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Lessons from the 1930s Great Depression

Nicholas Crafts* and Peter Fearon**

Abstract This paper provides a survey of the Great Depression comprising both a narrative account and a detailed review of the empirical evidence, focusing especially on the experience of the United States. We examine the reasons for and flawed resolution of the American banking crisis, as well as the conduct of fiscal and monetary policy. We also consider the pivotal role of the gold standard in the international transmission of the slump and leaving gold as a route to recovery. Policy lessons for today from the Great Depression are discussed, as are some implications for macroeconomics.

Key words: banking crisis, fiscal multiplier, gold standard, Great Depression

JEL classification: E65, N12, N14

I. Introduction

The Great Depression deserves its title. The economic crisis that began in 1929 soon engulfed virtually every manufacturing country and all food and raw materials producers. In 1931, Keynes observed that the world was then ‘in the middle of the greatest economic catastrophe . . . of the modern world . . . there is a possibility that when this crisis is looked back upon by the economic historian of the future it will be seen to mark one of the major turning points’ (Keynes, 1931). Keynes was right; Table 1 shows some of the dimensions.

What are the key questions that we should ask about the Great Depression? Why the crisis began in 1929 is an obvious start, but more important questions are why it was so deep and why it lasted so long? Sustained recovery did not begin in the United States until the spring of 1933, though the UK trough occurred in late 1931 and in Germany during the following year. Why and how did the depression spread so that it became an international catastrophe? What role did financial crises play in prolonging and transmitting economic shocks? How effective were national economic policy measures designed to lessen the impact of the depression? Did governments try to coordinate their economic policies? If not, then why not?

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Table 1: The Great Depression vs Great Recession in the advanced countries

	Real GDP	Price level	Unemployment (%)	Trade volume
1929	100.0	100.0	7.2	100.0
1930	95.2	90.8	14.1	94.8
1931	89.2	79.9	22.8	89.5
1932	83.3	73.1	31.4	76.5
1933	84.3	71.7	29.8	78.4
1934	89.0	75.3	23.9	79.6
1935	94.0	77.6	21.9	81.8
1936	100.6	81.4	18.0	85.7
1937	105.3	91.5	14.3	97.4
1938	105.4	90.4	16.5	87.0
2007	100.0	100.0	5.4	100.0
2008	100.5	102.0	5.8	100.6
2009	97.3	102.9	8.0	85.0
2010	99.6	103.7	8.4	93.3

Sources: 1929–38: Real GDP: Maddison (2010) western European countries plus western offshoots; Price level: League of Nations (1941); data are for wholesale prices, weighted average of 17 countries; Unemployment: Eichengreen and Hatton (1987); data are for industrial unemployment, weighted average of 11 countries; Trade volume: Maddison (1985), weighted average of 16 countries.

2007–2010: IMF, World Economic Outlook Database, April 2010.

Why did the intensity of the depression and the recovery from it vary so markedly between countries?

Even in recovery, both the UK and the USA experienced persistent mass unemployment, which was the curse of the depression decade (Table 2). Why did the eradication of unemployment prove to be so intractable? In 1937–8 a further sharp depression hit the US economy, increasing unemployment and imposing further deflation. What caused this serious downturn and what lessons did policy-makers draw from it?

By the late twentieth century, the memory of international financial seizure in the US and Europe, mass unemployment, and severe deflation had receded. However, during 2007–8, an astonishing and unexpected collapse occurred which caused all key economic variables to fall at a faster rate than they had during the early 1930s. As Eichengreen and O'Rourke (2010) report, the volume of world trade, the performance of equity markets, and industrial output dropped steeply in 2008. Moreover, a full-blown financial crisis quickly emerged. The US housing boom collapsed and sub-prime mortgages, which had been an attractive investment both at home and abroad, now became a millstone round the necks of those financial institutions that had eagerly snapped them up. In April 2007, New Century Financial, one of the largest sub-prime lenders in the US, filed for Chapter 11 bankruptcy. In August, Bear Stearns, an international finance house heavily involved in the sub-prime market, teetered on the verge of bankruptcy. The US Treasury helped finance its sale to J. P. Morgan during the following year. During 2008 the financial crisis developed with a sudden and terrifying force. In September, Freddie Mac and Fannie Mae, which together accounted for half of the outstanding mortgages in the US, were subject to a federal takeover because their financial condition had deteriorated so rapidly. At the same time Lehman Brothers, the fourth largest investment bank in the US, declared bankruptcy. It seemed as if financial meltdown was not only a possibility, it was a certainty unless drastic action was taken.

Table 2: The Great Depression in the United Kingdom and the United States

	Real GDP	GDP deflator	Unemployment (%)	Stock market prices
UK				
1929	100.0	100.0	8.0	100.0
1930	99.9	99.6	12.3	80.5
1931	94.4	97.2	16.4	62.8
1932	95.1	93.7	17.0	60.2
1933	96.0	92.5	15.4	74.3
1934	102.8	91.7	12.9	90.3
1935	106.6	92.6	12.0	100.0
1936	109.9	93.1	10.2	115.9
1937	114.7	96.6	8.5	108.0
1938	118.2	99.3	10.1	88.5
USA				
1929	100.0	100.0	2.9	100.0
1930	91.4	96.4	8.9	69.4
1931	85.6	86.3	15.6	35.8
1932	74.4	76.2	22.9	30.8
1933	73.4	74.2	20.9	46.2
1934	81.3	78.4	16.2	45.8
1935	88.6	79.9	14.4	63.1
1936	100.0	80.7	10.0	79.8
1937	105.3	84.1	9.2	50.5
1938	101.6	81.7	12.5	61.7

Note: Unemployment based on the whole-economy series constructed by Weir (1992).

Sources: UK: Real GDP: Feinstein (1972); GDP deflator: Feinstein (1972); Unemployment: Boyer and Hatton (2002); Stock market prices: Mitchell (1988). USA: Carter *et al.* (2006).

The crisis was not confined to the US. In August 2007, the French bank, BNP Paribas, suspended three investment funds worth €2 billion because of problems in the US sub-prime sector. Meanwhile, the European Central Bank was forced to intervene to restore calm to distressed credit markets which were badly affected by losses from sub-prime hedge funds. On 14 September 2007, the British public became aware that Northern Rock, which had moved into sub-prime lending after concluding a deal with Lehman Brothers, had approached the Bank of England for an emergency loan. Immediately the bank's shares fell by 32 per cent and queues formed outside branch offices as frantic depositors rushed to withdraw their savings. Such was the pressure that Northern Rock was nationalized in February 2008. The run on Northern Rock was an extraordinary event for the UK. During the Great Depression no British financial institution failed, or looked like failing, but in 2007 there was immediate depositor panic. It was clear that without some assurance on the security of deposits other institutions were at risk. In 2009, UK GDP contracted by 4.8 per cent, the steepest fall since 1921.

A comparison of the catastrophic banking crisis in 1931 with that of 2007–8 shows that the countries involved in 1931 accounted for 55.6 per cent of world GDP, while the figure for the latter period is 33.5 per cent (Reinhart, 2010; Maddison, 2010). This is the most widespread banking crisis since 1931 and it is also the first time since that date that major European countries and the United States have both been involved. The financial tidal wave was totally unexpected and was of such severity that immediate policy action was required to prevent total meltdown. For a while it seemed that the world stood at the edge of an abyss, a short step away from an even greater economic disaster than had occurred three-quarters of a century earlier.

In these circumstances, it has been natural to ask what the historical experience of the crisis of the 1930s has to teach us. The big lesson that has been correctly identified is not to be passive in the face of large adverse financial shocks. Indeed, aggressive monetary and fiscal policies were immediately implemented to halt the financial disintegration. Fortunately, countries were not constrained by the oppressive stranglehold of the gold standard. Both monetary and fiscal policies could be used to support economic expansion rather than to impose deflation or try to restore a balanced budget. Flexible exchange rates gave policy-makers the freedom to use devaluation as an aid to recovery. The exception was in the Eurozone, where weak member states, for example, Greece, Ireland, and Portugal, were forced to deflate their economies (Eichengreen and Temin, 2010, this issue).

In the United States, the Fed began aggressively to lower interest rates in January 2008 and by the year's end had adopted a zero-rate policy. Quantitative easing was used on a massive scale during 2008 through to early 2010 and, as a result, the money supply rose dramatically. The American Restoration and Recovery Act, which became law in early 2009, earmarked \$787 billion to stimulate the economy and was described by Christina Romer, distinguished economic historian of the great depression and Chair of the President's Council of Economic Advisors, as 'the biggest and boldest countercyclical action in American History' (Romer, 2009). In the UK, the Bank of England adopted the lowest interest rates since its foundation in 1694, quantitative easing was used aggressively, and bank bail-outs were funded where necessary. In October 2007 the guarantee for UK bank deposits was raised to £36,000 per depositor and further increased to £50,000 during the following year. In both countries, monetary and fiscal policies were pursued on a scale that would have been unacceptable during the 1930s but, crucially, these bold initiatives prevented financial meltdown. Fortunately, the crisis did not encourage the adoption of the beggar-thy-neighbour policies that helped to reduce the level of international trade so drastically during the 1930s.

This represents a dramatic contrast with the policy stances of 80 years ago. Thus far, the upshot is that a repeat of the Great Depression has been avoided (Table 1). A dramatic financial collapse has been averted, economic recovery, though tenuous, is progressing, and unemployment has not reached the levels that some commentators feared when the downturn began. As we shall see, the 'experiment' of the 1930s shows only too clearly the likely outcome in the absence of an aggressive policy response.

The 1930s has more to offer. In particular, we can look not only at the downturn but also the recovery phase. Here the issues that had to be addressed included re-regulation of the banking system, avoiding a double-dip recession, and dealing with the various legacies of the depression which included long-term unemployment and the need for a new, post-gold-standard, macroeconomic policy framework.

This paper proceeds in the following way. Section II provides a narrative of events, section III delivers an analysis of the 1930s depression, and section IV identifies important policy lessons from that experience.

II. Narrative

(i) The context of the Great Depression

It is sensible to begin an investigation of the Great Depression with an analysis of the world's most powerful economy, the USA. During the 1920s America became the vital engine for

sustained recovery from the effects of the Great War and for the maintenance of international economic stability. Following a rapid recovery from the post-war slump of 1920–1, Americans enjoyed until the end of the decade a great consumer boom, which was heavily dependent upon the automobile and the building sectors. High levels of investment, significant productivity advances, stable prices, full employment, tranquil labour relations, high wages, and high company profits combined to create the perfect conditions for a stock-market boom. Many contemporaries believed that a new age of cooperative capitalism had dawned in sharp contrast to the weak economies of class-ridden Europe (Barber, 1985).

