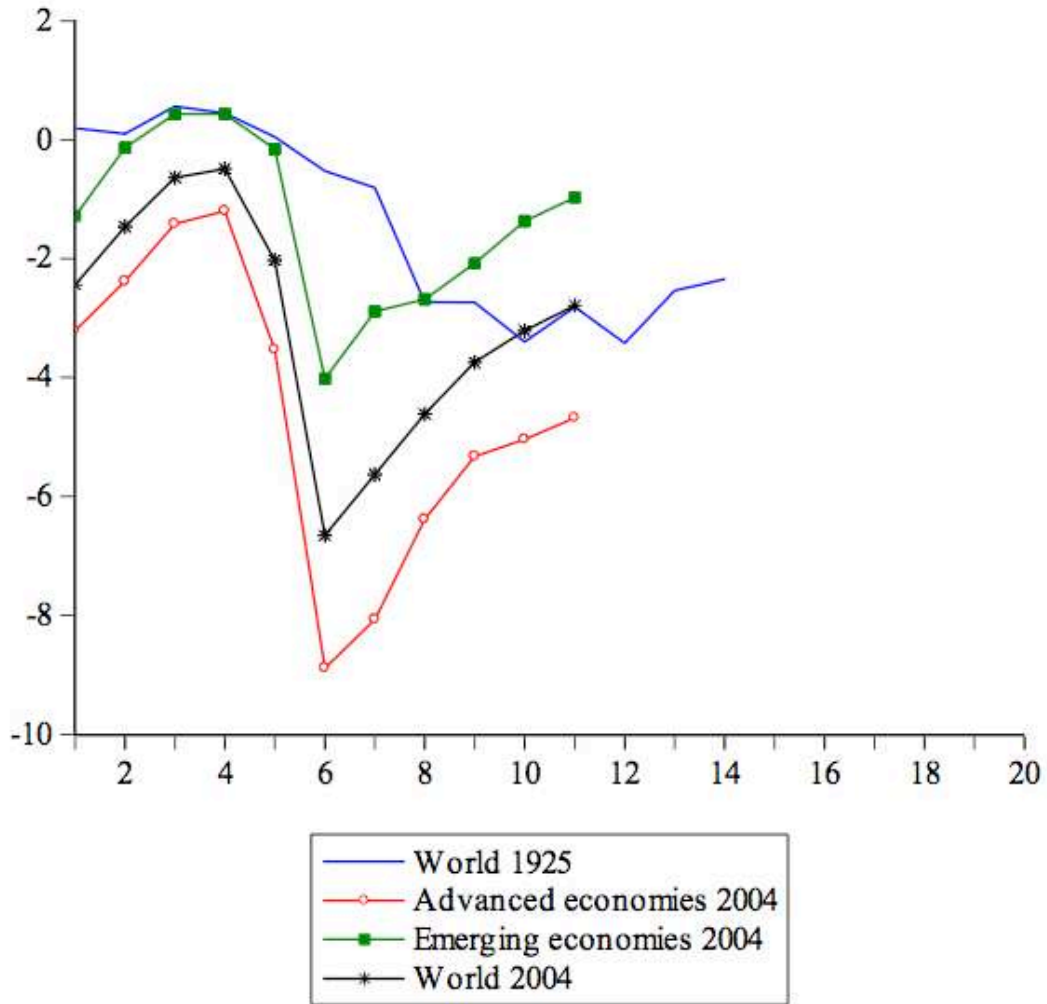


Figure 11: Government budget surpluses, now vs. then

Source: IMF World Economic Outlook, October 2009. Interwar data are a GDP-weighted average for 20 countries; current data are for the world as a whole.

