Beta February 2016 version

THE GREAT DEPRESSION, THE GOLDEN AGE OF CAPITALISM AND THE GLOBAL FINANCIAL CRISIS

SINCE THE END OF THE FIRST WORLD WAR, THREE PERIODS OF DOWNTURN AND INSTABILITY HAVE PUNCTUATED THE ECONOMIC HISTORY OF THE ADVANCED CAPITALIST ECONOMIES, INTERRUPTING LONG PERIODS OF RELATIVELY STEADY GROWTH IN LIVING STANDARDS. ECONOMISTS HAVE LEARNED DIFFERENT LESSONS FROM EACH OF THESE CRISES

- There have been three distinctive economic epochs in the hundred years following the first world war—the roaring twenties and the Great Depression; the golden age of capitalism and stagflation; and the great moderation and subsequent financial crisis of 2008
- The end of each of these epochs—the stock market crash of 1929; the decline in profits and investment in the late 1960s and early 1970s culminating in the oil shock of 1973; and the financial crisis of 2008—was a sign that institutions that had governed the economy to that point had failed
- The new institutions marking the golden age of capitalism—increased trade union strength and government spending on social insurance—addressed the aggregate demand problems highlighted by the Great Depression and were associated with rapid productivity growth, investment and falling inequality
- Nevertheless, the golden age ended with a crisis of profitability, investment and productivity followed by stagflation
- The policies adopted in response to the end of the golden age restored high profits and low inflation, but did not restore the investment and productivity growth of the previous epoch—and made economies vulnerable to debt-fuelled financial booms. One of these booms precipitated a global financial crisis in 2008

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Before dawn on Saturday, 7 February 2009, 3,582 firefighters began deploying across the Australian state of Victoria. It would be the day remembered by Australians as Black Saturday: the day that bushfires devastated 400,000 hectares, destroyed 2,029 homes, and took 173 lives.

But when the fire brigades suited up that morning, there had not been any reports of fire. What had mobilised every firefighter in Victoria was the McArthur Forest Fire Danger Index (FFDI), which the previous day exceeded what, until then, was its calibrated maximum of 100—a level that had been reached only during the bushfires of January 1939. When the FFDI exceeds 50, it indicates "extreme" danger. A value above 100 is "catastrophic" danger. On 6 February 2009 it had hit 160.

Later there would be accusations, trials and even a Royal Commission to determine who or what had caused Australia's worst natural disaster. There were many possible causes: lightning strikes, sparks from farm machinery, faulty power lines, even arson.

A single spark or a lightning strike did not cause Black Saturday. Every day sparks ignite small bush fires, and on that day alone the Royal Commission reported 316 separate grass, scrub or forest fires. This was not a calamity because of any one of these local fires, but because conditions transformed routine, easily contained bushfires into an unprecedented disaster.

Small causes are sometimes magnified into large effects. Avalanches are another natural example. In electricity grids a failure of one link in the network overloads other links, leading to a cascade of failures and a blackout.

This small-causes-with-big-consequences process is found in economics too, for example in the Great Depression of the 1930s and the *global financial crisis* of 2008.

Although recessions are characteristic of capitalist economies, as we have seen, they rarely turn into episodes of persistent contraction. This is because of a combination of the economy's self-correcting properties and successful intervention by policymakers. Specifically:

- Households take preventative measures that dampen rather than amplify shocks (Unit 12)
- Governments create automatic stabilisers (Unit 13)
- Governments and central banks take actions to produce negative rather than *positive feedbacks* when shocks occur (Units 13, 14)

But, like Black Saturday, occasionally a major economic calamity occurs. These calamities raise three sets of questions about how economic crises mirror these natural disasters:

- In economics, what is the counterpart to the dry undergrowth, the small spark, and the positive feedback processes that caused the fire to spread? What creates the raw material for an economic "Black Saturday"?

- Do we wait for the fire burn out, or can we put it out? If so, how?
- How can the lessons of an economic crisis be used to reduce the chance it will happen again? Can a long period without a disaster lead to complacency?

In this unit we look at three crises that have punctuated the last century of unprecedented growth in living standards in the rich countries of the world—the Great Depression of the 1930s, the end of the golden age of capitalism in the 1970s, and the global financial crisis of 2008.

The global financial crisis in 2008 took households, firms and governments around the world by surprise. An apparently small problem in an obscure part of the housing market in the US caused house prices to plummet, leading to a cascade of unpaid debts around the world, and a collapse in global industrial production and world trade.

To economists and historians, the events of 2008 looked scarily like what had happened at the beginning of the Great Depression in 1929. For the first time they found themselves fretting about the level of the little-known *Baltic Dry Index* (you can track its current level here), a measure of shipping prices for commodities like iron, coal and grain. When world trade is booming, demand for these commodities is high. But the supply of freight capacity is inelastic, so shipping prices rise and the Index goes up. In May 2008 the Baltic Dry Index reached its highest level since it was first published in 1985. But the reverse is also true: by December many more people were checking the Index, because it had fallen 94%. The fall told them that, thousands of miles from the boarded-up houses of bankrupt former homeowners in Arizona and California where the crisis had begun, giant $100m freighters were stuck in port because there was no trade for them to carry.

In 2008 economists remembered the lessons of the Great Depression. They encouraged policymakers globally to adopt a coordinated set of actions to halt the collapse in aggregate demand, and to keep the banking system functioning.

But economists also share some of the responsibility for the policies that made this crisis more likely. For 30 years unregulated financial and other markets had been stable. Some economists incorrectly assumed that they were immune to instability. So the events of 2008 also show how a failure to learn from history helps to create the next crisis.

How did a small problem in the US housing market send the global economy to the brink of a catastrophe?

- *The dry undergrowth:* In Unit 16, Figure 16.9 charted the growth in the globalisation of international capital markets by looking at the amount of foreign assets owned by domestic residents. At the same time, the globalisation of banking was occurring. Some of the unregulated expansion of lending by global banks ended up financing mortgage loans to so-called *subprime* borrowers in the US.

- *The spark:* Falling real estate prices meant that banks with very high leverage, and therefore with thin cushions of net worth (equity), in the US, France, Germany, the UK and elsewhere quickly because insolvent.
- *The positive feedback mechanism:* Fear was transmitted around the world and customers cancelled orders. Aggregate demand fell sharply. The high degree of interconnection among global banks and the possibility of massive transactions in a matter of seconds made excessive leverage an increasingly dangerous source of instability.
- *The complacent policymakers:* With few exceptions most policymakers, and the economists whose advice they sought, still believed that the financial sector was able to regulate itself. The international central bank for central banks—the Bank for International Settlements in Basel—allowed banks great scope to choose their level of leverage. Banks could use their own models to calculate the riskiness of their assets. They could meet the international regulatory standards for leverage by understating the riskiness of their assets, and by parking these risky assets in what are called *shadow banks*, which they owned but which were outside the scope of banking regulations. All of this was entirely legal. Many economists continued to believe that economic instability was a thing of the past, right up to the onset of the crisis itself. It is as if Australian firefighters had watched the Forest Fire Danger Index hit 160, but did nothing because they didn't believe a fire was possible.

Some of those involved admitted afterwards that their belief in the stability of the economy had been wrong. For example, Alan Greenspan, who had been in charge of the US central bank between 1987 and 2006, admitted this error to a US government committee hearing.

As the financial crisis unfolded in the summer and autumn of 2008, economists in government, central banks and universities diagnosed a crisis of aggregate demand and bank failure. Many of the key policymakers in this crisis were economists who had studied the Great Depression.

The lessons they had learned from the Great Depression in the US—cut interest rates, provide liquidity to banks and run fiscal deficits—were applied. In November 2008, ahead of the G20 summit in Washington, British Prime Minister Gordon Brown told reporters:

"We need to agree on the importance of coordination of fiscal and monetary policies. There is a need for urgency. By acting now we can stimulate growth in all our economies. The cost of inaction will be far greater than the cost of any action."

HOW ECONOMISTS LEARN FROM FACTS

"I MADE A MISTAKE"

On 23 October 2008, a few weeks after the collapse of the US investment bank Lehman Brothers, former US Federal Reserve chairman Alan Greenspan admitted that the accelerating financial crisis had shown him "a flaw" in his belief that free, competitive markets would ensure financial stability. In a hearing of the US House of Representatives Committee on Oversight and Government Reform, Greenspan was questioned by chair of the House Committee, Rep. Henry Waxman:

Waxman Well, where did you make a mistake then?

Greenspan I made a mistake in presuming that the self-interest of organisations, specifically banks and others, was best capable of protecting [the banks'] own shareholders and their equity in the firms… So the problem here is that something which looked to be a very solid edifice, and, indeed, a critical pillar to market competition and free markets, did break down. And I think that, as I said, shocked me. I still do not fully understand why it happened and, obviously, to the extent that I figure out where it happened and why, I will change my views. If the facts change, I will change.

Waxman You had a belief that *[quoting Greenspan]* "free, competitive markets are by far the unrivalled way to organise economies. We have tried regulation, none meaningfully worked.'' You have the authority to prevent irresponsible lending practices that led to the subprime mortgage crisis. You were advised to do so by many others. [Did you] make decisions that you wish you had not made?

Greenspan Yes, I found a flaw…

Waxman You found a flaw?

Greenspan I found a flaw in the model… that defines how the world works, so to speak.

Waxman In other words, you found that your view of the world was not right, it was not working.

Greenspan Precisely. That's precisely the reason I was shocked, because I had been going for 40 years or more with very considerable evidence that it was working exceptionally well.