America was linked to the rest of the world through international trade as the world's leading exporter and second, behind the UK, as an importer. Furthermore, after 1918 America replaced Britain as the world's leading international lender. The First World War imposed an onerous and potentially destabilizing indebtedness on many of the world's economies. Massive war debts accumulated by Britain and France were owed to both the US government and to US private citizens. Britain and France sought punitive damages from Germany in the form of reparations. But the post-war network of inter-government indebtedness eventually involved 28 countries, with Germany the most heavily in debt and the US owed 40 per cent of total receipts (Wolf, 2010, this issue).

Between 1924 and 1931 the US was responsible for about 60 per cent of total international lending, about one-third of which was absorbed by Germany. American investors, attracted by relatively high interest rates, enabled Germany both to discharge reparations responsibilities and to fund considerable improvements in living standards. Austria, Hungary, Greece, Italy, and Poland, together with several Latin American countries, were also considered attractive opportunities by US investors. By paying for imports and by investing overseas the US was able to send abroad a stream of dollars, which enabled other countries not only to import more goods but also to service their international debts. The fact that a high proportion of the borrowing was short term did not disturb the recipients (Feinstein *et al.*, 1997).

The majority of the world's economies were linked to each other by the gold standard, which had been suspended during the First World War, but its restoration was considered a priority by virtually all the major economic powers. It is easy to understand the appeal of the gold standard to contemporaries. The frightening inflations after 1918 and the severe deflation of 1920–1 made policy-makers yearn for a system that would provide international economic and financial stability. To policy-makers the gold standard represented a state of normality for international monetary relations; support for it was a continuation of the mindset that had become firmly established in the late nineteenth century (Eichengreen and Temin, 2010). There was a widespread belief that the rules of the gold standard had imposed order within a framework of economic expansion during the 40 years before 1914 and order was certainly required in the post-war world. In particular, contemporaries believed that the discipline of the gold standard would curb excessive public spending by politicians who would fear the subsequent loss of bullion, an inevitable consequence of their profligacy. Unfortunately, the return to gold was accomplished in an uncoordinated fashion. Several countries (e.g. Belgium and France) adopted exchange rates that were not only significantly below their 1913 levels, but also provided a significant competitive advantage.

The reverse was true for the UK, which, in 1925, returned to gold at the 1913 exchange rate after a deflationary squeeze had made this possible. In general, financiers and bankers supported the return to gold at the pre-war exchange rate, but, as a result, sterling was overvalued and Britain's export industries were disadvantaged. The achievement of international competitiveness through deflation was the dominant force determining domestic economic policy during the 1920s. Unfortunately, UK exports suffered from war-induced disruption.

Markets which had been readily exploited before 1914 offered much reduced opportunities after 1918. UK difficulties would have been more manageable if the bulk of Britain's exports had been in categories that were expanding rapidly in world markets. Unfortunately coal, cotton and woollen textiles, and shipbuilding faced severe international competition. Over-capacity led to high and persistent structural unemployment in the regions where these industries were dominant. During the 1920s, UK unemployment was double the pre-1913 level and also higher than in all the other major economic powers. On average, each year between 1923 and 1929, almost 10 per cent of the UK insured workforce was unemployed. The jobless were concentrated in the export-oriented staple industries. In those parts of the economy not exposed to foreign competition, unemployment was closer to pre-war levels.

A further problem for Britain, and many other countries too, was the uneven distribution of gold stocks. The US was gold rich throughout the 1920s, but, after the stabilization of the franc in 1926, the Bank of France began to sell its foreign exchange in order to purchase bullion (Clarke, 1967). By 1929, the US and France had accumulated nearly 60 per cent of the world's gold stock and their central banks sterilized much of their gold so that it did not inflate the money supply. In other words, both countries kept a high proportion of the world's gold stock in their vaults and withdrawn from circulation. As a result, other countries were forced to deflate in order to compensate for a shortage of reserves. Unfortunately, the gold standard imposed penalties on countries which lost gold while the few which gained did so with impunity.

Gold shortages compelled UK policy-makers to impose relatively high interest rates in order to attract foreign funds—hot money—which bolstered the country's inadequate bullion reserves. Unfortunately, potential domestic investors suffered as the real cost of credit rose. Nevertheless, as the membership of the gold standard club grew in the 1920s, policy-makers congratulated themselves that all major trading countries were bound together in a system that was dedicated to the maintenance of economic stability.

With the benefit of hindsight, it is clear that the international economy was in a potentially precarious position in 1929. Continuing prosperity was dependent upon the capacity of the US economy to absorb imports and to maintain a high level of international lending. If an economic crisis struck the US, how would the Federal Reserve deal with it? The Fed, created in 1913, was a relatively untested central bank. Would it act aggressively as lender of last resort if the banking system became stressed? Would its decentralized division into 12 regional reserve banks with monetary policy formulated by a seven-member Board demonstrate weakness or strength in fighting a depression? And, should a crisis materialize, would the gold standard's rules force contracting economies to deflate, thus worsening their plight rather than providing a supportive international framework?

(ii) From boom to slump

In January 1928 the Federal Reserve ended several years of easy credit and embarked on a tight money policy. The Fed began a sale of government securities and gradually raised the discount rate from 3.5 to 5 per cent. The Fed was fully aware that a sudden rise in interest rates could be destabilizing for business and might bring a period of economic prosperity to an unhappy conclusion. To avoid this possibility, the monetary authorities aimed gently to deflate the worrying bubble on Wall Street by making bank borrowing for speculation progressively more expensive. Monetary policy-makers believed that by acting steadily rather than suddenly, speculation could be controlled without damaging legitimate business credit demands. It

seemed a good idea at the time, but unfortunately this policy had serious unforeseen domestic and international repercussions. The new higher rates made more funds from non-bank sources available to the ever-rising stock market, and speculation actually increased. Many corporations used their large balances to fund broker's loans, and investors who normally looked overseas found loans to Wall Street a more attractive option. Unfortunately, countries that had become dependent on US capital imports, for example, Germany, were suddenly deprived of an essential support for their fragile economies.

Adversely affected by Fed policies, the US economic boom reached a peak in August 1929 and after a few months of continuously poor corporate results the confidence of investors waned and eventually turned into the panic which became the Wall Street Crash in October 1929. After the stock-market collapse the Fed embarked on vigorous open-market operations and reduced interest rates. The Wall Street crash markedly diminished the wealth of stock holders and could well have adversely affected the optimism of consumers. But in late 1929 the market seemed to stabilize close to the level it had reached in early 1928. For several months it appeared that the US economy was recovering after a dramatic financial contraction. Overseas lending revived and interest rates throughout the world responded to the Fed's monetary easing. Optimists saw no reason why vigorous economic expansion should not be renewed, as it had been in 1922.

The optimists were wrong. From the peak of the 1920s expansion in August 1929 to the trough in March 1933 output fell by 52 per cent, wholesale prices by 38 per cent, and real income by 35 per cent. Company profits, which had been 10 per cent of GNP in 1929, were negative in 1931 and also during the following year. The collapse in demand centred on consumption and investment which experienced unprecedented falls. Gross private domestic investment, measured in constant prices, had reached \$16.2 billion in 1929; the 1933 total was only \$0.3 billion. In 1926, gross expenditure on new private residential construction was \$4,920m; in 1933 the figure had fallen to a paltry \$290m. Consumer expenditure at constant prices fell from \$79.0 billion in 1929 to \$64.6 billion in 1933. Durables were especially affected; in 1929, 4.5m passenger vehicles rolled off assembly lines; in 1932, 1.1m cars were produced by a workforce that had been halved. Automobile manufacture and construction had been at the heart of the 1920s economic expansion but, as they fell, supporting industries tumbled, too. Inventories were run down, raw material purchases reduced to a minimum, and workers laid off. In particular, companies producing machinery, steel, glass, furniture, cement, and bricks faced a collapse in demand. The number of wage earners in manufacturing fell by 40 per cent, but many lucky enough to hang on to their jobs worked fewer hours and experienced pay cuts. The producers of non-durable goods, such as cigarettes, textiles, shoes, and clothing, faced more modest declines in output and employment.

The most dramatic price falls were in agriculture and a fall of 65 per cent in farm income was unsustainable for farm operators, especially if they were in debt. Unlike manufacturers, individual farms did not reduce output in response to low prices. Indeed, their reaction to economic distress was to produce more in a desperate attempt to raise total income. The result was the accumulation of stocks which further depressed prices. Nor could farmers lay off workers, as most only employed family members. As banks and other financial institutions foreclosed on farm mortgages, distress auctions caused so much local anger that the Governors of some states were obliged to suspend them. Farmers who were unable to pay their debts put pressure on the undercapitalized unit banks that served rural communities. As bank failures spread unease among depositors, the natural reaction of institutions was to engage in defensive banking. Loans were called in and lending, even for deserving cases, was curtailed; the banks gained liquidity by bankrupting many of their customers. Rural families were forced

to reduce their purchases of manufactured goods, adding to urban unemployment. The bitter irony of starving industrial workers unable to buy food that farmers found too unprofitable to sell helped to undermine faith in the free-market economic system.

The slide from mid-1929 to spring 1933 was not smooth and continuous. Periodically, it seemed that the depression had bottomed out and recovery was under way. In spite of a destabilizing fall in consumption during 1930 (Temin, 1976) it seemed possible that the economy would revive. This expectation was quashed by a wave of bank failures at the end of the year. Although mostly confined to small banks in the south east of the US, the failures gave depositors a warning sign. During the first half of 1931 the economy revived, but hopes were dashed in the aftermath of Britain's abandonment of the gold standard in September, when a wave of bank failures served to undermine the diminishing faith of depositors who rushed to withdraw their money, thus making the closure of their banks inevitable. Many kept their withdrawn funds idle rather than trust another bank with their savings. Economic expansion in the summer and autumn of 1932 was reversed during the policy vacuum between Roosevelt's electoral victory in November 1932 and his inauguration in March 1933. The uncertainties present during this 'lame duck' period led to a further wave of bank failures which became so serious that, by the time Roosevelt delivered his inaugural address in March 1933, the Governors of the vast majority of states had declared their banks closed to prevent almost certain failure (Calomiris, 2010, this issue). There was a sharp difference between the British experience, where no financial institution failed, and that of the US, where financial paralysis was the end result.

Friedman and Schwartz (1963) emphasized the contraction by one-third of the US money stock between 1929 and 1933, a reduction which they believe explains fully the severity of the depression. They accused the Federal Reserve of pursuing perverse monetary policies which transformed a recession into a major depression. It was, however, a combination of monetary and non-monetary causes, varying in intensity during these critical years, which accounts for the depth of this crisis (Gordon and Wilcox, 1981). Nevertheless, as Fishback (2010, this issue) shows, the judgement of the Fed was at times seriously flawed, although policy errors are sometimes more apparent with the benefit of hindsight. For example, because nominal interest rates had been reduced to a very low level, the Fed believed that it was pursuing an appropriate easy money policy. Indeed, it was difficult to see how interest rates could be forced lower. However, the monetary authorities failed to take account of the savage deflation which caused real interest rates to rise to punitive levels for borrowers. The central bank was convinced that it was pursuing an easy money policy when the reverse was the case. Moreover, when faced with a policy choice, the Fed always opted to follow the gold standard rule. As a result, during late 1931, and also during the winter of 1932–3, the Fed raised interest rates to protect the dollar from external speculation in order to halt gold losses. Unfortunately, this was the exact reverse of the low interest rate, easy credit policy needed to save the battered banking system. Little wonder that so many banks closed their doors. There is no doubt that monetary policy had serious adverse effects during the worst depression years.