	2008-2010 net effect on fiscal balance ¹			Distribution over the period 2008-2010			Memorandum item: Measures affecting the timing of payments ²
	Spending	Tax revenue	Total	2008	2009	2010	
	Per cent of 2008 GDP			Per cent of total net effect				Per cent of 2008 GDP
Australia	-3.3	-1.3	-4.6	15	54	31	
Austria	-0.3	-0.8	-1.1	0	84	16	
Belgium	-0.6	-1.0	-1.6	0	60	40	-0.1
Canada	-1.7	-2.4	-4.1	12	41	47	
Czech Republic	-0.5	-2.5	-3.0	0	66	34	..
Denmark	-1.9	-0.7	-2.5	0	33	67	..
Finland	-0.5	-2.7	-3.1	0	47	53	
France	-0.4	-0.2	-0.6	0	75	25	-0.5
Germany	-1.4	-1.6	-3.0	0	46	54	
Greece	..	..	..	..	..	..
Hungary	4.4	0.0	4.4	0	58	42	
Iceland	..	..	9.4	0	33	67	
Ireland	0.9	3.5	4.4	15	44	41	0.3
Italy	-0.3	0.3	0.0	0	15	85	
Japan	-1.5	-0.5	-2.0	4	73	24	
Korea	-1.7	-3.2	-4.9	23	49	28	
Luxembourg	-1.9	-1.7	-3.6	0	76	24	0.0
Mexico ³	-2.1	0.8	-1.3	0	100	..	
Netherlands	-0.1	-1.4	-1.5	0	51	49	..
New Zealand	0.0	-4.3	-4.3	5	46	49	
Norway ³	-0.7	-0.1	-0.8	0	100	..	
Poland	-0.6	-0.4	-1.0	0	77	23	
Portugal	..	..	-0.8	0	100	0	
Slovak Republic	-0.5	-0.6	-1.1	0	42	58	-0.8
Spain	-1.9	-1.6	-3.5	31	46	23	-1.0
Sweden	-0.9	-1.8	-2.8	0	52	48	..
Switzerland	-0.3	-0.2	-0.5	0	68	32	
Turkey	..	..	..	..	..	..
United Kingdom	0.0	-1.5	-1.4	15	94	-8	
United States ⁴	-2.4	-3.2	-5.6	21	37	42	
Major seven	-1.6	-2.0	-3.6	17	43	40	
OECD averages							
All (unweighted) ⁵	-0.7	-1.2	-2.0	10	54	37	
All (weighted) ⁵	-1.5	-1.9	-3.4	17	45	39	
Positive stimulus only (unweighted) ⁶	-1.1	-1.6	-2.7	9	53	38	
Positive stimulus only (weighted) ⁶	-1.7	-2.0	-3.7	17	45	39	

Note: cut-off date for information is 24 March 2009.

1. Includes only discretionary fiscal measures in response to the financial crisis. Estimates provided here do not include the potential impact on fiscal balances of recapitalisation, guarantees or other financial operations. It also excludes the impact of a change in the timing of payment of tax liabilities and/or government procurement.
2. Several countries have changed the timing of payment of government procurement and/or tax liabilities. When applying the accrual principle, such measures should not be reflected in the national account data. Still, they affect fiscal balances measures on a cash basis and may have an impact on the economy. They have not been included in the size of fiscal packages.
3. Data not available for 2010.
4. Figures for the United States refer to the federal government. Available information indicates that a few states, including California, have passed restrictive fiscal measures which are not included here.
5. Average of above countries excluding Greece, Iceland, Mexico, Norway, Portugal and Turkey.
6. Average of above countries excluding Greece, Hungary, Iceland, Ireland, Italy, Mexico, Norway, Portugal and Turkey.

Source: OECD.