A direct comparison between the first 10 months of the Great Depression and the 2008 financial crisis shows that the collapse of industrial production in the world economy was similar (compare January 1930 and January 2009 in Figure 17.1a). But lessons had been learned: in 2008, monetary and fiscal policy responses were much larger and more decisive than in 1930, as shown in Figures 17.1b and 17.1c.

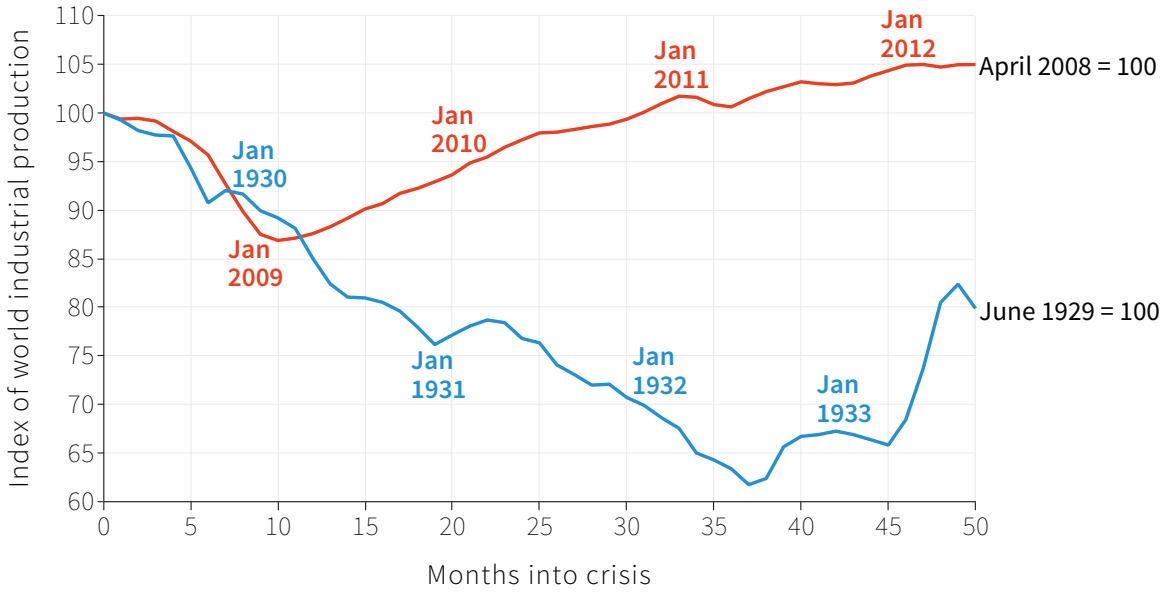


Figure 17.1a *The second Great Depression that did not happen: Comparing industrial production in the Great Depression and the global financial crisis.*

Source: *Almunia, Miguel, Agustín Bénétrix, Barry Eichengreen, Kevin H. O'Rourke, and Gisela Rua. 2010. 'From Great Depression to Great Credit Crisis: Similarities, Differences and Lessons.' Economic Policy 25 (62): 219–65. Updated using CPB Netherlands Bureau for Economic Policy Analysis. 2015. 'World Trade Monitor.'*

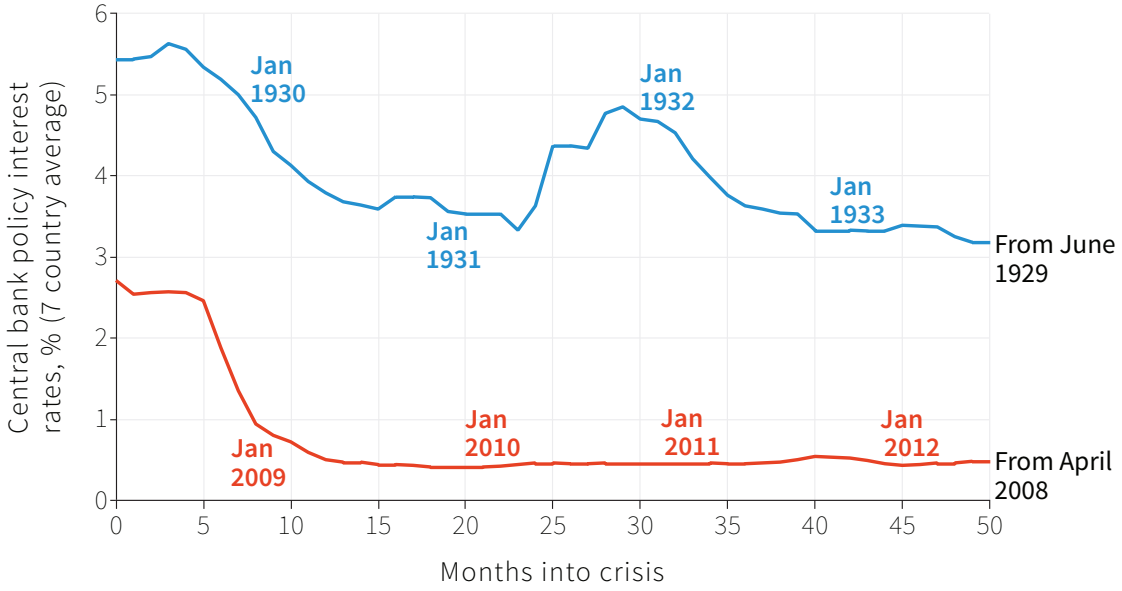


Figure 17.1b *The Great Depression and the global financial crisis: Monetary policy.*

Source: *As in Figure 17.1a updated using national central bank data.*

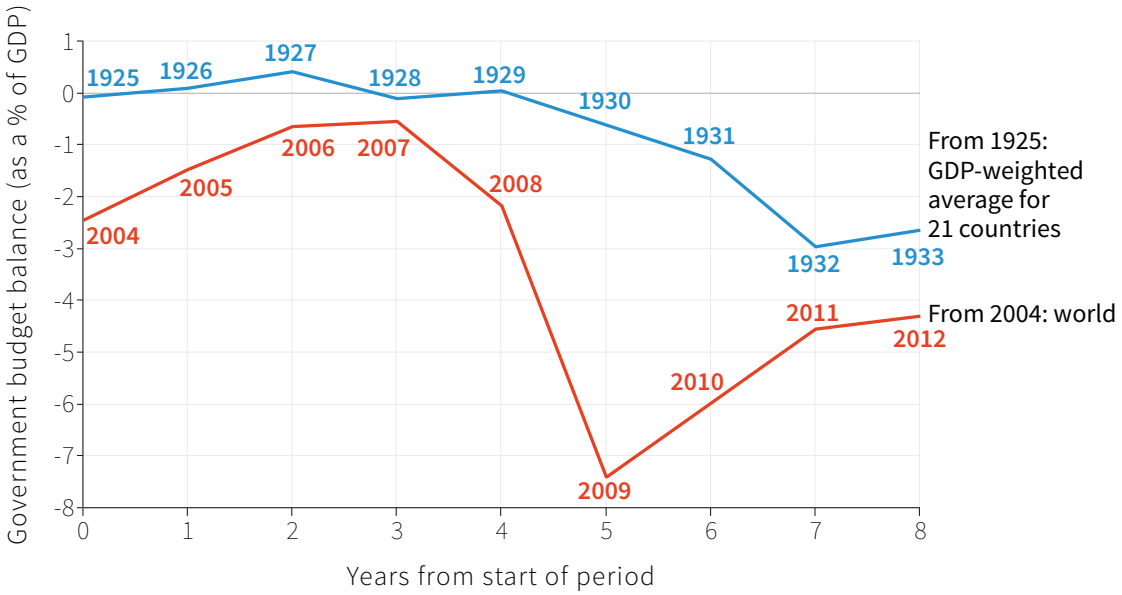


Figure 17.1c *The Great Depression and the global financial crisis: Fiscal policy.*

Source: *As in Figure 17.1a updated using International Monetary Fund. 2009. World Economic Outlook: January 2009; International Monetary Fund. 2013. 'IMF Fiscal Monitor April 2013: Fiscal Adjustment in an Uncertain World, April 2013.' April 16.*

17.1 THREE ECONOMIC EPOCHS

In the past 100 years the economies we often refer to as advanced (meaning, basically, "rich"), including the US, Western Europe, Australia, Canada and New Zealand, have seen average living standards measured by output per capita grow six-fold. Over the same period hours of work have fallen. This is a remarkable economic success, but it has not been a smooth ride.

The story of how rapid growth began was told in Units 1 and 2. In Figure 12.2 we contrasted the steady long-run growth rate from 1921 to 2011 with the fluctuations of the business cycle, which go from peak to peak every three to five years.

In this unit we will study three distinctive epochs. Each begins with a period of good years (the light shading in Figure 17.2 below), followed by a period of bad years (the dark shading).

- *1921 to 1941:* The crisis of the Great Depression is the defining feature of the first epoch, and opened the way for Keynes' concept of *aggregate demand* to become standard in economics teaching and policymaking.

- *1948 to 1979*: The golden age epoch stretched from the end of the second world war to 1979, and is named for the economic success of the 1950s and 1960s. The golden age was brought to an end in the 1970s by a crisis of profitability and productivity, and saw the emphasis in economics teaching and policymaking shift away from the role of aggregate demand toward *supply-side problems* such as productivity and decisions by firms to enter and exit markets.
- *1979 to 2013*: In the most recent epoch, the world was caught by surprise by the global financial crisis. The potential of a debt-fuelled boom to cause havoc was neglected during the preceding years of stable growth and seemingly successful macroeconomic management, which had been called the *great moderation*.