Unemployment was one of the great curses of the depression. Widely accepted estimates show that the percentage of the US civilian labour force without work rose from 2.9 in 1929 to 22.9 in 1932 (Table 2). Many classified as employed were on short time and some had also experienced wage cuts. Unlike Britain, the US had no national system of unemployment benefits; the jobless were subjected to a harsh regime which included dependence on miserly, poorly administered, local relief. Those most affected included the young, the old, and ethnic minorities, whose unemployment rates were relatively high. In addition, social workers stressed that those who had been out of work for long periods became increasingly

unattractive to employers. Loss of income and employment uncertainty combined to reduce consumer spending.

Even fortunates who felt secure in their jobs and whose real incomes had risen were deterred by the persistent deflation. Why buy a motor vehicle, or a house, now, when both would be significantly cheaper in a few months' time? Deflation increased the burden of existing debt and acted as a warning against the accumulation of new obligations. Deflation also intensified business uncertainty and further undermined the confidence necessary to make investment decisions. Traditionally, price falls were seen as one of the natural self-correcting mechanisms of the market economy. Deflation automatically led to a rise in real incomes, it was argued, and consumers would soon start a purchasing drive that would lift the economy out of recession. The persistent price falls over such a long period, however, brought about a paralysis in consumption and investment. Potential spenders wanted to wait until the price falls had reached their nadir before they committed themselves to major purchases and new debt.

Herbert Hoover was hard-working, energetic, and intelligent. He probably had a greater grasp of contemporary economics than any twentieth-century president and was confident enough to be his own economic advisor (Stein, 1988). He was familiar with the current literature on business cycles and was not a man to stand aside and watch as recession accelerated into depression (Bernstein, 2001). Hoover publicly urged business leaders to share scarce work rather than add to the unemployed, and pleaded with them not to cut wage rates, which had been the instant response of employers in 1920–1. Big business held out against wage cuts until mid-1931 when, faced with overwhelming financial losses, the dam broke and they could resist no more. Nominal wage cuts became common, as did mass lay-offs. Some critics see Hoover's unwavering commitment to high wages and the maintenance of purchasing power as a serious mistake, which added to the severity of the downturn (Ohanian, 2009; Smiley, 2002).

Hoover refused to listen to the pleas of 1,038 American economists who, in 1930, urged him to veto the Smoot–Hawley tariff bill. When it became law, this legislation raised US import duties and ultimately led to retaliatory action throughout the world. Not surprisingly, US foreign trade declined once the depression began to bite. The value of US exports was \$7 billion in 1929 but only \$2.5 billion in 1932; imports declined from \$5.9 billion to \$2 billion during the same period. Nevertheless, the US balance of payments remained in surplus. It was, however, the rapid income decline in countries that wanted to purchase US goods which was the most significant factor in causing the contraction in international trade (Irwin, 1998). Hoover's support of tariff increases demonstrated his consistency. His priority was to protect companies that paid high wages from competition from cheap imported goods (Vedder and Gallaway, 1993).

In early 1932, following Hoover's lead, Congress approved the Reconstruction Finance Corporation (RFC) with a remit to lend to distressed banks. The hope that the RFC, acting as lender of last resort, would bring stability to the financial system was compromised by a Congressional decision to publicize the names of all institutions that approached the RFC for financial help. Hoover also authorized a large increase in federal spending on work relief projects, but the federal budget, at 4 per cent of GNP, was too small to make a noticeable dent in the growing social distress. Inevitably, declining revenue forced the budget into deficit for fiscal year 1931. The deficit was too small to exert an expansionary effect on the economy but it did enable Roosevelt to attack Hoover during the election campaign of 1932 for failing to appreciate the necessity of economy in government. Ironically, the budget deficit of 1931 was the most expansionary of the entire decade, though no one at the time saw this as a benefit. In 1932, Hoover became so concerned about the domestic and foreign disapproval of the federal budget deficit that spending was reduced and the Revenue Act (1932) introduced a

raft of substantial tax increases. In spite of his efforts, the budget remained in the red and, not surprisingly, unemployment remained stubbornly high. Unfortunately, Hoover's understanding of contemporary economics led him to an unshakeable belief in the gold standard. He shared with many contemporary economists the view that fiscal and monetary policies must be directed to support gold rather than directly to promote domestic economic expansion or bank stability.

(iii) The transmission of the depression

It is easy to see that the year-on-year reduction in imports by the main industrial powers and the collapse of international lending placed many economies in great difficulty. In particular, a regular flow of dollars had been crucial to debtor countries, enabling them to buy goods and services and discharge their debt payments. Once the flow dried up, countries had to confront balance-of-payment and debt-repayment problems which were entirely unanticipated. Primary producers had to act quickly to reduce imports and boost their exports as the terms of trade moved sharply against them. Desperate to curb gold and foreign-exchange loss, they used restrictive monetary and fiscal policies to deflate their economies savagely. Public spending was slashed, wages were cut, and misery increased, but all to no avail. It was impossible to earn sufficient foreign currency, or to attract new international loans. Once the cure of deflation was judged more painful than the disease it was supposed to remedy, default on international loans was inevitable. When this happened, foreign investors panicked. In 1931, US lending virtually ceased and did not recover during the rest of the decade.

The key element in the transmission of the Great Depression, the mechanism that linked the economies of the world together in this downward spiral, was the gold standard. It is generally accepted that adherence to fixed exchange rates was the key element in explaining the timing and the differential severity of the crisis. Monetary and fiscal policies were used to defend the gold standard and not to arrest declining output and rising unemployment.

Contemporaries believed that the gold standard imposed discipline on all economies wedded to the system. But in operation the gold standard was not even-handed. As we have seen, states accumulating gold were not forced to inflate their currencies, but when gold losses occurred governments and central banks were expected to take immediate action in order to stem the flow. The action was always deflation but never devaluation (Temin, 1993). Between 1927 and 1932 France experienced a surge of gold accumulation which saw its share of world gold reserves increase from 7 to 27 per cent of the total. Since the gold inflow was effectively sterilized, the policies of the Bank of France created a shortage of reserves and put other countries under great deflationary pressure. Irwin (2010) concludes that, on an accounting basis, France was probably more responsible even than the US for the worldwide deflation of 1929–33. He calculates that through their 'gold hoarding' policies the Federal Reserve and the Bank of France together directly accounted for half the 30 per cent fall in prices that occurred in 1930 and 1931. This illustrates a serious flaw in the operation of the interwar gold standard.

When US capital flows to Germany began to dry up in 1928, the German economy was already experiencing an economic downturn and, at the same time, had a formidable reparations debt to discharge. Germany was forced to deflate, even though already in the early stages of a depression. Soon mounting unemployment and violent political unrest gripped the country. In May 1931 Austria's largest bank, the Credit-Anstalt, experienced such difficulty that speculators attacked the Austrian schilling. Austria's gold and foreign-exchange reserves were inadequate and soon exhausted and the country was forced to introduce exchange controls.

Speculators then turned to Germany, which had a weak economy, a suspect banking system, a high level of short-term debt, and worrying political divisions.

This was an opportunity for decisive coordinated intervention by the major economic powers. A flawed German economy faced the possibility of a catastrophic financial crisis, which, if not contained, could have serious ramifications for others. Who among the great powers would help? Britain was too financially enfeebled to offer more than marginal assistance. In June 1931 President Hoover acted by unilaterally proposing a moratorium, for 1 year, on reparation and war debts payments. The moratorium referred only to inter-government debt. Hoover expected private debts to be honoured. His intervention was opposed by the French, who were furious at the lack of consultation but more fundamentally believed that they lost more than they gained from the moratorium. France, with ample gold reserves, was in a position to assist, but the political conditions attached to its offer of help made it impossible for Germany to accept. In August 1931, Germany abandoned the gold standard, introduced exchange controls, and halted the free flow of gold and marks. Even though this was a time of falling prices, the horrors of post-war hyperinflation were fresh in the memory of the German public and policy-makers. As a result, the mark was not devalued and the government continued with the draconian deflation that had been introduced in accordance with gold-standard rules.

The speculative wave then engulfed sterling. There had been obvious signs of recession in the UK as early as 1928, when the curtailment of US lending affected UK international trade in services. About 40 per cent of UK overseas trade was with primary producing countries, which were forced immediately to restrict their spending when US credit dried up (Solomou, 1996). The crisis worsened in 1929 as world demand collapsed and the UK experienced a sharp fall in the export of goods and services. Following gold-standard rules, real interest rates rose to defend sterling and public-expenditure cuts were imposed in an attempt to achieve budget balance. Like Austria and Germany, Britain was faced with the withdrawal of foreign deposits as the holders of sterling anticipated the potential loss to them from devaluation. The struggle to defend the pound was all to no avail. On 21 September Britain was forced to leave the gold standard, the first major country to do so, and devalue sterling. The devaluation was substantial; sterling, once free to float, fell by 25 per cent against the dollar, though, of course, it is the multilateral effects of devaluation rather than the bilateral which are the most significant. Speculators then attacked the US dollar, which, as we have seen, was defended by the Federal Reserve, though at the cost of compromising the banking system and intensifying an already serious depression.

Curiously, once free from the need to pursue a deflationary monetary policy to defend sterling, the Bank of England actually increased the bank rate. In spite of experiencing one of the largest price falls in modern history, policy-makers worried about the inflationary effects of devaluation. Fortunately, Britain had not lived through the horrors of hyperinflation, or, indeed, the high levels of inflation endured by the French before the stabilization of the franc in 1926. The fears of financial instability quickly subsided and from early 1932 interest rates were reduced and a nominal interest rate of 2 per cent was a persistent feature of the British economy for the remainder of the 1930s. In contrast, fiscal policy was not expansionary until the end of the decade and the attraction of an annual balanced budget remained (Middleton, 2010, this issue).

It is clear that unemployment was the major effect of the Great Depression as far as the UK is concerned. The proportion of workers who were unemployed rose to a peak of 17 per cent in 1932 (Table 2). However, other indicators show that the impact of the crisis was relatively benign. No British bank or building society failed during these troubled years.