Figure 12: The size and timing of fiscal packages

Source: *Fiscal Packages (2009)*

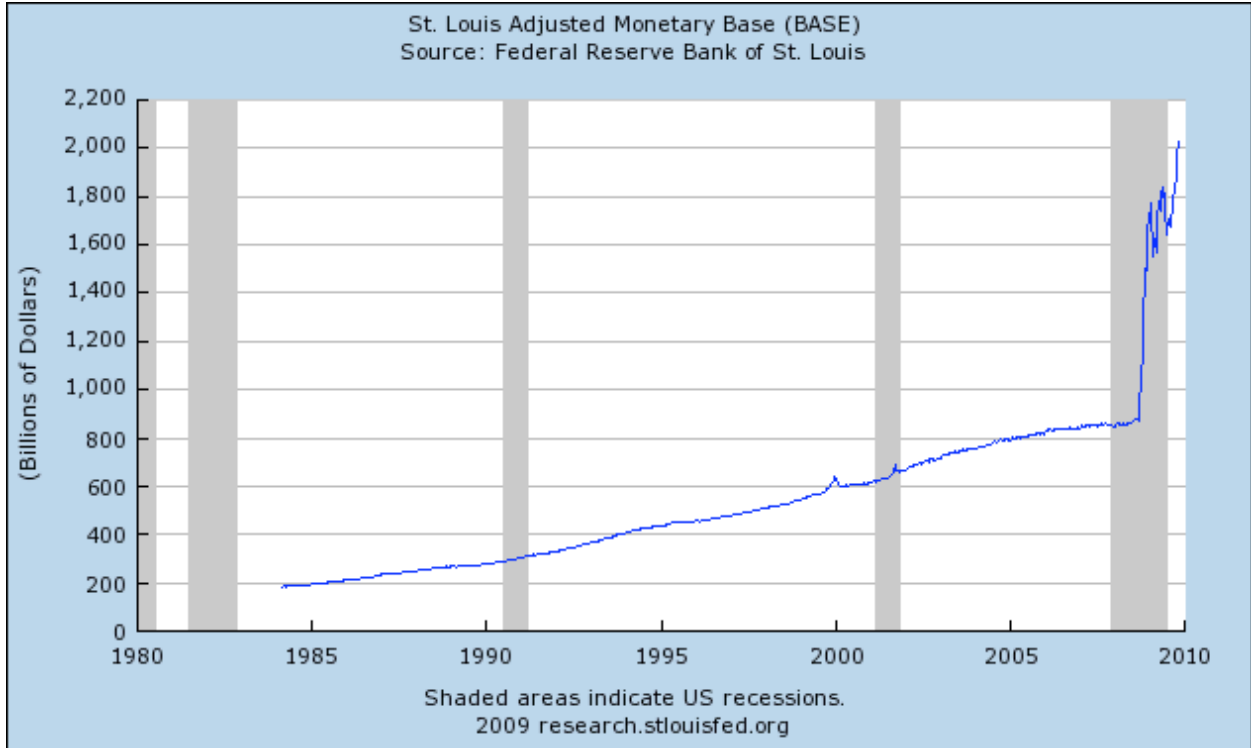


Figure 13: BASE, St. Louis Adjusted Monetary Base

Source: *Federal Reserve Bank of St. Louis*

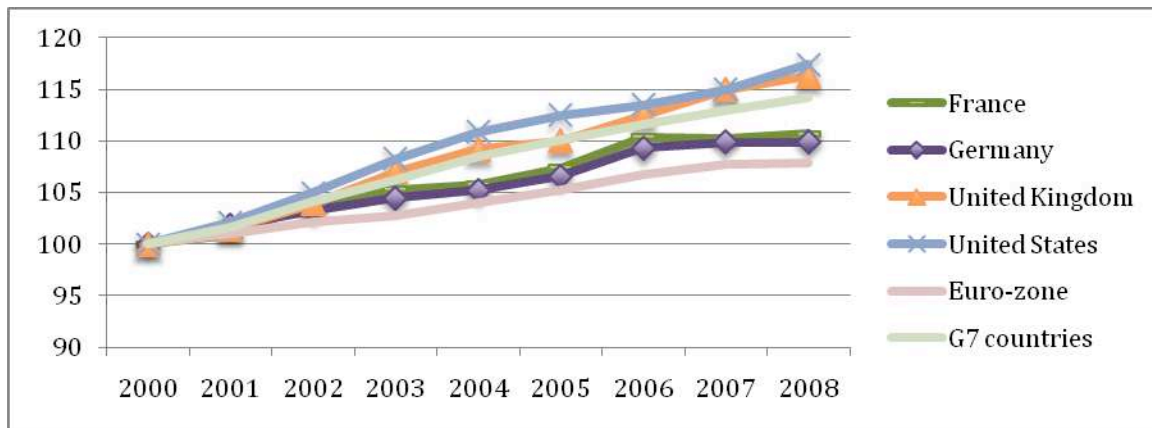


Figure 14: Labour productivity growth, 2000 – 2008