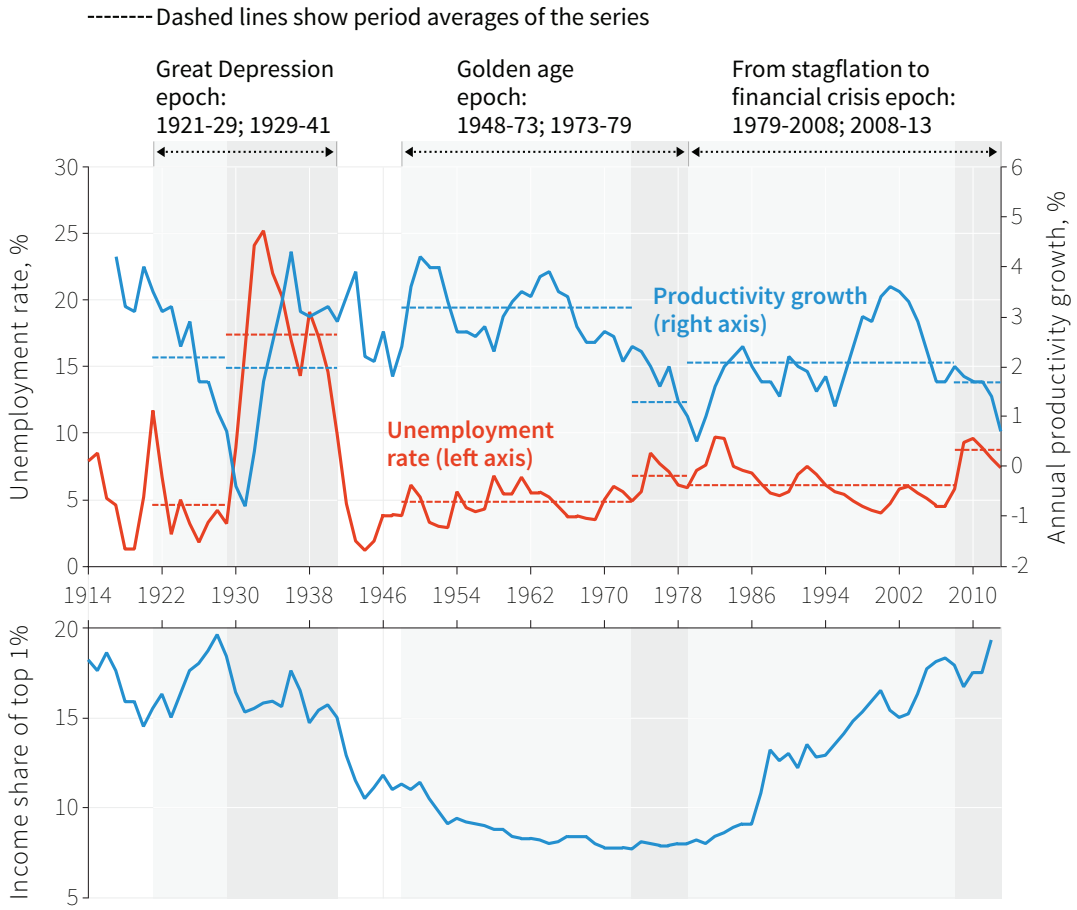


Figure 17.2 *Unemployment, productivity growth and inequality in the United States (1914-2013).*

Source: *United States Bureau of the Census. 2003. Historical Statistics of the United States: Colonial Times to 1970, Part 1. United States: United States Govt Printing Office; Alvaredo, Facundo, Anthony B Atkinson, Thomas Piketty, Emmanuel Saez, and Gabriel Zucman. 2016. 'The World Wealth and Income Database (WID).'; US Bureau of Labor Statistics; US Bureau of Economic Analysis.*

The term *crisis* is routinely applied to the first and the last of these episodes because they represented an unusual but recurrent cataclysmic divergence from the normal ups-and-downs of the economy. In the second epoch the end of the golden age, too, marked a sharp deviation from what had become normal. The three unhappy

surprises that ended the epochs are different in many respects, but they share a common feature: positive feedbacks magnified the effects of routine shocks that under other circumstances would have been dampened.

What does Figure 17.2 show?

- *Productivity growth:* A broad measure of economic performance is the growth of hourly productivity in the business sector. Productivity growth hit low points in the Great Depression, at the end of the golden age epoch in 1979 and in the wake of the financial crisis. The golden age got its name due to the extraordinary productivity growth until late in that epoch. The dashed blue lines show the average growth of productivity for each sub-period.
- *Unemployment:* High unemployment, shown in red, dominated the first epoch. The success of the golden age was marked by low unemployment as well as high productivity growth. The end of the golden age produced spikes in unemployment in the mid 1970s and early 1980s. In the third epoch, unemployment was lower at each successive business cycle trough until the financial crisis, when high and persistent unemployment re-emerged.
- *Inequality*: Figure 17.2 also presents data on inequality for the US: the income share of the top 1%. The richest 1% had nearly one-fifth of income in the late 1920s just before the Great Depression. Their share then steadily declined until a U-turn at the end of the golden age restored the income share of the very rich to 1920s levels.

We saw in earlier units that continuous technological progress has characterised capitalist economies, driven by the incentives to introduce new technology. Based on their expected profits after tax, entrepreneurs make investment decisions to get a step ahead of their competitors. Productivity growth reflects their collective decisions to invest in new machinery and equipment embodying improvements in technology. Figure 17.3 shows the growth rate of the capital stock and the rate of profit of firms in the non-financial corporate sector of the US economy before and after the payment of taxes on profits.

The data in Figure 17.3 illustrates that capital stock growth and firm profitability tend to rise and fall together. As we saw in Unit 13, investment is a function of expected post-tax profits and expectations will be influenced by what has happened to profitability in the recent past. Once a decision to invest is taken, there is a lag before the new capital stock is ordered and installed.

As profitability was restored following the collapse of the stock market in 1929 and the banking crises of 1929-31, investment recovered and the capital stock began to grow again. During the golden age, profitability and investment were both buoyant. A closer look at Figure 17.3 is revealing: investment depends on post-tax profitability and we can see that the gap between the pre-tax (red) and post-tax (green) rate of profit declined during the golden age. The lower panel shows the *effective tax rate* on corporate profits explicitly.

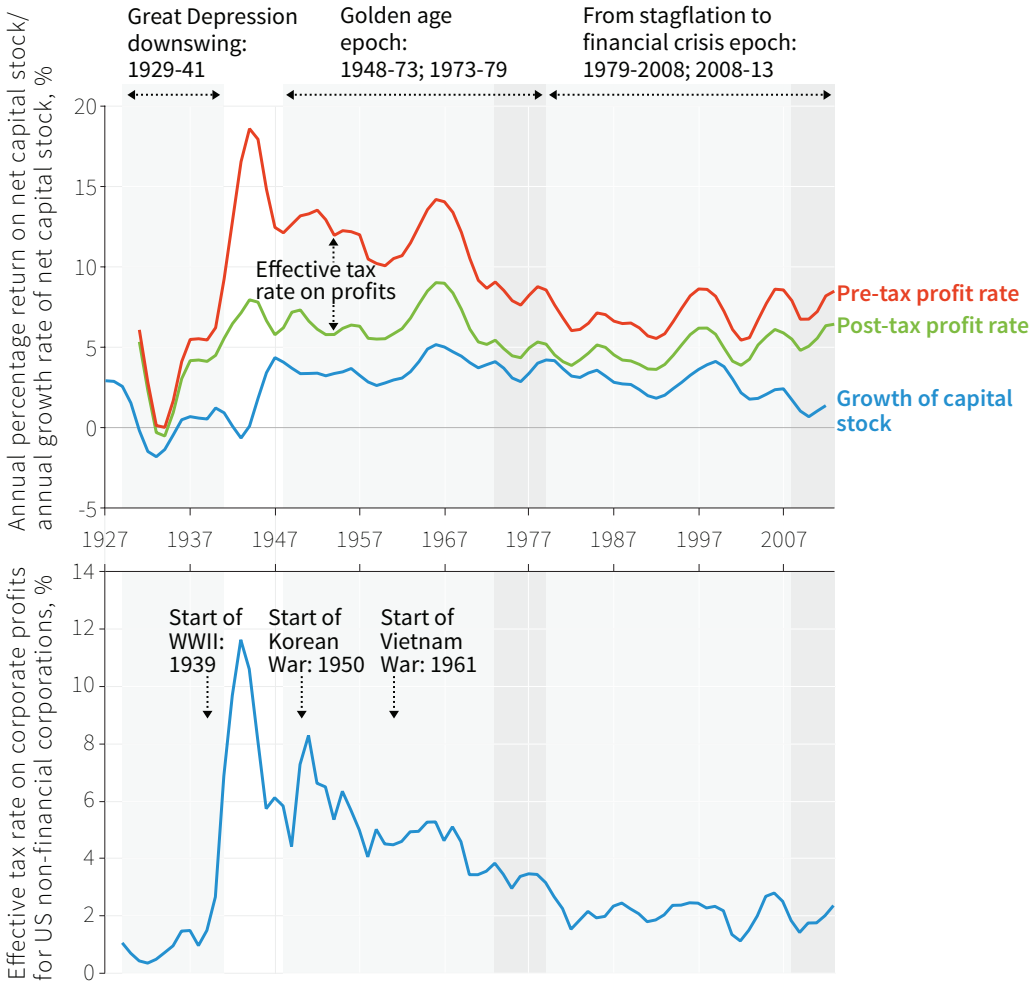


Figure 17.3 *Capital stock growth, profit rates and effective tax rate on profits for US non-financial corporations (1927-2013).*

Source: *US Bureau of Economic Analysis.*

Wars have to be financed and the tax on businesses increased during the second world war and the Korean war, and more slowly over the course of the Vietnam war. The effective tax rate on profits fell from 8% to 2% over the 30 years from the early 1950s. This helped to stabilise the post-tax rate of profit. In the late 1970s and early 1980s, taxes on profits were cut sharply; thereafter the pre-tax profit rate fluctuated without a trend. But in spite of the stabilisation of profitability in the third epoch, the growth rate of the capital stock fell.