Between 1929 and 1931, the peak-to-trough contraction in real GDP was a mere 5.4 per cent (Table 2). Even in these crisis years, consumption remained relatively stable. The early exit from the gold standard and the robustness of the financial system created a platform for UK recovery which could be exploited. Indeed, between 1929 and 1937, the peak of 1930s performance, real GDP increased by 16.4 per cent. Unfortunately, 10.1 per cent of the insured population remained without work in 1938 and the numbers of long-term unemployed were seemingly an intractable socio-economic problem (Hatton and Thomas, 2010, this issue). Nevertheless, the UK depression experience is a sharp contrast with that endured by the US (Table 2). Even today, no US macro textbook would be complete without a section analysing the causes and the course of the Great Depression. In the UK, apart from persistent unemployment, the downturn was not deep and was over quickly, and the recovery was impressive.

However, 1931 was a watershed for UK economic policy. The gold standard was abandoned and sterling was devalued. Monetary policy was freed from its obligation to support the gold standard and could be used as a tool for economic expansion. The crisis also provided the incentive for Britain to turn away from an emotional commitment to free trade. The Imports Duties Act (1932) imposed a general 10 per cent duty on a range of imports. Within a few months, the Imperial Preference system instituted agreements between Commonwealth countries and Britain to favour each other's exports.

Early UK recovery was helped by a favourable exchange rate, though within a few years that significant advantage had gone, as other countries devalued and as British tariffs improved the domestic trade balance. It was not foreign trade but a reflationary monetary policy that drove recovery. Cheap money stimulated the housing industry and, with building societies playing a promotional role, this sector became a visible sign of prosperity, particularly in the Midlands and the south-east of England. Unfortunately, the regions dominated by the old staple industries remained depressed. Apart from unemployment, UK macro performance during the recovery period was impressive. Between 1932 and 1937, GDP growth averaged 4 per cent (Table 2).

In 1931, 47 countries were members of the gold-standard club. By the end of 1932 the only significant members were: Belgium, France, Netherlands, Poland, Switzerland, and the US (Eichengreen, 1992). The year 1931 was a dramatic one, when a major financial crisis dealt a mortal blow to the gold standard while output and prices continued to decline throughout the world. Far from providing stability and fulfilling the expectations of its supporters, the gold standard was instrumental in forcing economies to deflate during a period of intense depression. Indeed, departure from gold was a prerequisite for recovery.

For a while the countries freed from the shackles of gold seemed overwhelmed by the enormity of their action. Policy-makers were concerned that devaluation might lead to inflation, so there was no immediate rush for expansionary economic policies. However, by 1935 it was clear that all the countries that had devalued their currencies in 1931 had performed far better than those who had opted for exchange control. In 1933, the US decided to leave the gold standard and devalue the dollar as it was clear that New Deal policies designed to inflate the economy were inconsistent with the rules of the game. Unlike Britain, the US was not forced to leave the gold standard but chose to do so. The performance of the gold bloc, headed by France, was increasingly dismal and in 1936 France, too, abandoned gold.

Devalued currencies gave exports a competitive edge which trade rivals remaining on gold sought to blunt by the imposition of tariffs, quotas, and bi-lateral trade agreements (Eichengreen and Irwin, 2009). In Nazi Germany, a drive for greater self-sufficiency was added to strict exchange controls and these policies were accompanied by a reliance on bilateral rather than multilateral trade (Obstfeld and Taylor, 1998). Japan and Italy also provide

examples of autarkic imperialism. Liberal internationalism was no more. Individual countries, or groups, strove to minimize their imports and maximize their exports. Trade restrictions increased dramatically during the 1930s but even when there was some relaxation it was not multinational. With the Reciprocal Trade Agreements Act (1934), the US Congress authorized the President to negotiate bilateral tariff reductions with other countries. By 1939 the US had signed 20 treaties with countries accounting for 60 per cent of its trade (Findlay and O'Rourke, 2007). Unfortunately, during the 1930s, multilateral trade gave way to bilateral arrangements as trading within blocs, of which Imperial Preference was one, grew more common. The outcome was trade diversion rather than creation.

(iv) The post-gold-standard world

Roosevelt (FDR) promised the American people 'bold persistent experimentation' and, although scholars see in the New Deal continuity with America's past, the public saw decisive action and lots of it. Immediately on entering office the new President addressed the banking problem. A bank holiday closed all the nation's banks and the President assured the public that they would only be permitted to re-open when an independent examination had declared them sound. Roosevelt's assurances, and a raft of new regulations designed to curb the failings which Congress believed had helped to cause the depression, ushered in a period of banking stability. FDR's decision to leave the gold standard and significantly devalue the dollar horrified conservatives but banished the need for the Fed to impose deflationary policies on a stricken economy. Indeed, after devaluation, the US became a safe haven for gold, especially from a troubled Europe. The gold flows generated an expansion of the money supply which helped to stimulate recovery.

From the exceptionally low base of 1933, real GDP grew rapidly at an average of over 8 per cent a year until 1937. After a check, growth between 1938 and 1941 was, at over 10 per cent, even more rapid. Between 1929 and 1933 real GDP fell by 27 per cent; between 1933 and 1937 it rose by 36 per cent (Table 2). In 1937, the best year of the decade, output had just reached 1929 levels and there were as many people at work as there had been in the prosperous year of 1929. Unfortunately the labour force had grown by 6m and the unemployment rate, at 14.3 per cent, remained unacceptably high. Private investment failed to revive satisfactorily. Total gross private domestic investment (current \$) rose from \$1.4 billion in 1933 to \$11.8 billion in 1937. The figure for 1929 was \$16.2 billion. The recession of 1937–8 was a sudden and devastating blow to an economy functioning far below full capacity. Private investment was driven down to \$6.5 billion and full recovery was held back for several years. The economy did not reach its long-run trend until June 1942.

The New Deal is difficult to evaluate economically, partly because of its lack of consistency (Fishback, 2007). In the first New Deal, 1933–5, Roosevelt attacked the surpluses which many commentators believed had dragged the economy down. Farmers were paid to reduce the acreage on which they grew specified crops in the hope that reduced output would increase farm income and, indeed, revive the entire economy. The National Industrial Recovery Act (NIRA) encouraged cooperating businesses to curb competition, which was seen as potentially destabilizing as it led to price reductions. Minimum wages and maximum hours were supposed to increase consumer spending power and help spread the available work. It was a misguided attempt to regenerate the economy by producing less. This bureaucratic nightmare was declared unconstitutional by the Supreme Court in 1935.

FDR now abandoned the attempt to cooperate with business and advocated a more competitive society. He denounced the 'economic royalists', who, he maintained, were trying to thwart the will of the people by undermining his policies. In order to protect the vulnerable, who would be exposed to exploitation in this new competitive environment, the formation and growth of trades unions was promoted by the Labor Relations Act (1935), more popularly known as the Wagner Act. Roosevelt gained a stunning re-election victory in 1936 but by the following year the 1937-38 recession necessitated another change in direction. FDR, who had always disliked budget deficits, now came to accept that spending was a vital tool for recovery. Extra spending did bring about a revival.

The President's frequent changes of direction are seen by his opponents as cynicism. His supporters praise him for pragmatism. It is hard to think of the twists and turns of New Deal policies having a uniformly positive effect on economic performance. On the positive side, the achievement of bank stability was an important plus, but Roosevelt's poor relations with business and the administration's inclination to balance increases in spending with new taxes did not create a favourable environment for private investment to flourish and negated the expansionary effects of federal spending.

The New Deal was not Keynesian. Neither fiscal nor monetary policy was used as a tool for economic revival. The reaction of many contemporaries to the problem of unemployment, for example, was to promote policies that would share work, promote high wages to aid purchasing power, remove married women from the workforce, and institute a compulsory age of retirement. Although the federal budget was in deficit for every year during Roosevelt's presidency, these deficits were too small and unplanned to be described as Keynesian (Fishback, 2010). The growing money stock did exert a positive influence, but its cause was the substantial flow of gold entering the banking system from troubled Europe rather than direct policy action by the Fed (Romer, 1992). The inflow also imposed costs even though it provided advantages. The Fed became concerned at the potentially inflationary excess reserves held by member banks and, in 1936 and 1937, raised reserve requirements. The banks responded by reducing their lending. Coincident with this restriction, federal spending was reduced. The combination of restrictive monetary and fiscal policies plunged the economy into a serious yearlong downturn during which real GDP fell by 10 per cent and unemployment rose to 12.5 per cent. Fortunately, the recession bottomed out in May 1938, as both fiscal and monetary policy became expansionary. Recovery was rapid but prices continued to fall for another 2 years. This recession was a serious self-induced wound.

(v) Unemployment

Hatton and Thomas (2010) offer an explanation for the mass unemployment in both the US and the UK during the 1930s. Unemployment in the UK during the 1930s was similar to that of the 1920s. It was concentrated in the regions where the old staple industries, cotton textiles, coal mining, ship building, and iron and steel, dominated. However, in other parts of the country, a private housing boom, encouraged by low interest rates and rising real wages, created many jobs and there was employment growth, too, in the manufacture of consumer durables and in the service sector. By the mid-1930s, UK unemployment was primarily regional and structural.

In contrast, the US had enjoyed low unemployment during the 1920s. The stubborn refusal of unemployment to decline to pre-Depression levels as economic recovery got under way ensured that expenditure on relief was a new and major item in the federal budget. There were

other differences between the 1920s and the 1930s. The Roosevelt administration encouraged the growth of trades unions and in the first New Deal, minimum wages and maximum hours raised both real wages and labour costs. Indeed, the support of both Hoover and Roosevelt for policies designed to prevent wage rates from falling helps to explain the extraordinary growth in money wages during a period of mass unemployment. The employed benefited, but real wages increased above market-clearing levels and, as a result, unemployment persisted.

Unlike British policy-makers, the New Dealers were totally opposed to 'dole' payments, which they feared would lead to a dependency culture. Instead, they stressed the benefits of work relief with a cash wage and hourly wage rates identical to those in the private sector. Hours worked were restricted so that take-home pay was not so munificent that private-sector work would be rejected if it was offered. Unfortunately, limited funding enabled only 40 per cent of workers eligible for work project placements to find employment on them. Rejected applicants were forced to accept relief from their counties, which was far less generous than that provided by Washington.

Mass unemployment was a worldwide phenomenon during the depression. Sweden, Denmark and Norway, like Britain, endured double-digit unemployment in both the 1920s and the 1930s (Feinstein *et al.*, 1997). In Germany, the deflationary policies pursued even after the gold standard had been abandoned led to an unemployment total of 6m in 1933, roughly double that of the UK. The social and political distress in Germany, which played a significant part in the election of Hitler as Chancellor in 1933, was widely seen at the time as one of the unacceptable costs of unemployment. The eradication of unemployment was a Nazi priority and the new government acted swiftly by imposing a 'new deal' on Germany which was radically different from Roosevelt's model. The Nazis abolished German trades unions and with them collective bargaining. A mass programme of public works financed by budget deficits was begun immediately. Industrial recovery emphasized the production of capital goods not consumer goods. Labour service, and the introduction of military conscription in 1935, helped to reduce the ranks of the jobless so that, in 1937, unemployment had been reduced to less than 2m. A striking feature of the labour market was the very modest growth in real wages which this totalitarian regime was able to control. When the market became tight and shortages appeared, there were no trades unions to help workers exploit their scarcity.