2000=100

Source: *OECD.Stat (Retrieved: November 18 2009).*

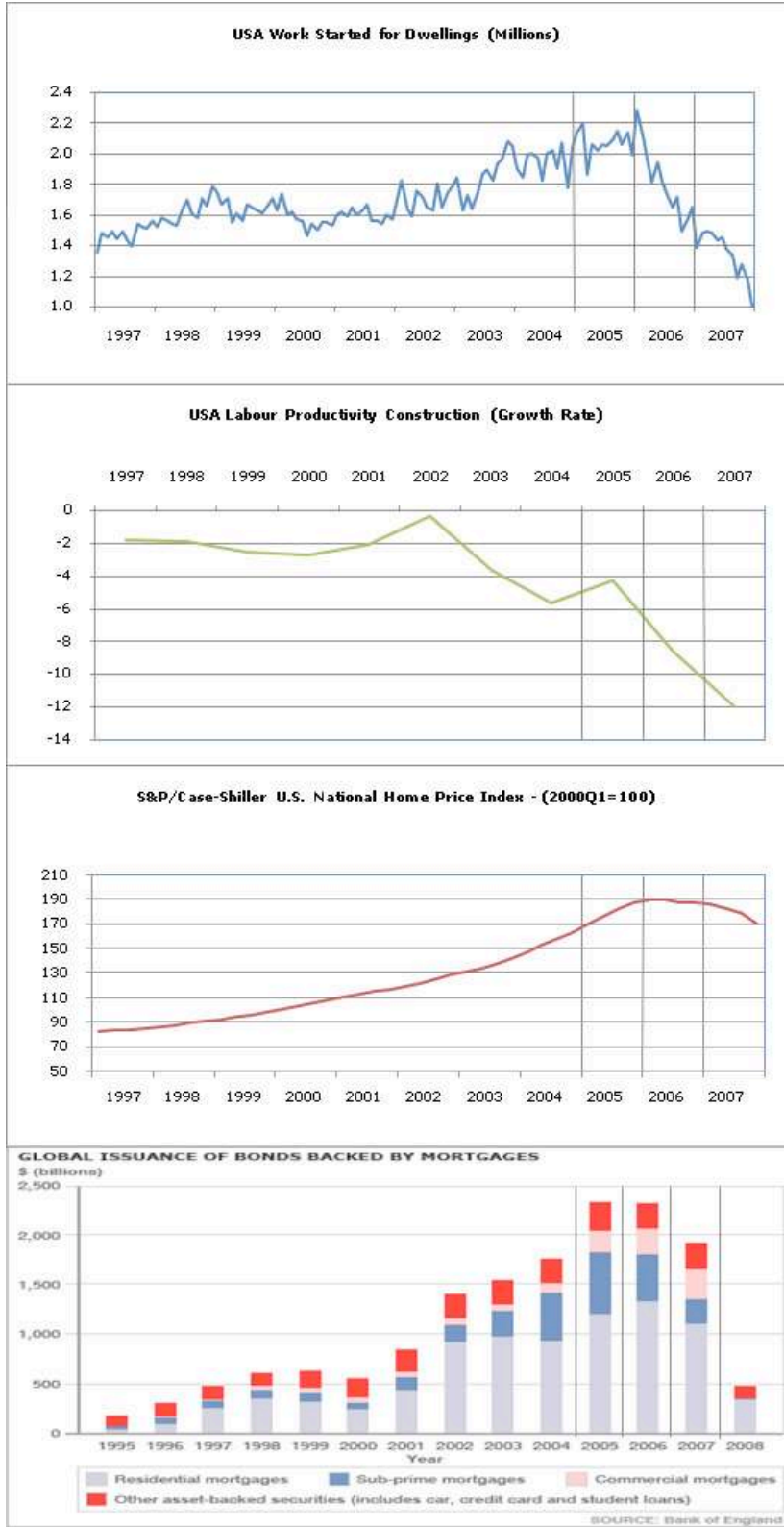


Figure 15: OECD study on productivity in construction

Source: OECD. Retrieved November 23, 2009 from http://www.oecd.org/document/30/0,3343,en_2649_33715_42579358_1_1_1_1,00.html