On the eve of the financial crisis, Figures 17.2 and 17.3 show that the richest Americans were doing very well. But this did not stimulate investment, with the capital stock growing more slowly than at any time since the second world war. The onset of the financial crisis also coincided with a peak in debt (shown in Figure 17.4). Debt in financial firms and in households was at postwar highs (relative to the size of GDP). The swelling in the amount of debt was clearest for financial firms—but households also increased their debt ratio steadily through the 2000s.

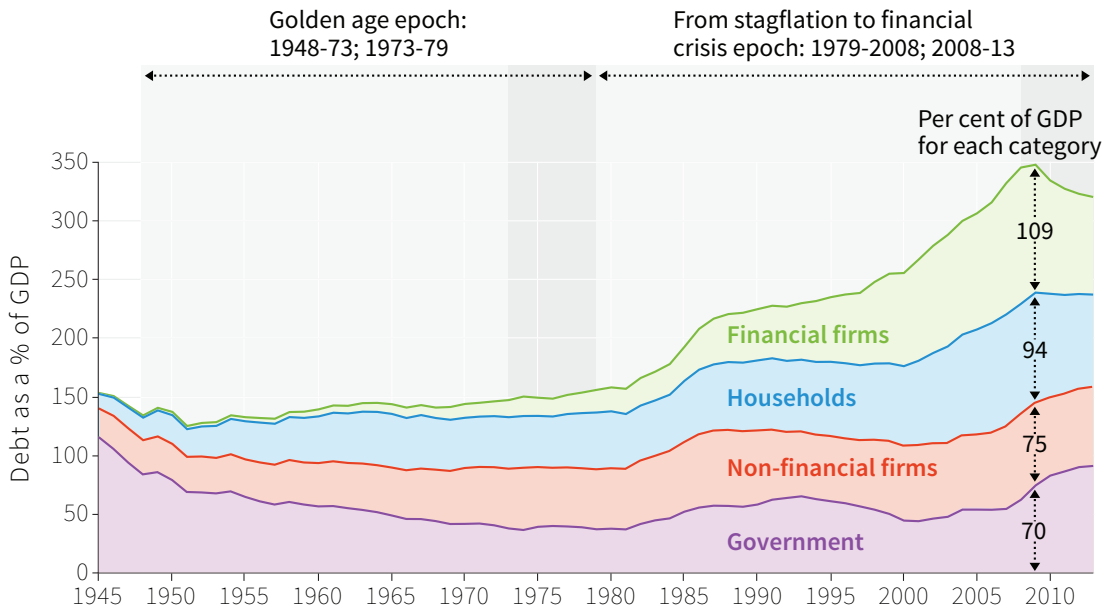


Figure 17.4 *Debt as a percentage of GDP in the United States: Households, non-financial firms, financial firms and the government (1945-2013).*

Source: *US Federal Reserve. 2015. 'Financial Accounts of the United States, Historical.' December 10; US Bureau of Economic Analysis.*

The three epochs of modern capitalism are very different, as Figures 17.5a and 17.5b show. We need to use the full range of tools of analysis we have developed in previous units to understand their dynamics, and how one epoch is related to another.

By 1921, the US had been the world productivity leader for a decade, and the world's largest economy for 50 years. The three epochs are more clearly defined in the US than in other countries, even other rich countries, although they had a profound influence on the economic history of the rest of the world. Its global leadership in technology and its global firms help explain rapid catch-up growth in Europe and Japan in the golden age. On either side of the golden age, the crises that began in the US in 1929 and 2008 became global crises too.

So why, apart from its productivity leadership, were these epochs centred on the US? Figure 17.5b summarises important differences between the US and other rich countries.

NAME OF PERIOD	DATES	IMPORTANT FEATURES OF THE US ECONOMY
1920s	1921-1929	• Low unemployment • High productivity growth • Rising inequality
GREAT DEPRESSION	1929-1941	• High unemployment • Falling prices • Unusually low growth rate of business capital stock • Falling inequality
GOLDEN AGE	1948-1973	• Low unemployment • Unusually high productivity growth • Unusually high growth rate of capital stock • Falling effective tax rate on corporate profits • Falling inequality
STAGFLATION	1973-1979	• High unemployment and inflation • Low productivity growth • Lower profits
1980s & THE GREAT MODERATION	1979-2008	• Low unemployment and inflation • Falling growth rate of business capital stock • Sharply rising inequality • Rising indebtedness of households and banks
FINANCIAL CRISIS	2008-2013	• High unemployment • Low inflation • Rising inequality

Figure 17.5a *The performance of the US economy over a century.*

GREAT DEPRESSION	• US : Large, sustained downturn in GDP starting from 1929 • UK : Avoided a banking crisis, experienced a modest fall in GDP
GOLDEN AGE	• US : Technology leader • Outside US : Diffusion of technology creates catch-up growth, improving productivity
FINANCIAL CRISIS	• US : Housing bubble creates banking crisis • Germany, Nordic countries, Japan, Canada, Australia : Did not experience bubble, largely avoided financial crisis
INTERNATIONAL OPENNESS (ALL THREE PERIODS)	More important in most countries than in the US

Figure 17.5b *The Great Depression, the golden age, and the financial crisis in cross-national comparison: Distinctive features of the United States.*

17.2 THE GREAT DEPRESSION, POSITIVE FEEDBACKS, AND AGGREGATE DEMAND

Capitalism is a dynamic economic system and, as we saw in Unit 12, booms and recessions are a recurrent feature even when weather-driven fluctuations in agricultural output are of limited importance in the economy. But not all recessions are equal. In Unit 13, we saw that in 1929 a downturn in the US business cycle similar to others in the preceding decade transformed into a large-scale economic disaster—the Great Depression.

THE GREAT DEPRESSION

The period during the 1930s in which there was a sharp fall in output and employment, experienced in many countries.

- Countries that left the *gold standard* earlier in the 1930s recovered earlier.
- In the US, Roosevelt's *New Deal* policies accelerated recovery from the Great Depression, partly by causing a change in expectations.

The story of how the *Great Depression* happened is dramatic to us, and must have been terrifying to those who experienced it. Small causes led to ever-larger effects in a downward spiral, like the cascading failures of an electricity grid during a blackout. Three simultaneous positive feedback mechanisms brought the American economy down in the 1930s:

- *Pessimism about the future:* The impact of a decline in investment on unemployment and of the stock market crash of 1929 on future prospects spread fear among households. They prepared for the worst by attempting to save more, bringing about a further decline in consumption demand.
- *Failure of the banking system:* The resulting decline in income meant that loans could not be repaid. By 1933, almost half of the banks in the US had failed, and access to credit shrank. The banks that did not fail raised interest rates as a hedge against risk, further discouraging firms from investing and curbing household spending on automobiles, refrigerators and other durable goods.
- *Deflation:* Prices fell as unsold goods piled up on store shelves.

Deflation affects aggregate demand through several routes. The most important channel operated through the effect of deflation on those with high debts. This positive feedback channel was new because in earlier episodes of deflation levels of debt had been much lower. Households stopped buying cars and houses, and many debtors become insolvent, creating problems for both borrowers and the banks. A survey showed that one-fifth of those in owner-occupied and rented accommodation was in default. Farmers were among those with high levels of debt: prices of their produce were falling, pulling down their incomes directly and pushing up the

burden of their debt. They responded to this by increasing production, which made the situation worse. When prices are falling, people also postpone the purchase of durables, which further reduces aggregate demand.

DISCUSS 17.1: FARMERS IN THE GREAT DEPRESSION

The response of farmers may have made sense from an individual point of view, but collectively it made the situation worse. Use diagrams, for example the model of a firm in a price-taking market for an individual farm and diagrams for supply and demand for the industry (for example wheat), to show why.

Few understood these positive feedback mechanisms at the time, and the government's initial attempts to reverse the downward spiral failed. This was partly because the government's actions were based on mistaken economic ideas. It was also because, even if they had pursued ideal policies, the government share of the economy was too small to counter the powerful destabilising trends in the private sector.

Figure 17.6 shows the fall in industrial production that started in 1929. In 1932 it was less than 60% of the 1929 level. This was followed by a recovery, until it fell again by 20% in 1937. Unemployment did not fall below 10% until 1941, the year the US entered the second world war. Consumer prices fell with GDP from 1929 to 1933 and remained stable until the early 1940s.