The contribution of Nazi work-creation schemes and the state's ability to control wage growth explains why the decline of unemployment in Germany appeared a success story when compared to Roosevelt's efforts in the US (Temin, 1989). Depressed commentators in the free world wondered if the only way to eradicate unemployment was to embrace the policies of either Nazi Germany, or the Soviet Union. Neither option had great appeal. It was, however, preparation for war which sheltered Britain, France, and Germany from sharing the US experience during 1937–8. Expansionary fiscal policies sustained the European economies as they geared up for conflict and minimized the effects of this contraction.

III. Analysis

(i) What caused the downturn?

Economic historians have traditionally viewed the large falls in real GDP that happened in the Great Depression as the result of large aggregate demand shocks. We think this is still

appropriate and identify the main sources of these shocks.¹ However, the translation of adverse shifts in aggregate demand into an impact on output as well as the price level, implies that the aggregate supply curve was non-vertical and the reasons for this need to be explored. Moreover, it is now generally accepted that the shocks which started the downward spiral were greatly amplified by the financial crises which characterized the early 1930s. A further key aspect of the Great Depression is that recessionary impulses were not immediately countered by an effective policy response, and this also has to be explained. Here, a central role was played by the gold standard, the fixed exchange-rate system, of which all the major economies were members at the end of the 1920s.

The most important source of shocks to the world economy from the late 1920s onwards was the United States. This was not only because the collapse in output in the world's largest economy was spectacular, but because other countries responded to deflationary changes in American monetary policy, notably at the end of the 1920s (Eichengreen, 2004). At least since Friedman and Schwartz (1963), monetary policy errors have been blamed by many economists; the M1 measure of the money supply fell by over 25 per cent between 1929 and 1933 and it is generally agreed that, notwithstanding the constraints of the gold standard, at least through early 1932, there was scope for the Federal Reserve to reverse this decline by an aggressive response. Instead, adhering to the real bills doctrine, it was believed that monetary policy was loose and expansionary policy was inappropriate, even though real interest rates were very high. More details can be found in the paper by Fishback (2010).

Econometric analysis has supported the view that declines in the money supply tended to have negative effects on real output in the United States in the interwar period; however, the decline in output in the early 1930s was much bigger than would be predicted simply on the basis of the fall in M1 (Gordon and Wilcox, 1981). This might imply that there were other demand shocks working through autonomous falls in consumption and investment spending, as argued by Temin (1976). A major additional factor was the spate of banking crises that engulfed the United States in the early 1930s when more than 9,000 banks failed (comprising about a seventh of total deposits).

In a seminal paper, Bernanke (1983) found that adding changes in deposits of failing banks to an equation to predict output based on money and price shocks substantially improved its predictive power. This should not be surprising since it is well known that systemic banking crises tend to be associated with large output losses (Laeven and Valencia, 2008). Bernanke interpreted his result as an indication that bank failures implied a loss of services of financial intermediation, a 'credit crunch', in which output fell consequent on an adverse shift in the supply of loans. This claim, based on correlations at the macro level, has subsequently been strongly supported by micro-level research into bank behaviour (Calomiris and Mason, 2003*a*; Calomiris and Wilson, 2004). So bank failures were an important channel for the transmission of monetary impulses to real-economy outcomes.

¹ Until relatively recently, this was also commonplace among macroeconomists, even those of a strong neo-classical persuasion. Since Cole and Ohanian (1999) there have been attempts to explain the Great Depression in a real business cycle (RBC) framework. This would naturally look to adverse total factor productivity (TFP) shocks as the recessionary impulse; in common with most economic historians—for example, Pensieroso (2007) and Temin (2008)—we do not believe that this venture has been successful. The strong point of RBC modelling of the 1930s has been to point out and seek to quantify impacts of the New Deal on aggregate supply during the recovery phase (Cole and Ohanian, 2004). Indeed, in that tradition the term 'Great Depression' is applied to the whole of the 1930s for the United States on the grounds that, despite quite a strong recovery after 1933, real GDP remained well below what would have been predicted on the basis of 1920s trend growth.

Friedman and Schwartz (1963) interpreted the bank failures as primarily a result of a 'scramble for liquidity' with the implication that, if the Federal Reserve had acted as a vigorous lender of last resort, they could largely have been averted, at least in 1930 and 1931. Bordo and Lane (2010, this issue) provide support for this view based on an econometric analysis using examiners' reports on failed banks. That said, it is clear that the United States entered the 1930s with a weak financial system, under-capitalized and based on unit rather than branch banking, and that the probability that a bank would fail strongly reflected fundamentals and insolvency stemming from *ex ante* balance-sheet weakness rather than panic (Calomiris and Mason, 2003*b*). It is also clear that high failure rates reflected weaknesses in regulation, notably in terms of capital adequacy, and prudential supervision, in particular because of inadequate standards at the state level; indeed, Mitchener (2007) estimated that the bank failure rate might have been halved had regulatory and supervisory practices across states improved by one standard deviation.

Obviously, a more resilient banking system would have coped better with the stress created by macroeconomic problems. The incorporation of a financial sector into a dynamic stochastic general equilibrium (DSGE) model of the interwar American economy gives similar insights. Christiano *et al.* (2003) found that shocks that raise liquidity preference (reduce bank deposits relative to currency holdings) lower funds for investment and contribute to a non-neutral debt deflation, but that a monetary policy rule that responded to these money demand shocks could have limited the fall in real GDP in the early 1930s to only about 6 per cent.

Where does the Wall Street Crash fit into this story? To the person in the street, the collapse of stock-market prices is surely the iconic aspect of the Great Depression. The Dow Jones industrial index fell from 381 to 198 between the peak in early September and mid-November 1929, while from peak to the trough in 1932 about five-sixths was wiped off stock-market values. The crash in the autumn of 1929 included the infamous Black Thursday and Black Tuesday (24 and 29 October). In contrast, economists and economic historians have generally thought that the Wall Street Crash played at most a minor role in the downturn. In part, this is because the fundamental value of a share reflects the discounted present value of future earnings and is thus an endogenous variable. That said, share price indices exhibit 'excess volatility'—they jump about much more than can be explained by an efficient markets hypothesis (Shiller, 2003)—and probably were quite a bit 'too high' *ex ante* in 1929.² So there is scope to think in terms of an exogenous shock to share prices. The question then is how much effect might this have had on the real economy. The answer is probably a small impact on consumption through wealth effects and postponement of durables as a response to increased uncertainty (Romer, 1990). There is good evidence that increases in uncertainty affected investment quite significantly through increased risk premia, but, that said, this does not seem to result from discrete events such as the stock-market crash (Ferderer and Zalewski, 1994). So, overall, the impact of the Wall Street Crash on the real American economy was very modest in comparison with that of monetary policy and banking crises.

In sum, the collapse in economic activity was the result of large shocks, both monetary and expenditure, to aggregate demand interacting with a fragile financial system so as to magnify the impact. Discretionary policy responses were, at best, too little, too late, while automatic stabilizers were very weak in an economy with a small federal budget together with low tax rates and transfer payments. Although nominal interest rates fell by several

² Whether there was a 'bubble' in the 1929 stock market has been controversial. The most persuasive evidence that there was a substantial bubble comes from the pricing of loans to stockbrokers and the valuation of closed-end mutual funds; see Rappoport and White (1993) and De Long and Shleifer (1991).

percentage points, *ex post* real interest rates rose steeply, while bank failures and declining asset prices delivered a credit crunch.

For the typical small open economy in the rest of the world, the big problem as the Depression took hold was being subjected to deflationary pressure as world output and prices fell while being severely constrained in making a policy response by membership of the gold standard. The concept of the macroeconomic trilemma tells us that such a country can only have two of a fixed exchange rate, capital mobility, and an independent monetary policy. This last was typically given up while the gold standard prevailed, although in the globalization backlash that ensued capital controls were very widely adopted. It follows that a monetary-policy response to the deflationary shocks needed to be coordinated across countries (thereby allowing interest-rate differentials to remain unchanged) but, as Wolf (2010) explains, international coordination was out of the question. Indeed, non-cooperative behaviour was the order of the day, epitomized by France's accumulation and sterilization of gold reserves.

Besides having no control over monetary policy, staying on the gold standard required reductions in prices and money wages and entailed high real interest rates and increased the risk of a banking crisis as balance sheets deteriorated. The decision not to leave the gold standard was influenced by the strength of worries about loss of monetary discipline and the degree of pain in terms of price falls and devaluations by important trading partners (Wolf, 2008). Banking crises were experienced in many countries and were associated with weaknesses in banking systems as well as the deflationary pressures which stressed them (Grossman and Meissner, 2010, this issue). Banking crises were bad for the real economy, and countries which went through them were exposed to much larger decreases in real output (Bernanke and James, 1991).

It is implicit in this discussion that the aggregate supply curve is positively sloped rather than vertical so that aggregate demand shocks have output as well as price-level effects. This seems to be borne out by the evidence. Bernanke and Carey (1996), in a careful panel-data econometric study, found both that there was an inverse relationship between real wages and output and that this reflected incomplete (and indeed quite sticky) nominal wage adjustment in the presence of aggregate demand shocks. It is not fully understood why wages were so sticky, but 'new-Keynesian' arguments may be relevant. In particular, there is evidence to support an 'insider-outsider' explanation. Consistent with this, for the United States, it has been shown that the delay in nominal wage cuts was most pronounced in industries where there was market power (Hanes, 2000). However, the impact of President Hoover's attempts to persuade employers to agree not to cut wages may have also delayed wage cuts (O'Brien, 1989).³

The volume of international trade fell dramatically during the Great Depression, both absolutely and relative to GDP, and the period is notable for a surge in protectionism following the Smoot-Hawley Tariff imposed by the United States in 1930. For the advanced countries, real GDP fell by 16.7 per cent between 1929 and 1932, but import volumes fell by 23.5 per cent (Table 1). Grossman and Meissner (2010) review the reasons for the decline in trade in some detail. Obviously a major factor is the fall in world incomes, but increasing barriers to trade clearly played a very significant role; although estimates of their contribution are sensitive to methodology, it seems likely to have been at least 40 per cent, as estimated by Madsen (2001).

³ Bordo *et al.* (2000) constructed a DSGE model incorporating overlapping Taylor-wage contracts and found that sluggish wage adjustment could have been a powerful aspect of the transmission mechanism from monetary shocks to real output effects.