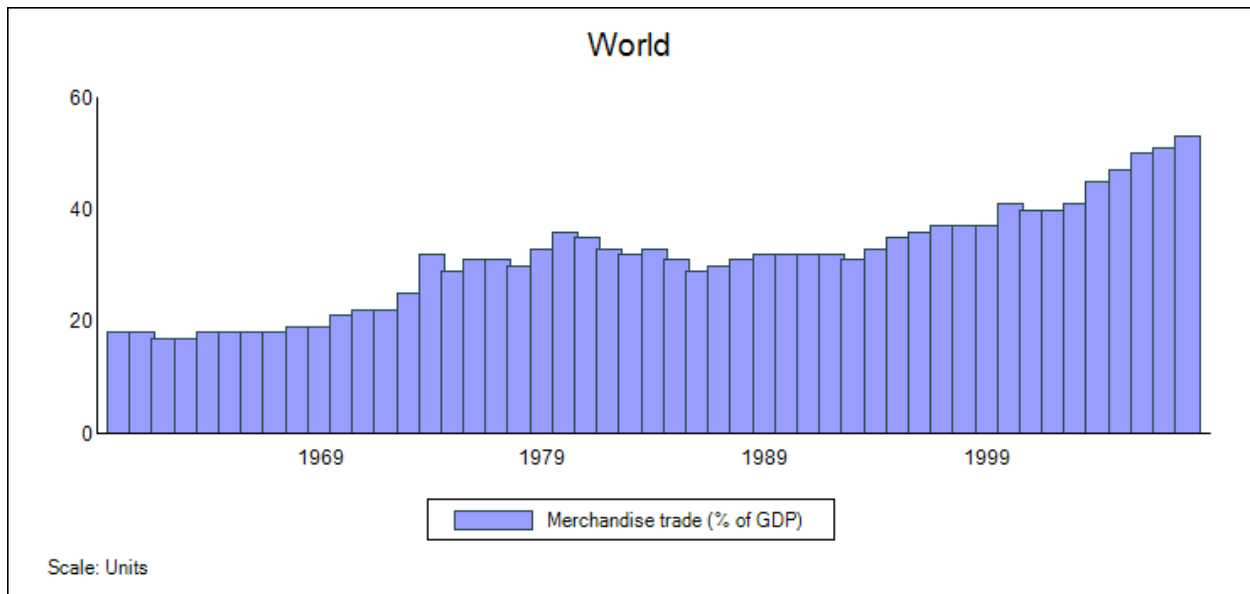


Figure 16: World trade, 1960 – 2008

Table 1. Tariff water and the recent downturn

WTO Members	Industrial tariffs		average tariff water [a]	GDP growth rate [b]	GDP growth rate [c]
	simple average bound tariff (%)	applied tariff (%)			
Section A. The 8 largest WTO Members without "tariff water" [a]					
EU27 [d]	3.9	3.8	0.1	-4,7	-0,5
United States	3.3	3.2	0.1	-3,9	-0,7
Japan	2.4	2.6	-0,2	-6,4	3,7
China	9.1	9.1	0.0	7,9	--
Canada	5.3	3.7	1.6	-3,2	-3,4
Taiwan	4.8	4.6	0.2	-7,5	--
Hong Kong	0.0	0.0	0.0	-3,8	13,9
Macao	0.0	0.0	0.0	--	--
All Section A	4.1	3.0	0.2		
South Africa	15.7	7.6	8.1	0,3	-3,0
Argentina	31.8	12.3	19.5	-0,8	1,1
Thailand	25.5	8.2	17.3	-4,9	9,6
Venezuela	33.6	12.7	20.9	-2,4	--
Malaysia	14.9	7.9	7.0	-3,9	--
Chile	25.0	6.0	19.0	-4,5	-1,4
Colombia	35.4	11.8	23.6	-0,6	2,7
Singapore	6.3	0.0	6.3	-3,5	20,7
Pakistan	54.6	13.8	40.8	2,0	--
Israel	11.5	5.0	6.5	0,1	1,0
Philippines	23.4	5.8	17.6	--	--
Nigeria	48.5	11.4	37.1	--	--
Egypt	27.7	9.2	18.5	4,2	--
NewZealand	10.6	3.2	7.4	--	--
Peru	30.0	9.7	20.3	--	--
Kuwait	100.0	4.7	95.3	--	--
Bangladesh	34.4	14.2	20.2	--	--
All Section B	27.6	7.9	19.7		