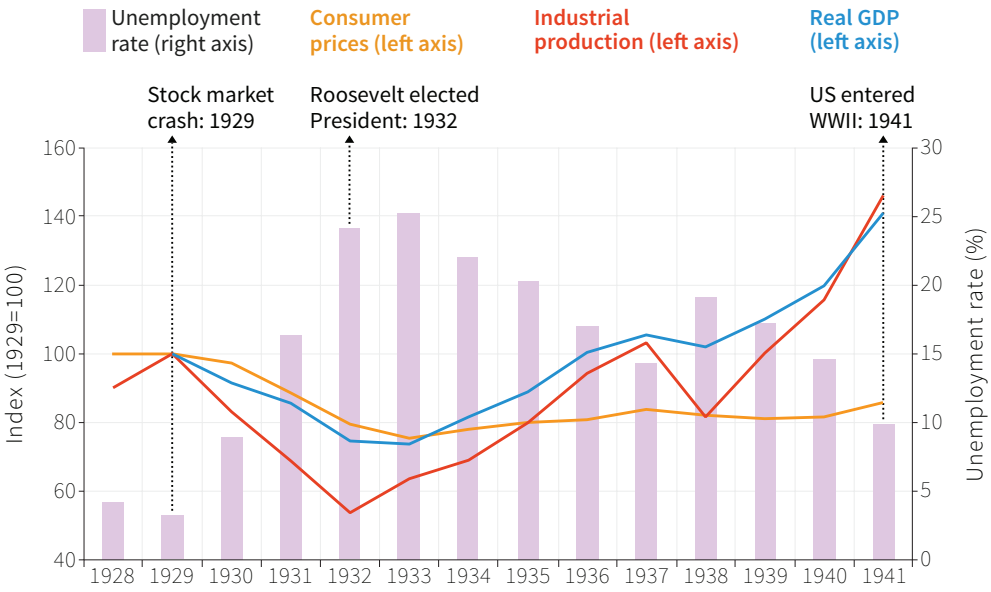


Figure 17.6 *The effect of the Great Depression on the US economy (1928-1941).*

Source: *United States Bureau of the Census. 2003. Historical Statistics of the United States: Colonial Times to 1970, Part 1. United States: United States Govt Printing Office; Federal Reserve Bank of St Louis (FRED).*

17.3 POLICYMAKERS IN THE GREAT DEPRESSION

Australia experienced a Black Saturday. The origin of the Great Depression can be dated to a day now known as Black Thursday. On Thursday 24 October 1929 the US Dow Jones Industrial Average plunged by 11% during the day, starting three years of decline for the US stock market. Figure 17.7 shows the business cycle upswings and downswings from 1924 to 1941.

Figure 17.7 *Changes in the components of aggregate demand during upswings and downswings (Q3 1924 to Q4 1941).*

Source: *Appendix B in Gordon, Robert J. 1986. The American Business Cycle: Continuity and Change. Chicago, Il: University of Chicago Press.*

The long downswing from the third quarter of 1929 until the first quarter of 1933 was driven by big falls in household and business investment (the red bar) and in consumption of non-durables (the green bar). Recall that in Figure 13.6 we used the multiplier model to describe how this shock created a fall in aggregate demand, and in Figure 13.8 we described a model of how households had cut consumption to restore their target wealth, to understand the observed behaviour of households and firms in the Great Depression.

In Unit 13, we showed how government policy could both amplify and dampen fluctuations. In the opening years of the Great Depression, government policy both amplified and prolonged the shock. Initially, government purchases and net exports hardly changed. As late as April 1932 President Herbert Hoover told Congress that "far-reaching reduction of governmental expenditures" were necessary, and advocated a balanced budget. Hoover was replaced by Franklin Delano Roosevelt in 1932, at which point government policy changed.

Fiscal policy in the Great Depression

Fiscal policy made little contribution to recovery until the early 1940s. Estimates suggest that output was 20% below the full employment level in 1931, for example, which means that the small budget surplus in that year would have implied a large cyclically adjusted surplus, given the decline in tax revenues in the depressed economy.

Under Roosevelt, from 1932 to 1936 the government ran deficits. When the economy went into recession in 1938-39, the deficit shrank from its peak of 5.3% in 1936 to 3% in 1938. This was another mistake that reinforced the downturn. The big increase in military spending from early 1940 (well before the US entered the second world war in late 1941) contributed to the recovery.

Monetary policy in the Great Depression

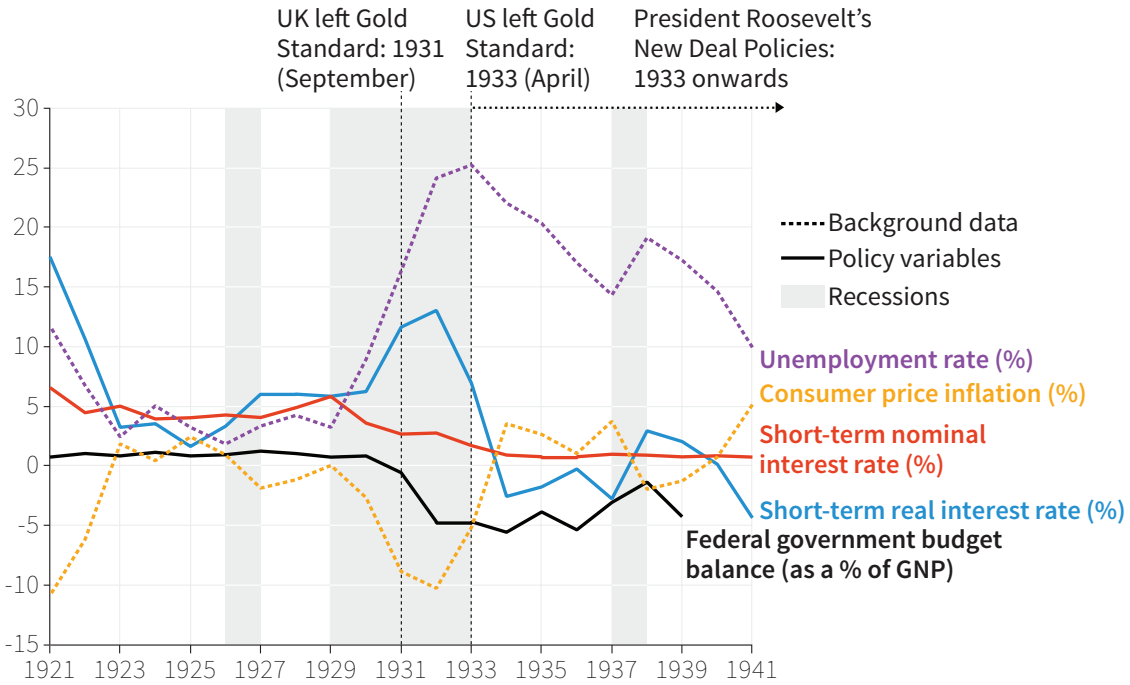


Figure 17.8 *Policy choices in the Great Depression: United States (1921-1941).*

Source: *Friedman, Milton, and Anna Jacobson J. Schwartz. 1982. Monetary Trends in the United States and the United Kingdom, Their Relation to Income, Prices, and Interest Rates, 1867-1975. Chicago, Il: University of Chicago Press; United States Bureau of the Census. 2003. Historical Statistics of the United States: Colonial Times to 1970, Part 1. United States: United States Govt Printing Office; Federal Reserve Bank of St Louis (FRED).*

Monetary policy prolonged the Great Depression. The real interest rate data in Figure 17.8 suggest that monetary policy was contractionary in the US economy from 1925 onwards: the real interest rate increased, reaching a peak of 13% in 1932. Once the downturn began in 1929, this policy stance reinforced, rather than offset, the decline of aggregate demand. But note that the nominal interest rate was falling after its peak in 1929; the real interest rate went up because prices were falling too. Interest-sensitive spending on buildings and consumer durables decreased sharply.

The gold standard

The US was still on what was known as the *gold standard*. This meant that the US authorities promised to exchange dollars for a specific quantity of gold (the promise was to pay an ounce of gold for $20.67). Under the gold standard, the authorities had to continue to pay out at the fixed rate and, if there was a fall in demand for US dollars, gold would flow out of the country. To prevent this, either the country's tradable goods must become more competitive (boosting gold inflows through higher net exports) or gold must be attracted through capital inflows by putting up the nominal interest rate, or keeping it high relative to the interest rate in other countries. As a result, policymakers were reluctant to push the interest rate down to the *zero lower bound* to avoid contributing to the gold outflow.

Unless wages decline rapidly to raise international competitiveness and boost the inflow of gold through higher exports and lower imports, sticking to the gold standard in a recession is destabilising: it will amplify the downturn. There was a very large outflow of gold from the US after the UK left the gold standard in September 1931. One reason for speculation against the US dollar—that is, investors selling dollars for gold—was that there were expectations that the US would also abandon the gold standard and devalue the dollar. If it did, those holding dollars would lose.

Countries that left the gold standard earlier in the 1930s recovered earlier.

A change in expectations

In 1933 Roosevelt began a programme of changes to economic policy:

- The *New Deal* committed federal government spending to a range of programmes to increase aggregate demand.
- The US left the gold standard in April 1933, which meant the US dollar was devalued to $35 per ounce of gold, and the nominal interest rate was reduced to close to the zero lower bound (see Figure 17.8).
- Roosevelt also introduced reforms to the banking system following the bank runs of 1932 and early 1933.

The change in people's *beliefs* about the future was just as important as these policy changes. On 4 March 1933, in his inaugural address as president, Roosevelt had told Americans that: "the only thing we have to fear is fear itself—nameless, unreasoning, unjustified terror".

We have seen that the terrors of consumers and investors in 1929 had been justified. But a combination of Roosevelt's New Deal policies and the beginnings of recovery in the economy that were already underway before he became president, households and firms began to think that prices would stop falling and that employment would expand.