The goals of protectionist policies were typically to safeguard employment, to improve the balance of payments, and to raise prices. Unlike today, there were no constraints from World Trade Organization (WTO) membership. Protectionism is usually thought of as the triumph of special-interest groups but, in this period, it may be more a substitute for a macroeconomic-policy response. For example, Eichengreen and Irwin (2009) found that, on average, tariffs were higher in countries that stayed on gold longer. It seems unlikely that protection generally had any major impact on GDP during the downturn, because with retaliation there were offsetting effects on imports and exports. Eichengreen (1989) estimated that Smoot–Hawley raised American GDP in the short run by about 1.6 per cent after allowing for retaliation and effects on income in the rest of the world.

(ii) What drove the recovery?

The decline in economic activity across the world came to an end in 1932–3, although there were substantial output gaps for a long time afterwards. Changes in economic policy played a major role in promoting economic recovery on the demand side and to some extent by inhibiting it on the supply side. In the United States, the inauguration of the Roosevelt administration in 1933 ushered in the New Deal and most countries left the gold standard and embarked on a new macroeconomic policy regime. There is a large literature that seeks to account for the role of policy in macroeconomic outcomes in the post-Depression years, but, as this section shows, there remains room for debate.

In the United States, recovery after 1933 can be characterized as strong but incomplete. In the 4 years 1933–7, real GDP rose by 36 per cent compared with a fall of 27 per cent in the previous 4 years, taking the level in 1937 back to about 5 per cent above that of 1929. Assuming trend growth at the pre-1929 rate, however, there was still an output gap of some 25 per cent. From 1933 the New Deal swung into action with its alphabet soup of public-spending initiatives. It is natural to assume that this represented a substantial Keynesian fiscal stimulus but, as has been known since the calculations of Brown (1956) and Peppers (1973), this was not the case.

Fishback (2010) points out that the New Deal was largely financed by tax increases and notes that the direct effects of fiscal stimulus were, at most, a very small part of the recovery. The federal deficit in 1936 was about 5.5 per cent of GDP and between 1933 and 1936 the discretionary increase probably amounted to around half of this figure. So, fiscal policy was not really tried. Would it have worked? This turns on the value of the fiscal multiplier. In the circumstances of the mid-1930s, with interest rates at or near the lower bound, there are good reasons to believe that, for temporary government spending increases, fiscal multipliers should be a good deal higher with much less crowding out than in normal times (Hall, 2009). Gordon and Krenn (2010) provide estimates of the fiscal multiplier based on a vector autoregression (VAR) analysis of the impact of government expenditure on preparations for the Second World War in 1940–1 which are 1.8 in 1940 falling to 0.8 by the end of 1941. However, as Fishback (2010) notes, there are few estimates of the fiscal multiplier during the New Deal; his own research at the state level suggests a range of 0.9 to 1.7—perhaps a bit below Hall’s best guess of 1.7 for similar conditions. In any event, this would make dealing with the output gap of 1933 a daunting task.

The New Deal was a package of measures, some of which, notably NIRA in 1933 and later the National Labor Relations Act, were intended to increase the bargaining power of workers *vis-à-vis* employers and to prevent nominal wage declines. Cole and Ohanian

(2004), in the RBC tradition, argue that the effect was to raise real wages and unemployment compared with competitive market outcomes and that this accounts for a significant part of the shortfall of output in 1937 relative to the pre-1929 trend. Hatton and Thomas (2010) review the evidence for this claim and conclude that the New Deal may well have raised the equilibrium level of unemployment considerably; they find that the non-accelerating inflation rate of unemployment (NAIRU) was 12 percentage points higher in the American economy in the 1930s compared with the 1920s. So, it seems that the adverse supply-side impact of the New Deal probably outweighs any positive demand stimulus that it delivered.

Romer (1992) argued that the main stimulus to recovery in the United States was monetary policy, noting very rapid growth in the monetary base and M1 after 1933. This was driven by (largely unsterilized) gold inflows after the United States left the gold standard. M1 grew at nearly 10 per cent per year between 1933 and 1937 and Romer estimated that this was sufficient to raise real GDP in 1937 by about 25 per cent compared with what would have happened under normal monetary growth. She found a large reduction in real interest rates from 1933 and concluded that this had favourable impacts on investment spending. By implication, the positive effect of monetary policy on nominal GDP was a major reason why the federal debt-to-GDP ratio only went up from 16 per cent in 1929 to 44 per cent in 1939.

This account needs to be supplemented by explicitly considering how the United States escaped the liquidity trap, i.e. delivered monetary stimulus despite interest rates at the lower bound. The key here was 'regime change', as was originally stressed by Temin and Wigmore (1990). They argue that leaving the gold standard was a clear signal that the deflationary period was over. Eggertsson (2008), working with a standard DSGE model, built on this and provided some quantification. His argument is that Roosevelt's actions on taking office, comprising leaving gold, announcing an objective of restoring the prices to pre-Depression levels, and implementing New Deal spending, amounted to a credible policy that delivered a major change in inflationary expectations which drove down real interest rates, matching the classic recipe for escape from the liquidity trap (Svensson, 2003). Eggertsson's calibration implied that the regime change accounted for about three-quarters of the recovery in output between 1933 and 1937. Interestingly, this kind of model makes the New Deal a major factor in promoting recovery, but through its indirect effects in changing expectations rather than through a Keynesian fiscal stimulus.

An important ingredient in recovery in the United States was rehabilitation of the banking system to put an end to the waves of bank failures and to ease the credit crunch; this was, indeed, a major priority for legislators. Both re-capitalization and re-regulation of the banks were required. Following a compulsory closure of all banks for 3 days for inspection of their books, the Roosevelt Administration passed an Emergency Banking Act in March 1933 and this was followed by the Banking Acts of 1933 (Glass-Steagall) and of 1935. About 4,000 banks were declared insolvent and not allowed to re-open after the 'bank holiday'. *Inter alia*, these banking acts empowered the Reconstruction Finance Corporation (RFC), a government agency, to buy preferred stock in banks with voting rights that frequently entailed effective control, introduced federal deposit insurance, separated investment from commercial banking, and imposed interest-rate ceilings on bank accounts (regulation Q). However, nationwide branch banking continued to be prohibited.

This approach was successful in part, as Mitchener and Mason (2010, this issue) discuss. Deposit insurance, made permanent under the auspices of the Federal Deposit Insurance Corporation (FDIC), was important in ending the threat of further bank runs, as theory suggests it should (Diamond and Dybvig, 1983). The RFC provided substantial capital; by March 1934 it owned stock in nearly half of all commercial banks and in June 1935 it owned more than a third

of the capital (\$1.3 billion in 6,800 banks) of the American banking system (Olson, 1988). The RFC imposed conditions on banks which were a good substitute for market discipline on risk taking (Calomiris and Mason, 2003c) and the RFC made money for the American taxpayer. Bank runs ceased and failures returned to normal low levels; the deposits-to-currency ratio which had fallen from 10.9 to 5.1 between 1929 and 1933 went back above 7. Bank lending, however, remained far below pre-Depression levels and deposit-to-reserve ratios continued to fall from 13 in 1929, to 8.2 in 1933, to 5 in 1937, when loans were a little over half but bank capital was over 80 per cent of the 1929 level. This reflected continued efforts by banks to reduce default risk at a time when they found it costly to raise new equity (Calomiris and Wilson, 2004).

The regulatory response to the banking crises, captured by political interest groups intent on preserving unit banking and imbued with the ideology of the real bills doctrine, was highly unsatisfactory (Calomiris, 2010).⁴ Calomiris notes that the legislation was designed to support unit banking, yet this was the main structural weakness of the system which inhibited diversification of risks, prevented coordinated responses to shocks, restricted competition, and was a major source of banking instability. In contrast, the Glass–Steagall Act mandated the separation of commercial and investment banking, whereas the evidence is that banks which did both were better diversified and less likely to fail (White, 1986) and that there were no good investor-protection reasons for this legislation (Kroszner and Rajan, 1994). In the longer term, the downside of deposit insurance in terms of encouragement of greater risk taking was an important concern but politically it was impossible to remove; this might be seen as a significant cost of the ineffectiveness of the Federal Reserve as lender of last resort.

A key issue with macroeconomic policies to promote recovery is when to withdraw monetary and fiscal stimulus and revert to normal bank policy: too soon and a double-dip recession ensues, too late and inflation takes off. These ‘exit-strategy’ issues are considered by Mitchener and Mason (2010). For the United States, the former problem materialized in 1937–8 when there was a short but severe recession in which real GDP fell by 10 per cent from peak to trough. This seems to have been consequent on a combination of monetary and fiscal policy tightening in which the former was probably more important (Velde, 2009). This entailed a doubling of banks’ reserve requirements between August 1936 and May 1937, motivated by fear that excess reserves held by the banks might lead to a rapid rise in bank lending, together with the adoption of a policy to sterilize gold inflows as a result of which M1 growth stalled, and tax increases which saw the full-employment surplus rise by about 3.4 per cent of GDP (Peppers, 1973), motivated by moves to re-balance the federal budget in the face of increases in the public debt-to-GDP ratio.

For countries in the rest of the world, a key factor in recovery was exit from the gold standard, as would be expected on the basis of the earlier discussion. On average, the earlier this happened the shallower was the downturn and the sooner recovery began, as was first shown in a very influential paper by Eichengreen and Sachs (1985) and has subsequently been confirmed for wider samples of advanced and middle-income countries by Bernanke (1995) and Campa (1990). Bernanke (1995) points to leaving gold as permitting monetary expansion and leading to big declines in real interest rates.

⁴ The real bills doctrine held that the Federal Reserve should simply supply credit to meet the needs of trade and should not seek to target monetary growth or inflation; adherents believed in the separation of investment and commercial banking.

In principle, going off gold also allowed countries with balance-of-payments deficits to escape from the deflationary pressures on fiscal policy that, with sterilization of monetary inflows in surplus economies, bore heavily as they tried to prevent a currency crisis (Eichengreen and Temin, 2010). This might have allowed temporary fiscal stimulus to promote recovery but, as Wolf (2010) explains, for a variety of reasons including continued fear of inflation, many countries were reluctant to follow this path in the first half of the 1930s. Would the injection of fiscal stimulus have been successful? Almunia *et al.* (2010) obtain results that suggest it might well have been, given near liquidity trap conditions, and believe that there were positive results based on sizeable multipliers where it was employed, as in late-1930s France and Italy.