Source: WTO Secretariat, Trade Profiles (April 2008). The Economist (September 26, 2009).

Notes: --: information not available. [a] difference between the average bound tariff and the average applied tariff (average "tariff water"). [b] percentage change on year ago, second quarter 2009, except if specified. [c] percentage change on previous quarter, annual rate. [d] for growth rate figures, eurozone.

Figure 17: Tariff water and the recent downturn

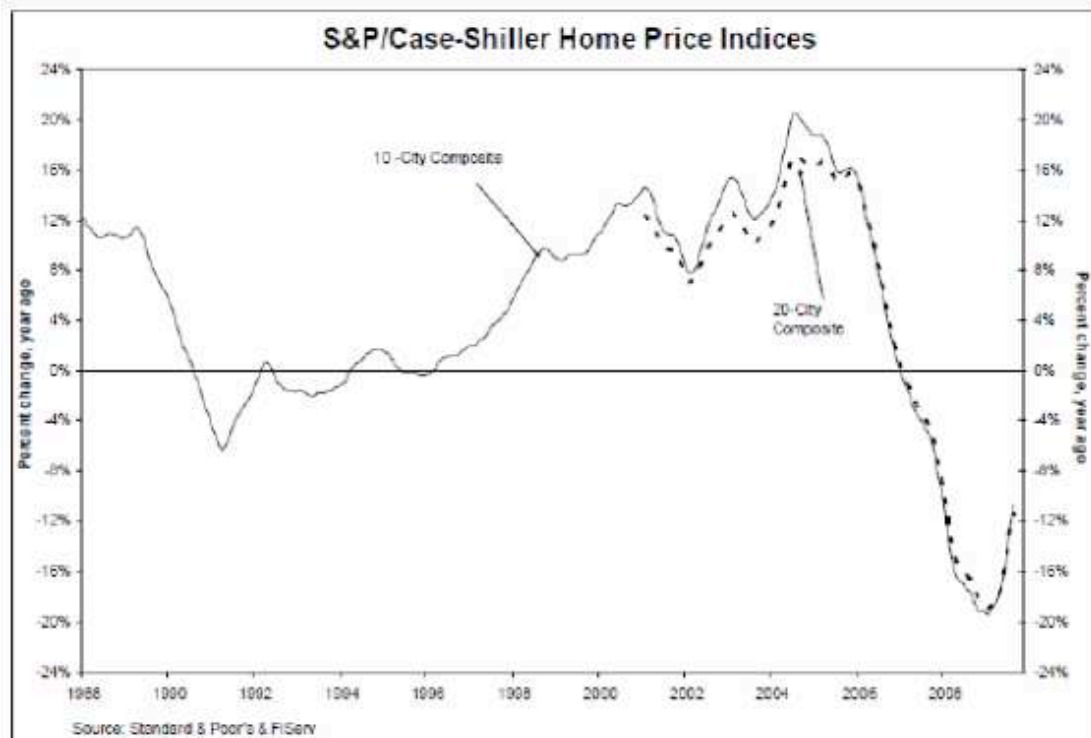


Figure 18: Home price fluctuations, 1986 - 2009

Source: Source: FHFA, Standard & Poors

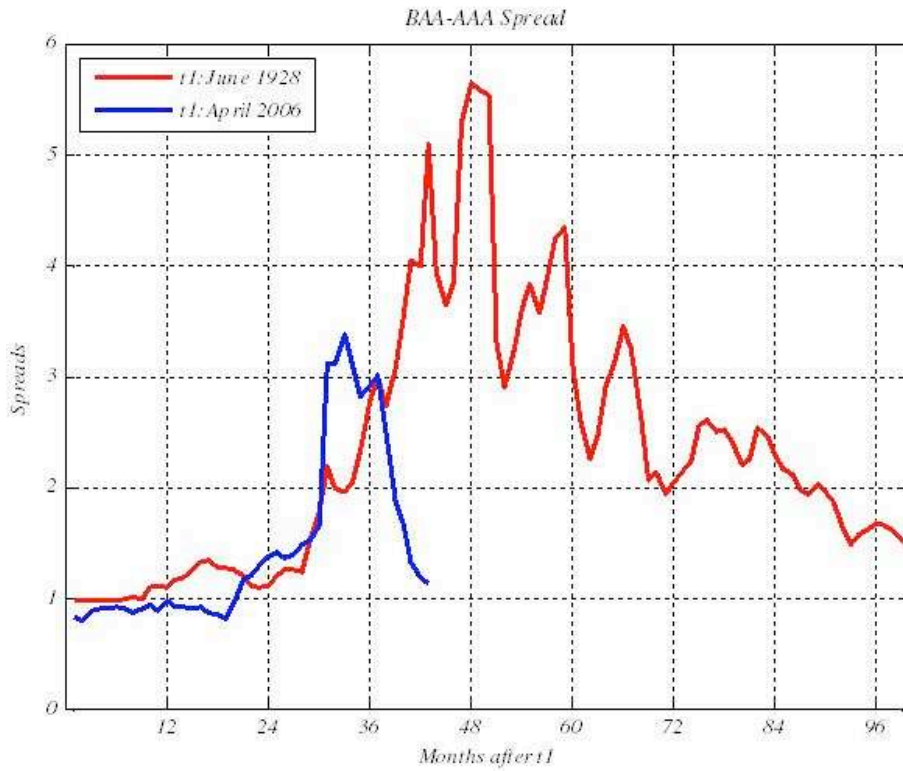


Figure 19: The Baa-Aaa spread, now vs. then

t0=June 1928, and April 2006

Source: Favero (2009).

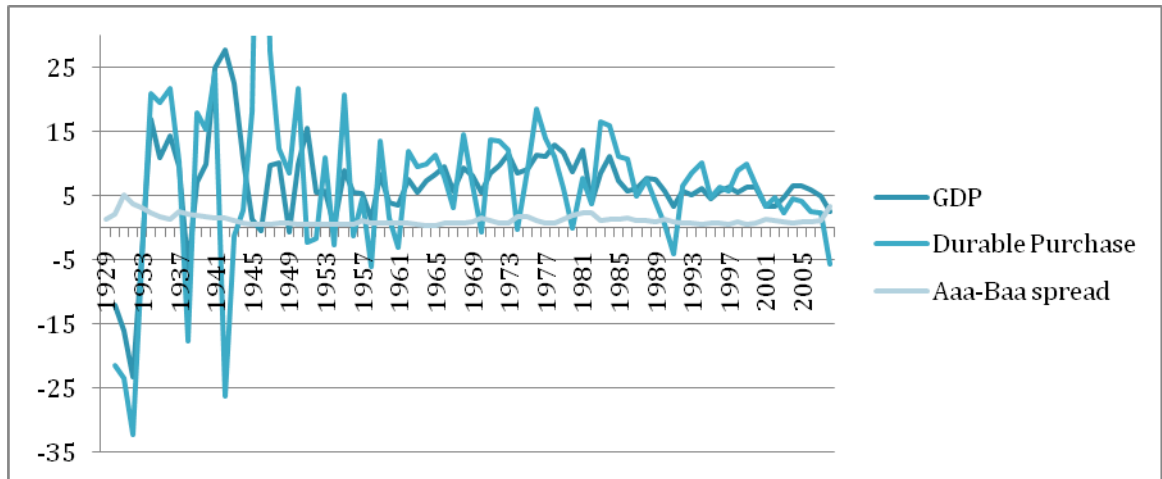


Figure 20: Aaa-Baa spread, GDP, and expenditures on durables, 1929-2008

Source: FRED Database, Federal Reserve Bank of St. Louis (Retrieved on November 20, 2009)