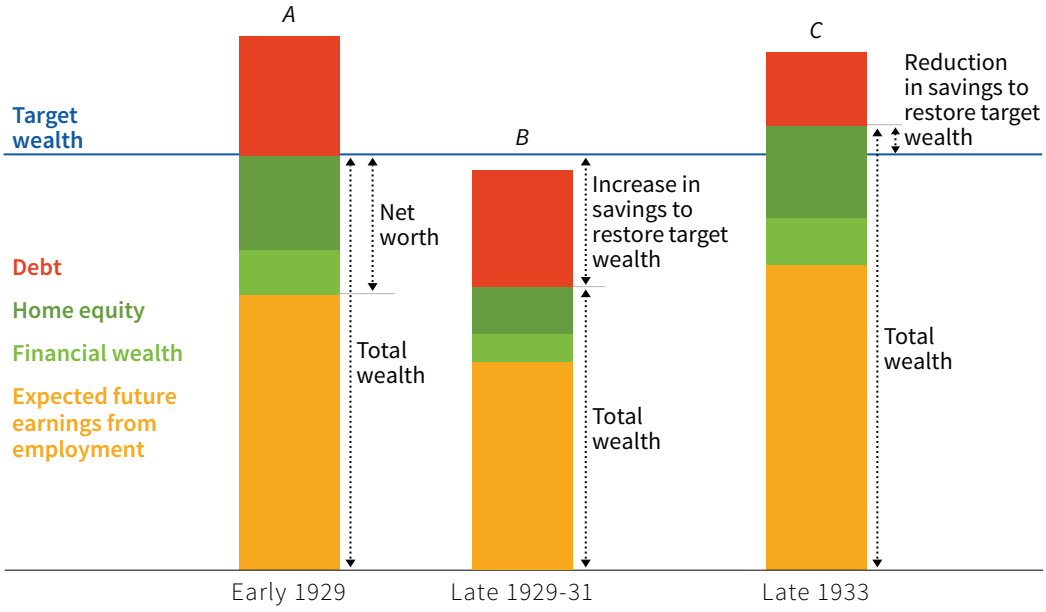


Figure 17.9 *The Great Depression: Households cut consumption to restore target wealth.*

Figure 17.9 adds a third column to the model that we first encountered in Figure 13.8. Column C shows the household's perspective from late 1933. By that time output and employment were growing. With much of the uncertainty about the future resolved, households re-evaluated their expected wealth (including their expected earnings from employment). They reversed the cutbacks in consumption because they saw no need to make additional savings. To the extent that they now expected their income prospects and asset prices to return to pre-crisis levels, consumption would be restored. Any increase in wealth above target due to the increased savings during the Depression years (shown by wealth above target in column C) would create an additional boost to consumption.

The slow path to recovery had begun. But the US economy would not return to pre-Depression levels of employment until Roosevelt was in his third term as president and the second world war had begun.

17.4 THE GOLDEN AGE OF HIGH GROWTH AND LOW UNEMPLOYMENT

The years from 1948 until 1973 were remarkable in the history of capitalism. In the US, we saw in Figure 17.2 that productivity growth was more rapid and unemployment was lower than in the other periods. But this 25-year *golden age* was not confined to the US. Countries across western Europe, Japan, Australia, Canada and New Zealand experienced a golden age as well. Unemployment rates were historically low (see Figure 15.1). Figure 17.10 shows data from 1820 to 1913 for 13 advanced countries, and for 16 countries from 1950.

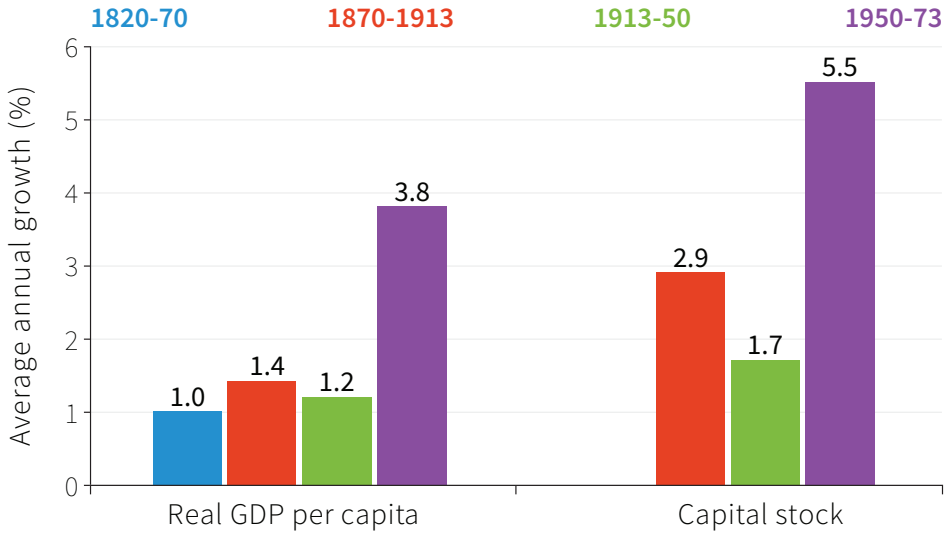


Figure 17.10 *The golden age of capitalism in historical perspective.*

Source: *Table 2.1 in Glyn, Andrew, Alan Hughes, Alain Lipietz, and Ajit Singh. 1989. 'The Rise and Fall of the Golden Age.' In The Golden Age of Capitalism: Reinterpreting the Postwar Experience, edited by Stephen A. Marglin and Juliet Schor. New York, NY: Oxford University Press.*

The growth rate of GDP per capita was more than two-and-a-half times as high during the golden age than in any other period. Instead of doubling every 50 years, living standards were doubling every 20 years. The importance of saving and investment is highlighted in the right panel, where we can see that the capital stock grew almost twice as fast during the golden age as it did between 1870 and 1913.

The story of how the large western European countries and Japan (almost) caught up to the US is told in Figure 17.11. In the figure, the level of GDP per hour worked in the US is set at the level of 100 throughout, and so the figure tells us nothing about the performance of the US itself (we have to use Figure 17.2 for that). However, it is a striking way to represent the starting point of these economies relative to the US immediately after the second world war and their trajectories in the years that followed. This was known as *catch-up growth*.

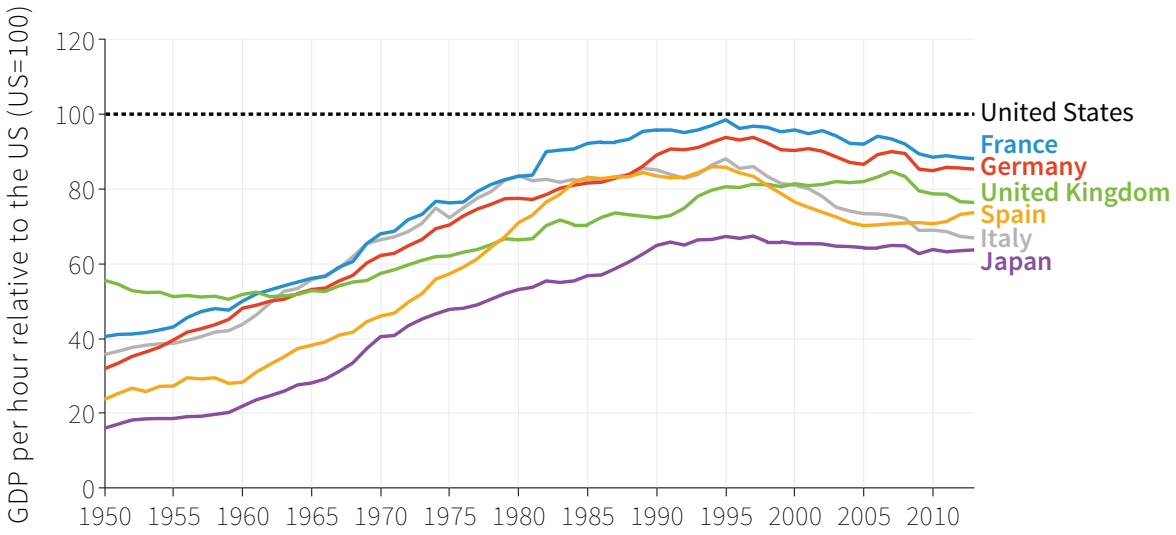


Figure 17.11 *Catch-up to the US during the golden age and beyond (1950-2013).*

Source: *The Conference Board. 2014. 'Total Economy Database.'*

The three large defeated countries (Germany, Italy and Japan) were furthest behind in 1950. Japan's GDP per hour worked was less than one-fifth the level of the US. Clearly, growth of all of these economies was faster than the US during the golden age: all moved much closer to the level of US productivity.

What was the secret of golden age performance in the productivity leader—the US—and in the follower countries?

- *Changes in economic policymaking and regulation:* These resolved the problems of instability that characterised the Great Depression
- *New institutional arrangements between employers and workers:* These created conditions in which it was profitable for firms to innovate. In the US, the technology leader, this meant new technologies, while the follower countries often adopted improved technology and management already in use in the US. Because workers' trade unions and political parties were now in a stronger position to bargain for a share of the productivity gains, most supported innovation—even when it meant temporary job destruction.

THE GOLDEN AGE OF CAPITALISM

The period of high productivity growth, high employment and stable inflation extending from the end of the second world war to the early 1970s.

- The gold standard was replaced by the more flexible *Bretton Woods System.*
- Employers and employees shared the benefits of technological progress thanks to the *postwar accord*.
- The golden age ended with a period of *stagflation* in the 1970s.

After the second world war governments had learned the lessons of the Great Depression. This affected national and international policymaking. Just as Roosevelt's New Deal signalled a new policy regime and raised expectations in the private sector, postwar governments provided reassurance that policy would be used to support aggregate demand if necessary.

Government was now larger in all of these countries after the second world war, and the size of government grew throughout the 1950s and 1960s. Figure 13.1 showed the decline in output fluctuations after 1950, and the much larger size of government in the US. In Unit 13, we saw how a larger government provides more automatic stabilisation for the economy. The modern welfare state was built in the 1950s, and unemployment benefits were introduced. This also formed part of the automatic stabilisation.

Given the cost of adherence to the gold standard during the Great Depression, it was clear that a new policy regime for international economic relations had to be put in place. The new regime was called the *Bretton Woods System* after the ski resort in New Hampshire where representatives of the major economies, including Keynes, created a system of rules that was more flexible than the gold standard. Exchange rates were tied to the US dollar rather than gold and, if countries became very uncompetitive—if they faced a "fundamental disequilibrium" in external accounts, in the words of the agreement—devaluations of the exchange rate were permitted. When a currency like the British pound was devalued (as occurred in November 1967) it became cheaper to buy pounds. This boosted the demand for British exports and reduced the demand of British residents for goods produced abroad. The Bretton Woods System worked fairly well for most of the golden age.