In similar vein, it should be noted that sovereign default was good for relatively rapid and strong recovery (Eichengreen and Portes, 1990). Continuing to service debt as nominal GDP fell implied severe fiscal austerity and, not surprisingly, default was widespread both in Europe and Latin America in an era when the creditors were typically private bondholders, rather than banks, and creditor governments took a relatively relaxed attitude.⁵

These themes can be further illustrated by considering economic recovery in the UK which is covered in some detail in Middleton (2010). Compared with the United States, the UK experienced a relatively mild downturn, with real GDP falling by only about 5 per cent and an early recovery with real GDP returning to the 1929 level by 1934.⁶ This fits the picture. The UK had a concentrated banking system but no universal banking and there were no bank failures. An early exit from the gold standard in September 1931 was a blessing in disguise and the result of a currency crisis driven by the fear that rising unemployment in an economy hard hit by falling exports was incompatible with continuation of deflationary policies (Eichengreen and Jeanne, 1998). Devaluation permitted a 'cheap-money' policy together with a significant gain in competitiveness, and this accounts for much of the early recovery which started in a period of fiscal consolidation (Broadberry, 1986). The UK did not default but, in 1932, achieved a significant reduction in debt-interest payments through conversion of a large war loan into lower-interest bonds. Unlike the United States, fiscal policy eventually played a significant part through the rearmament programme associated with a discretionary fiscal stimulus of about 3 per cent of GDP between 1935 and 1938; the evidence suggests a short-run fiscal multiplier of around 1.5 (Thomas, 1983; Dimsdale and Horsewood, 1995).

(iii) What were the long-term implications of the Great Depression?

The Great Depression had long-lasting effects on economic policy and performance. In the UK it can be seen as a major step down 'the road to 1945' and the favourable reception in the 1940s and 1950s to the ideas of Beveridge and Keynes, while in the United States there is a widely held belief that it was the 'defining moment' in the development of the American economy (Bordo *et al.*, 1998). Obviously, there is a danger of attributing to the Depression

⁵ Eichengreen and Portes (1990) list 12 'heavy' and 16 'light' sovereign defaulters; the former include Germany and Greece and the latter include Canada, France, Italy, and Spain.

⁶ This raises the question as to why British folklore thinks the 1930s were so bad. The answer probably relates to regional trends in unemployment. In particular, adjustment to declines in the export-staple industries concentrated in 'Outer Britain' proved very difficult, cf. Hatton and Thomas (2010). This is symbolized by the Jarrow March, which took its participants in 1936 from the depressed North-east to the prosperous South-east.

changes which would have come about anyway, but there is no doubt that the failures of the market economy in the 1930s were game-changing.

Clearly, one implication was a major re-thinking of macroeconomics by the economics profession which, in the Anglo-American world, rapidly adopted Keynesian thinking. This had implications for policy-making, although these need to be handled with care. In the United States, the main change was that it became generally accepted that the automatic stabilizers would not be over-ridden in pursuit of a balanced budget, and these were now much more powerful, with federal spending considerably bigger, but there was no move to trying to fine-tune the economy through Keynesian demand management (De Long, 1998). In the UK, after the war, activist government intervention to prevent shortfalls of aggregate demand did become the norm and, by the 1950s and 1960s, short-term demand management was very prominent in a way that would have been unthinkable in the early 1930s.⁷

There was also a legacy from the 1930s for the framework of macroeconomic policy in terms of the macroeconomic trilemma. The move to controls on international capital movements proved to be long-lasting; in most countries, they continued throughout the Bretton Woods period with the return to pegged exchange rates and freer international trade. These years were characterized by very small current-account positions, very high correlations of domestic savings and investment, and the insulation of domestic from foreign interest rates, thus allowing independent monetary policy (Obstfeld and Taylor, 2004). This has been portrayed by Rodrik (2002) as the 'Bretton Woods Compromise' in terms of the acceptable limits on globalization required by domestic politics at the level of the nation state after the debacle of the 1930s.

The crisis of the 1930s surely also contributed to the massive increase in social transfers that characterized the OECD countries in the 50 years from 1930 to 1980, during which time the median percentage of GDP rose from a strikingly low 1.66 to 20.09 per cent (Lindert, 2004). Here, too, the story should not be over-simplified—many other factors played a role, including population ageing, trends in income distributions, and rising prosperity. Nevertheless, the 'defining moment' hypothesis for the United States is perhaps at its most persuasive in terms of federal social-insurance schemes; Wallis (2010, this issue) sees a fundamental change in terms of fiscal federalism as the New Deal succeeded in putting rules in place that underpinned the political acceptability of inter-state transfers.

The Great Depression also had big implications for microeconomic policy; Hannah and Temin (2010, this issue) suggest that the immediate impact can be seen as a serious retreat from the capitalist free market, with a new emphasis on government interventions to correct market failures. This implies a greater role for regulation and, in most OECD countries, for state ownership. The short-term implication was undoubtedly a substantial reduction in the extent of competition in product markets, including the rise of cartels encouraged by government and the anti-competitive effects of protectionism. The weakening of competition turned out to be much more pervasive and long-lasting in the UK than in the United States (Broadberry and Crafts, 1992; Shepherd, 1981).

It is well known that financial crises can have permanent adverse effects on the level and possibly also the trend growth rate of potential output and this is a major reason why such crises usually have serious fiscal implications, including big increases in structural deficits

⁷ The initial stance of the Labour government in the late 1940s was to embrace planning rather than fine-tuning. It should also be noted that there has been a vigorous debate among economic historians about the validity of the concept of a 'Keynesian revolution' in British economic policy-making; see Booth (2001) for an introduction and further references.

as a percentage of GDP. Thinking in terms of a production function, there will be direct adverse effects on the amount of capital as investment is interrupted, on the amount of labour inputs through hysteresis effects, and on TFP if R&D is cut back. Indirect effects—either positive or negative—may also be felt depending on the impact the crisis has on supply-side policy. Furceri and Mourougane (2009) estimate that for OECD countries a severe banking crisis reduces the level of potential output by about 4 per cent, while the review of the evidence in IMF (2009), which covers lower-income economies, suggests 10 per cent; in neither case is long-run trend growth thought to be affected.

What does the experience of the United States in the 1930s reveal? One way to address the issue is through time-series econometrics where the shock in the 1930s has been a focal point in debates about deterministic or stochastic trends.⁸ Here the evidence is rather inconclusive and the picture is muddled by the Second World War. In fact, assuming trend-stationarity and extrapolating the pre-1929 trend of *per capita* income growth into the long run gives quite a good approximation to actual experience, but a more careful look suggests a break in trend in 1929 comprising a levels decrease followed by a modest increase in trend growth through 1955 (Ben-David *et al.*, 2003). The pre-1929 trend line was crossed in 1942.

More insight may be obtained by considering business-cycle peak-to-peak growth-accounting estimates, as in Table 3. The obvious feature of the 1930s is that the financial crisis undermined growth in the capital stock. Had growth of the capital stock continued at the pre-1929 rate, by 1941 it would have been about 35 per cent larger and, accordingly, potential GDP perhaps 12 per cent bigger. Growth of labour inputs was sluggish, impaired by the impact of the New Deal. However, TFP growth was very strong, powered by sustained R&D, and Field (2003) labelled the 1930s the most technologically progressive decade of the twentieth century in the United States. This theme is pursued in Hannah and Temin (2010).

A legacy of the depression was a large rise in the number of long-term unemployed workers and the share of unemployment which was long term. In the UK this was to a large extent the result of job losses in the traditional export industries interacting with the unemployment-insurance system to generate a group of workers who would have liked their old jobs back but could survive on the dole. These long-term unemployed workers seem to have experienced declining re-employment probabilities over time as they became discouraged, their human capital deteriorated, and employers regarded them as damaged goods (Crafts, 1987). The plight of these workers scarred the period and, virtually excluded from the labour market, they did not hold down wage pressures (Crafts, 1989). So, at any level of unemployment, wage pressure was greater than in the 1920s or, equivalently, hysteresis effects had raised the NAIRU—perhaps by about 1.5 percentage points.

The UK did not experience a banking crisis but its supply-side policy was greatly affected by the response to the shocks of the 1930s and the damage limitation of the period had persistent effects well into the post-war period. Booth (1987) pointed to the logic of the so-called ‘managed-economy approach’ that was adopted—namely, that it cohered in terms of trying to promote an increase in prices relative to wages through a combination of devaluation, tariffs, and cartels. This amounted to a big reduction in product-market competition which took a long time fully to reverse. In the late 1950s, tariffs were still at mid-1930s levels and about 60 per cent of manufacturing output was cartelized. The retreat from competition had adverse effects

⁸ With a stochastic trend, a shock only has a temporary effect and the economy then returns to the previous trend growth path; in contrast, if the trend is a non-stationary stochastic process, shocks have an enduring effect on the future growth path and long-run forecasts are affected by historical events.

Table 3: Growth accounting decompositions, United States 1919–41 (% per year)

	$\Delta Y/Y$	$\Delta K/K$	$\Delta L/L$	$\Delta A/A$	$\Delta(Y/L)/(Y/L)$
GDP					
1919–29	3.08	2.69	1.10	1.44	1.96
1929–41	2.52	0.04	0.27	2.03	2.25
Private non-farm					
1919–29	4.06	2.93	1.73	2.04	2.30
1929–41	2.36	-0.14	-0.02	2.34	2.38

Notes: $\Delta A/A$ is TFP growth derived by imposing an aggregate Cobb–Douglas production function, $Y = AK^\alpha L^{1-\alpha}$. L is measured in terms of hours worked.

Source: Derived from Kendrick (1961).

on productivity performance over several decades and provided the context in which industrial relations problems and sleepy management proliferated (Broadberry and Crafts, 2011).

Finally, it should be noted that international trade did not return to pre-Depression levels until well after the Second World War. As of the late 1930s, it looked as though the increase in trade costs in the 1930s had ‘permanently’ reduced total trade (exports + imports) to income ratios by about 30 per cent for the advanced countries. Using modern research on the impact of trade on the level of income which allows for impacts on capital stock and TFP (rather than welfare triangles), following in the tradition of Frankel and Romer (1999), suggests that the long-term effect would have been to reduce the level of GDP per person by about 15 per cent.⁹

IV. What are the policy lessons?

This section pulls out the strongest policy lessons from the 1930s that have emerged from the above. Some of these are well understood and, fortunately, in the Great Recession of the last 2 years many of the worst mistakes of 80 years ago have not been repeated. The economic history of the Great Depression is, of course, well known to key players such as Ben Bernanke and Christina Romer, who are distinguished contributors to the literature. We are, of course, aware that some things are different now—for example, there was no European Monetary Union or too-big-to-fail doctrine in the 1930s—and that policy decisions and outcomes were contingent on the circumstances of the time; nevertheless, we believe that there is value in re-visiting the experience of that decade.

Starting with monetary and fiscal policy, the headlines from the American experience are clear enough. Monetary policy bears a big responsibility for the early-1930s slump; subsequent research has refined rather than refuted the claims of Friedman and Schwartz (1963). Monetary policy errors were of both commission and omission. Inappropriate tightening of policy precipitated the downturn, while the subsequent failure to provide greater monetary stimulus allowed recession to develop into depression. In particular, as Bordo and Lane (2010) show, the Federal Reserve failed in its role as lender of last resort and thus made

⁹ This is based on the point estimate of an elasticity of 0.5 for the effect of trade exposure on income found for the period 1960–95 by Feyrer (2009) using an improved estimation technique. As far as we know, a similar study has not yet been performed for the interwar years. For the pre-1914 period, Jacks (2006) found larger elasticities based on the original Frankel–Romer methodology.

the financial crisis much more serious. These mistakes were not repeated in 2008–9 when monetary policy was aggressively expansionary (Wheelock, 2010).