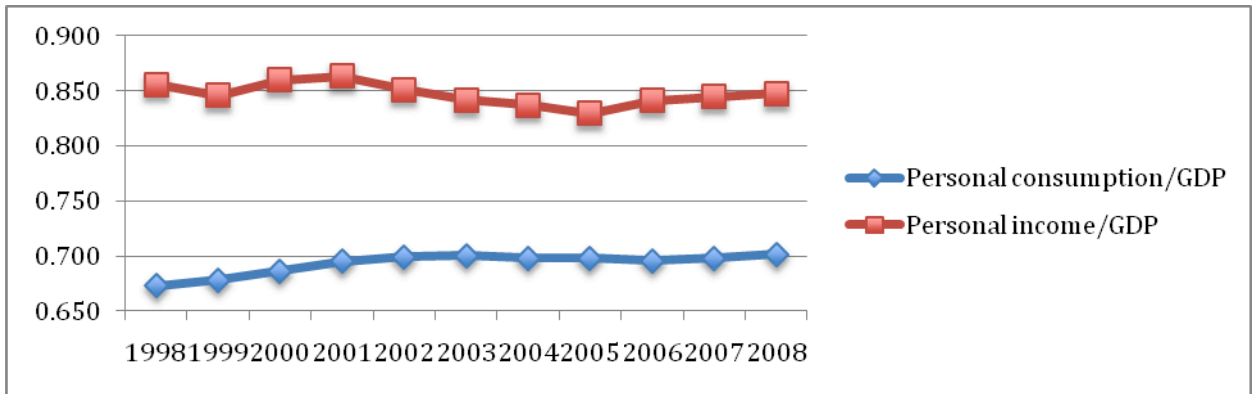


Figure 21: Personal consumption and income over GDP, 1998 - 2009

Source: Bureau of Economic Analysis, Tables 2.1, and 1.1.5

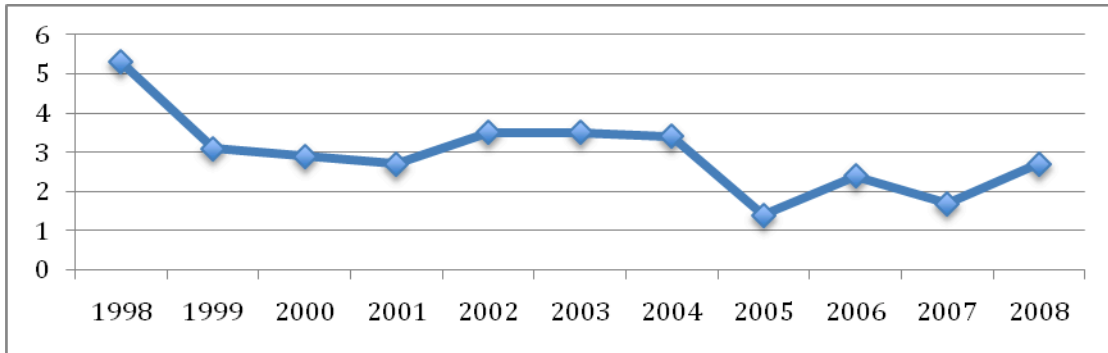


Figure 22: U.S. savings rate, 1998 - 2008

Source: Bureau of Economic Analysis, Table 1.12

Declaration

I certify that:

- (a) the thesis being submitted for examination is my own account of my own research
- (b) my research has been conducted ethically
- (c) the data and results presented are the genuine data and results actually obtained by me during the conduct of the research
- (d) where I have drawn on the work, ideas and results of others this has been appropriately acknowledged in the thesis
- (e) where any collaboration has taken place with other researchers, I have clearly stated in the thesis my own personal share in the investigation
- (f) the thesis has not been presented to any other examination committee before
- (g) the thesis has not been published before.

Schloß Reichartshausen, _____ 2009

Signature