17.5 WORKERS AND EMPLOYERS IN THE GOLDEN AGE

High investment, rapid productivity growth, rising wages and low unemployment defined the golden age.

This seems too good to be true. We saw a model of the wage and profit curve in Unit 15 which highlighted the conflict of interest between workers and employers: at low unemployment, workers must get high wages so that they will work effectively. This depresses profits and reduces investment. The golden age does not seem to follow this model: we saw low unemployment, high profits and high investment at the same time.

How did this virtuous circle work?

- *Profits after taxes in the US economy remained high:* This persisted from the end of the second world war through the 1960s (look again at Figure 17.3) and the situation was similar in other advanced economies.
- *Profits led to investment:* The widespread expectation that high profits would continue in the future provided the conditions for sustained high levels of investment (refer back to the model of investment spending in section 13.4).
- *High investment and continued technological progress created more jobs:* Unemployment stayed low.
- *The power of workers:* Trade unions and political movements allied with employees had high bargaining power, which allowed a sustained increase in wages.

As the last bullet suggests, trade unions were important in this process, as well as governments. Between 1920 and 1933 trade unions lost two-fifths of their members, most of the losses occurring immediately after the first world war. During the 1930s changes in the laws affecting trade unions, as well as the hardship of the Great Depression, reversed this decline. High demand for labour during the second world war strengthened labour's bargaining power: trade union membership as a fraction of total employment peaked in the early 1950s. There was a subsequent steady decline during the next 50 years.

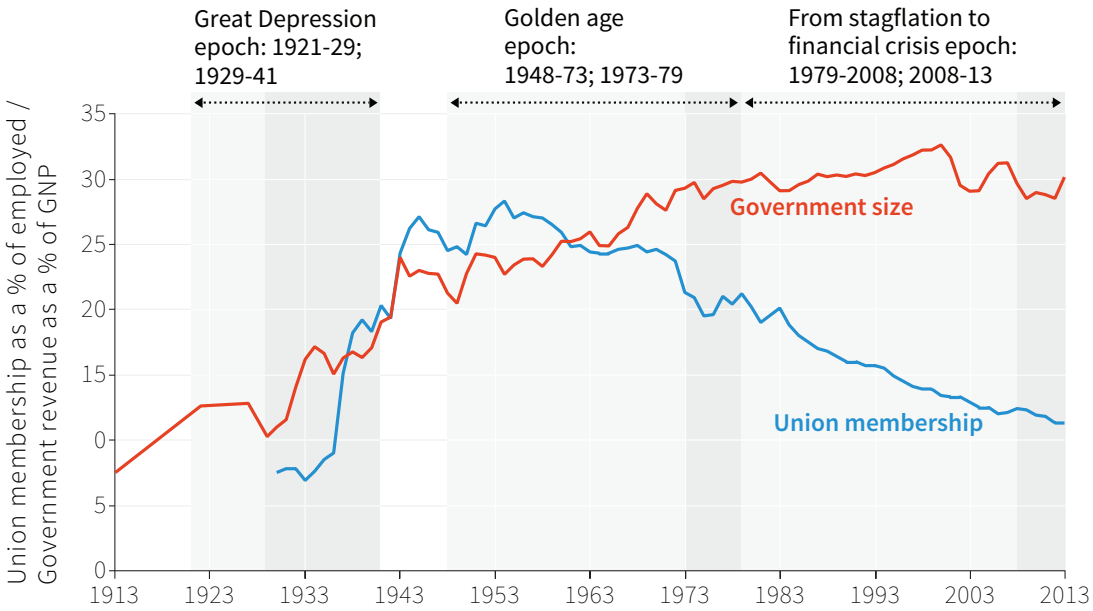


Figure 17.12 *Trade union membership and the size of government in the United States (1913-2013).*

Source: *Wallis, John Joseph. 2000. 'American Government Finance in the Long Run: 1790 to 1990.' Journal of Economic Perspectives 14 (1): 61–82; Mayer, Gerald. 2004. Union Membership Trends in the United States. Washington, DC: Congressional Research Service; US Bureau of Economic Analysis.*

Figure 17.12 shows both the growth of the government and the historically high level of trade union membership in the US. As we have seen, larger government partly reflected the new unemployment insurance entitlement. From the wage and profit

curve model, we know that higher unemployment benefits and stronger trade unions shift the wage curve upwards, allowing employees to bargain for a share of increasing productivity.

In the golden age employees had sufficient bargaining power to claim a share in the gains that technological progress made possible. Both employers and employees realised that there was more to be gained in cooperating to increase the size of the pie than in wasting resources in futile efforts to claim most of the pie for themselves. Policies, business practices and trade union strategies during this period reflected this insight.

When translated into the labour market model (in Figure 17.13) the four bullets explaining of the golden age can be translated into shifts in the profit curve and the wage curve:

- *The profit curve shifted up:* This happened because productivity increased rapidly
- *The wage curve shifted up:* Low unemployment, strong unions and favourable government policies increased labour's bargaining power, but the resulting upward shift in the wage curve was modest, allowing for high profits, high investment (the basis of continuing productivity growth) and low unemployment.

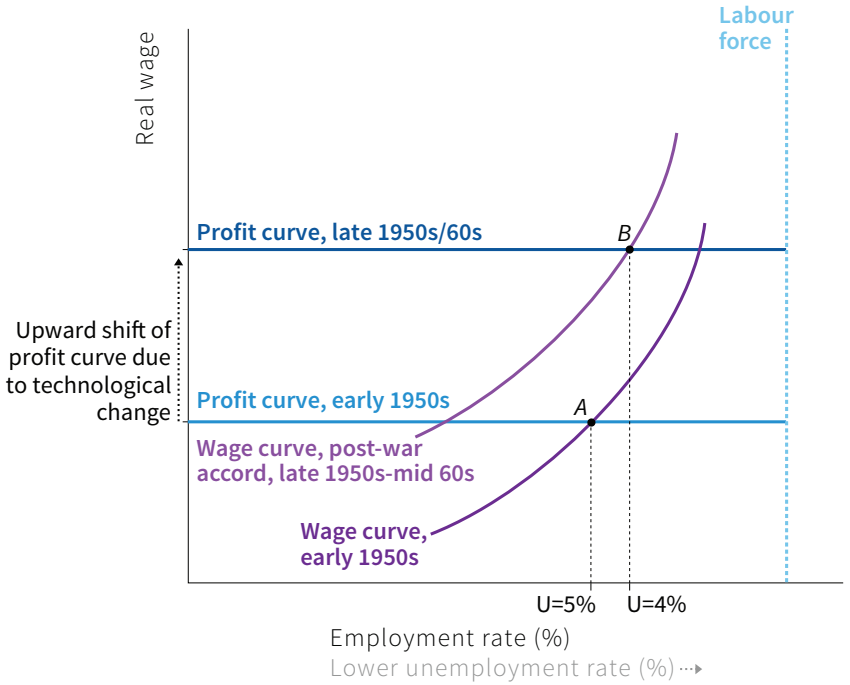


Figure 17.13 *The golden age: Using the wage and profit curves.*

Recall from Unit 15 that the profit curve shows the real wage consistent with employers maintaining investment at a level to keep employment constant. This means that a real wage above the profit curve will drive firms to leave (relocate to some other economy) or cut back on their investment, and employment falls.

The profit curve will shift up when worker productivity rises, or when taxation on profits is reduced, or when investors and owners have optimistic expectations about future profits. It will shift down when employers have to pay higher prices for imported raw materials, such as oil.

In the US, technological progress was rapid in the golden age as the innovations developed during the Great Depression and the second world war were embodied in new capital equipment.

The new technologies and new management techniques already in use in the US could also be used in the catch-up economies if the innovators expected high enough profits. In many of these countries golden age growth was even faster than at the technology frontier as defined by the US in Figure 17.11.

Taking the example of the US, we can represent the economy as at point A at the beginning of the golden age, with unemployment of 5%. Technological progress shifts the profit curve up (to the one labelled "late 1950s/60s").

Unless wages adjust upwards or the economy expands, the result initially is a wage much below the profit curve. This stimulates high investment, consistent with the data for the growth of the capital stock in the US shown in Figure 17.3.

But wages eventually did rise and at the same time the economy expanded, moving towards point *B* in the figure.

The strength of unions in wage setting and the improvement in unemployment insurance during the 1950s and 60s are illustrated as an upward shift of the wage curve in Figure 17.13. To get the outcome observed, with wages growing in line with productivity at low unemployment such as point *B*, unions and employers need to agree about the scope for wage increases. This would be the case if the wage curve shifted to the one labelled "Wage curve, postwar accord, late 1950s-mid 60s".

Unions would refrain from using the full extent of their bargaining power (for example, in firms or plants where they had a very strong position) and cooperate in an economy-wide bargain designed to keep wage growth consistent with the constraint imposed by the profit curve. In return, employers would maintain investment at a level sufficient to keep unemployment low. This unwritten but widely observed pattern of sharing the gains to technological progress between employees and employers is termed the *postwar accord*. In Unit 15, we also referred to this process as *fair-shares bargaining*.

Different countries had different postwar accord relationships among employers, unions and governments to create high productivity growth, high real wage growth and low unemployment. In Scandinavia, Austria, Belgium, Netherlands, Switzerland and West Germany, wage setting was either centralised in a single union, or coordinated among unions or employers' associations, resulting in wage restraint. In

technologically advanced sectors in France and Italy, governments intervened to set wages in dominant state-owned firms, creating wage guidance across the economy. The outcome was similar to the result in the countries with centralised wage setting.