In the 1930s recovery, by contrast, monetary growth provided a major impetus, while there was virtually no fiscal stimulus, even though it is reasonable to suppose that the fiscal multiplier was quite big. It is important not to be misled by the frenetic activity of the New Deal; fiscal policy did not fail, rather it was not tried. It should also be recognized that a strong recovery was rudely interrupted by the severe recession of 1937–8 and this seems to be explained by deflationary moves in both monetary and fiscal policy.

The British fiscal-policy experience offers rather different messages. In the rearmament phase of the later 1930s, fiscal stimulus had a substantial positive impact on real output. On the other hand, in the crisis at the start of the decade, attempts to prevent the budget deficit rising as the recession deepened reduced aggregate demand appreciably, with the structural deficit being reduced by over 2.5 per cent of GDP (Middleton, 1985). The big difference compared with the present day is that the government attempted to over-ride the automatic stabilizers.¹⁰ The context, in terms of the very unpleasant budgetary arithmetic arising from wartime borrowing and being on the gold standard, is important.¹¹ This drastically reduced freedom to manoeuvre in the face of fears of an adverse reaction from financial markets and of deflation. The lessons here are that falling prices greatly magnify worries about fiscal sustainability, and that, at times when fiscal policy is a valuable weapon, it is highly advantageous to enter the crisis with a history of fiscal prudence.

The experience of the 1930s tells us to expect that a legacy of the current crisis will be a substantial increase in long-term unemployment and economic inactivity. It seems clear that once again this will imply that the NAIRU goes up and the level of potential output goes down. The analysis in Guichard and Rusticelli (2010) suggests that the average increase in NAIRU through hysteresis effects, both across the OECD as a whole and also in the UK, could be around 0.75 percentage points. The adverse impact on the well-being of those who become long-term unemployed will be severe and sustained (Clark *et al.*, 2008). As Hatton and Thomas (2010) point out, this represents a major challenge for active labour-market policies.

There is a further major lesson from the recovery phase of the 1930s, namely, the importance of regime change for escaping the liquidity trap. Exit from the gold standard by the United States in 1933, together with New Deal policies, changed inflationary expectations and produced a dramatic fall in real interest rates. More generally, abandoning the gold-standard rule restored independence of monetary policy which was valuable for many countries in a world with no policy coordination and bedevilled by wage stickiness. Devaluation promoted early recovery and made fiscal consolidation much less painful. Here was a classic case where adhering to the wrong policy rule made things worse.

¹⁰ The large UK budget deficit in 2009–10 of about 11 per cent of GDP mainly results from the fiscal impact of the crisis on top of a pre-existing structural deficit of about 3 per cent of GDP; discretionary fiscal stimulus was equivalent to only about 1.5 per cent of GDP (IFS, 2010). But the key point is that there was no attempt through fiscal stringency to stop the deficit from increasing, quite unlike 1931.

¹¹ Using the standard formula that for fiscal sustainability $b > d(r - g)$ where b is the primary surplus/GDP, r is the interest rate on government debt, and g is the growth rate of nominal GDP with the data set from Middleton (2010), in the late 1920s, $d = 1.7$, $r = 4.6$, and $g = 2.5$; if inflation is zero then $b = 3.6$ per cent, but if prices fell at 5 per cent per year, b rose to 12.1 per cent. Conversion of the war debt and gently rising prices in the post-gold-standard world changed this so that b fell below 2 per cent. The value of b is quite small in each of these scenarios if d is at the 1913 level of 0.25.

This obviously has resonance for current Eurozone problems and, especially, for Greece, which does not have readily available the classic 1930s escape route of devaluation. Eichengreen and Temin (2010) argue that it is virtually impossible for a country to impose capital controls and leave the Eurozone and that, as the failure of the interwar gold standard illustrates, successful fixed exchange-rate systems generally need to be managed in ways that share burdens of adjustment between surplus and deficit countries. Wolf (2010) sees the Eurozone crisis as reinforcing the need for binding fiscal rules together with a credible commitment to a permanent European Stabilization Mechanism to preclude the financial crisis that sovereign default would bring.

At the beginning of the current crisis, international trade collapsed and it was widely remarked that there was a chilling parallel with the trade-wars period of the early 1930s with its seriously adverse implications for income levels in the long term. Subsequently, research has found that the contribution of trade barriers to falling world-trade volumes in 2008–9 was very small, perhaps only 2 per cent (Kee *et al.*, 2010), which is well below estimates of 40 per cent or more in the Great Depression. It seems that the structure of world trade has changed in ways that make volumes much more sensitive to demand shocks; the evidence is reviewed by Grossman and Meissner (2010).

This raises the important question of why we have seen creeping rather than rampant protectionism this time. Research on the interwar period by Eichengreen and Irwin (2009) finds that protectionist policies were less likely to be adopted by countries which left the gold standard early, i.e. where there was more freedom to adopt expansionary monetary and fiscal policies. They argue that this makes protectionism much less likely now because the scope for a macroeconomic policy response is much greater.

Even so, another big difference from the 1930s may also be relevant, namely, that now we have the trade rules overseen by the WTO including bound tariff agreements. Evenett (2009) points out that these tariff bindings have held. Unfortunately, it is also true that there is a great deal of leeway for WTO-legal increases in trade barriers, partly because in many cases tariffs are well below bound levels and partly because anti-dumping is not well addressed by the rules. This underlines the importance of reducing the scope for governments legally to raise levels of protection and emphasizes that there could be real value from concluding the Doha Round (Hoekman *et al.*, 2010).

Banking crises were at the heart of the Great Depression in the United States. That experience and the wider evidence base tells us that such crises are typically very expensive in terms of the depth and length of the downturns with which they are associated and the fiscal legacy that they bequeath through increased structural deficits and government debt-servicing (Laeven and Valencia, 2008). The costs are greater when pre-crisis regulation and supervision are weak (Ahrend *et al.*, 2009), as is borne out by the variance of bank failure rates across the states of the USA in the 1930s.

Microeconomic analysis incorporating implications of asymmetric information predicts that there is the potential for serious market failures in the banking sector with attendant risks of banking crises; for example, a bank run (a coordination failure) can happen even though agents are rational and banks are solvent (Diamond and Dybvig, 1983). Moral hazard leading to excessive risk-taking which is rational for banks may compound this problem in the context of free-riding in monitoring by depositors. Banks' lending decisions do not take into account the (potentially large) social costs of bank failures via the threat to financial stability that they entail.

As the catastrophic experience of the United States in the 1930s makes clear, the policy implication is that there is a need both for regulation to reduce the possibility of a crisis by

curtailing excessive risk-taking and also for crisis-management measures to reduce the impact of any crisis (Freixas, 2010). The latter might include deposit insurance together with a central bank that acts effectively as a lender of last resort. The former might just comprise regulation that improves the quality of publicly available information to facilitate market discipline of banks. In practice, however, deposit insurance tends to exacerbate moral hazard, especially if implicit full-insurance guarantees are given *de facto* when banks are deemed too big to fail. This makes strict regulation of bank behaviour, for example, in terms of capital-adequacy rules, or of the size and/or scope of banking activities imperative (Bhattacharya *et al.*, 1998).

In 1929, the United States had a badly regulated and under-capitalized banking system, an inexperienced and incompetent lender of last resort, and no federal deposit insurance. At the end of the crisis, responses were made both in terms of prudential regulation and crisis management. In 1933, ending the waves of banking crises was both an economic and a political imperative. As today, reliance on market discipline appeared unrealistic. The lender of last resort had failed. So, the solution was deposit insurance plus regulatory reform, and the political attractions of the former meant that it would be a permanent feature of the American banking system (Calomiris, 2010). Many other countries have followed down this path, a choice reinforced by the present crisis. For this solution to work effectively, it is crucial that regulation is well designed. The lesson from the 1930s is that it most probably will not be, because vested interests are likely to hijack the politics of regulatory design. In particular, it is clear that the Glass–Steagall Act introduced unjustified restrictions on universal banking while failing to address the real structural problem, namely, unit banking. Nevertheless, given the scope for, and potentially large costs of, market failure in banking together with the unavoidable presence of deposit insurance, in principle, tighter regulation to contain moral hazard was appropriate both then and now.¹²

In late 2008, the Queen pertinently asked why no one had seen the crisis coming. A similar question would have been entirely appropriate in 1931. In some sense, such a lack of foresight represents a failure of economics but it is important to be clear what this comprises. As the research reviewed in this essay shows, economics has powerful tools that explain the reasons for and the consequences of financial crises, *ex post*. There is no great mystery about what went wrong in the United States in the early 1930s and, in principle, it is known how to prevent a repetition. Forecasting the course of the depression *ex ante* would, however, have been extremely difficult, then as now. *Inter alia*, it would have required detailed knowledge of bank balance sheets and a model of when banks would fail, together with an estimate of the impact of bank failures on economic activity, plus an ability to predict the Federal Reserve's policy moves and when the United States would leave the gold standard.

The key point is surely the need to take banking crises seriously. Microeconomic analysis based on incentive structures in the presence of asymmetric information explains why these are likely to happen (Dewatripont and Tirole, 1994), while economic history tells us that they have been quite frequent and often very costly (Reinhart and Rogoff, 2009). This suggests that there is a clear need to supplement conventional macroeconomic forecasting models with models for policy analysis and simulation which incorporate a financial inter-

¹² The claim that there is a market-failure-based justification for stronger regulation is related to the special features of banking that create instability risks and clearly does not generalize to a case for state intervention across the board on the grounds that the market economy as a whole has failed. That error was commonplace in the 1930s but should not be repeated now. It should also be apparent that 1930s experience does not offer a blueprint for the optimal details of regulation in the different world of today.

mediation sector with incentive distortions and information frictions (Bean, 2010) and with 'early-warning' models that focus on threats to financial stability.

Unfortunately, the latter are still far from satisfactory. For example, the preferred model in Davis and Karim (2008) gave the probability of a banking crisis in the UK in 2007 as 0.6 per cent while Giannone *et al.* (2010) show that the recent financial crisis was more severe on average in countries which had very high-quality financial regulation according to existing indicators! Moreover, economists have not yet identified with any precision *ex post* the initial conditions which made for greater vulnerability (Claessens *et al.*, 2010). The policy implication is to recognize that maintaining financial stability is a policy objective that will not be achieved by inflation targeting but requires additional policy instruments.

Finally, it is worth noting that in some very important ways economics has had a good crisis and lessons from the 1930s have been well heeded. Accepting that the financial crisis was allowed to happen and was not predicted, at least the policy response based on economic analysis and historical experience prevented a repeat of the trauma of the Great Depression.

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