Where there was little cooperation between employers and unions, a country's performance in the golden age was worse. In Figure 17.11, the UK's relatively poor golden age performance shows up clearly: it started with higher productivity than the other large countries shown (that is, its productivity level in 1950 was the closest to that of the US) but was overtaken by France, Italy and Germany in the 1960s.

Compared to Sweden, Norway and many continental European nations, where the postwar accord underwrote rapid growth in productivity, the British industrial relations system made an accord difficult. It combined very strong union power at the factory level with fragmented unions, which were unable to cooperate in the economy as a whole. The strength of local union shop stewards (representatives), in a system of multiple unions per plant, led unions to attempt to outdo each other when negotiating wage deals, and created opposition to the introduction of new technology and new ways of organising work. The problems of British firms were compounded because markets in former British colonies were protected from competition.

Competition is important in the Schumpeterian creative destruction process because it creates incentives for firms to get a step ahead of the competition, and reduces the number of low-productivity firms. When competition is weak, existing firms and jobs are protected. The employers and workers in these firms share the monopoly rents, but the overall size of the pie is reduced because technological progress is slower.

Postwar accords succeeded in the US and the successful catch-up countries in creating the conditions for a high profit and high investment equilibrium. It delivered rapid productivity and real wage growth at low unemployment, but the British experience during the 1950s and 1960s (Figure 17.11) emphasises that there is nothing automatic about achieving this outcome.

17.6 THE END OF THE GOLDEN AGE

The virtuous circle of the golden age began to break down in the late 1960s, as a result of its own successes. The postwar accord and its rationale of enlarging the pie gave way to a return to contest over the size of the slice that each group could get. This set the stage for the period of combined inflation and stagnation called stagflation that would follow. Employers eventually won the contest, but at a substantial cost to the economy.

Australia can go many years without a major bush fire. But fewer small fires means there will be more flammable undergrowth, which increases the chance of a major fire. Years of low unemployment (fewer small fires) convinced workers that they had little fear of losing their jobs. Their demands for improvements in working conditions and higher wages drove down the profit rate.

They also demanded policies to redistribute income to the less well off and to provide more adequate social services, making it difficult for governments to run a budget surplus. In the US, additional military spending to fund the Vietnam war added to aggregate demand, keeping the economy at unsustainably high levels of employment.

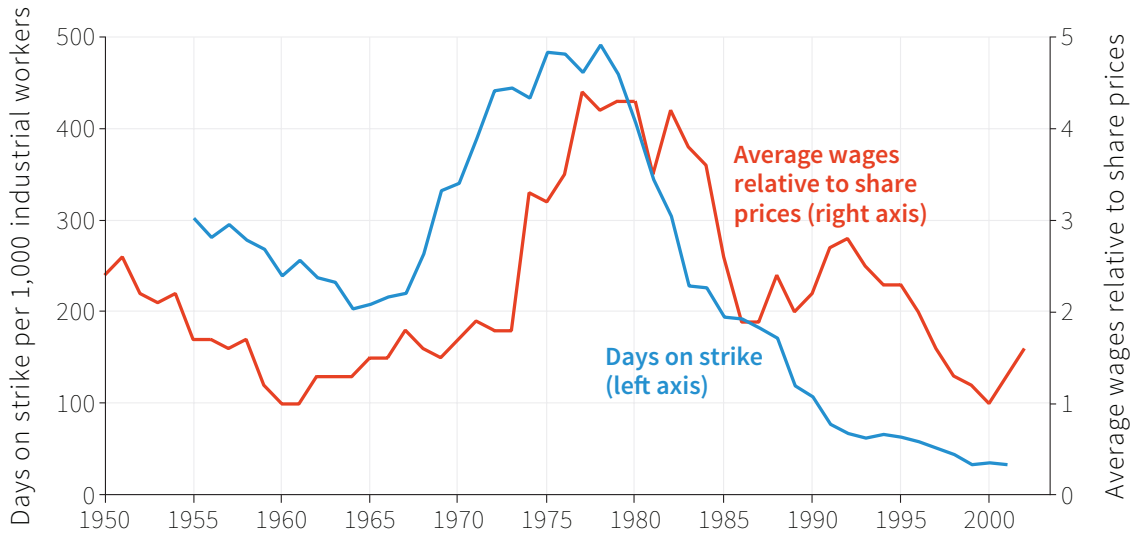
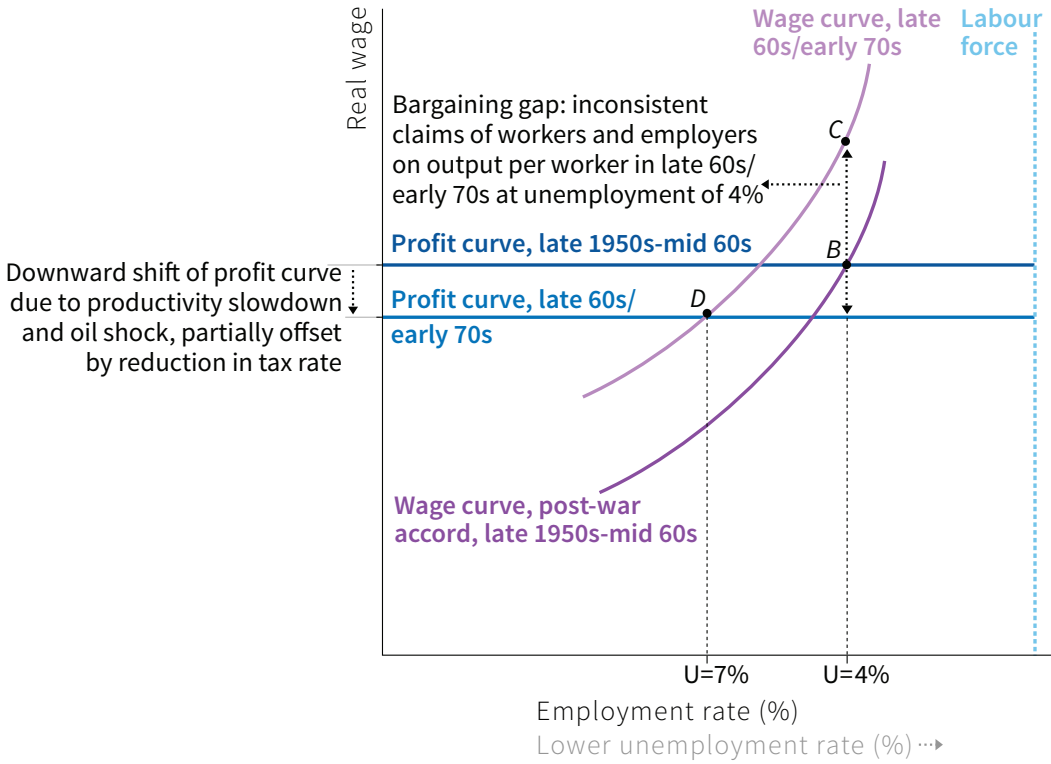


Figure 17.14 *The end of the golden age: Strikes and wages relative to share prices in advanced economies (1950-2002).*

Source: *Glyn, Andrew. 2006. Capitalism Unleashed: Finance, Globalization, and Welfare. Oxford: Oxford University Press.*

Greater industrial strife in the late 1960s signalled the breakdown of the golden age accords. Figure 17.14 plots the days on strike per 1,000 industrial workers in advanced economies from 1950 to 2002. As strike activity peaked, wages measured relative to share prices increased rapidly. The postwar accords that helped create the golden age collapsed.

The process is represented in Figure 17.15 by an upward shift in the wage curve (to the one labelled "late 60s/early 70s"). At the same time, economy-wide productivity growth slowed (see Figure 17.2 for the US data). In the catch-up countries in western Europe, it was becoming more difficult to get easy gains from technology transfer, because the gap between US technology and the technology used by followers narrowed (see Figure 17.11). In 1973, the first oil price shock occurred. In the Figure 17.15, this pushes the profit curve down (see the profit curve labelled "1973-79").



The combination of a downward shift in the profit curve and an upward shift in the wage curve meant that the sustainable long-term unemployment rate increased to 7%, shown at point *D*. The double-headed arrow at low unemployment shows the situation in the early 1970s.

Figure 17.15 *The end of the golden age: Using the wage and profit curves.*

In the early 1970s the claims of employers given their bargaining power compared to consumers (the profit curve) and the claims of workers given their bargaining power compared to their employers were no longer consistent. Something had to give. The golden age was over.

What happened?

Wages did not rise to the level of point C. Under the impact of the upward pressure on wages and the oil price shock, the economy contracted and unemployment began to rise. But even a significant reduction in the employment rate (short of increasing the unemployment rate to 7%) did not eliminate the bargaining gap shown in the figure. A result was an increase in the rate of inflation, as is shown in Figure 17.16.

Because of the strong bargaining position of workers in the early 1970s in most of the high-income economies, the oil price shock primarily hit employers, redistributing income from profits to wages (Figure 17.15). The era of fair-shares bargaining was coming to a close.

In the US, where trade unions were less powerful, workers nevertheless managed to defend their share of the pie even after the oil price increase. In countries with inclusive and powerful trade unions (as described in Unit 15), the accord survived. In Sweden, for example, the powerful centralised labour movement restrained its wage claims to preserve profitability, investment and high levels of employment.

But in virtually all countries including the US, wages remained above the new profit curve, so investment fell and the rate of productivity growth slowed. As predicted by the model in Figure 17.15, the outcome was rising inflation (Figure 17.16) falling profits (Figure 17.3), weak investment (Figure 17.3), and high unemployment (Figure 17.16).

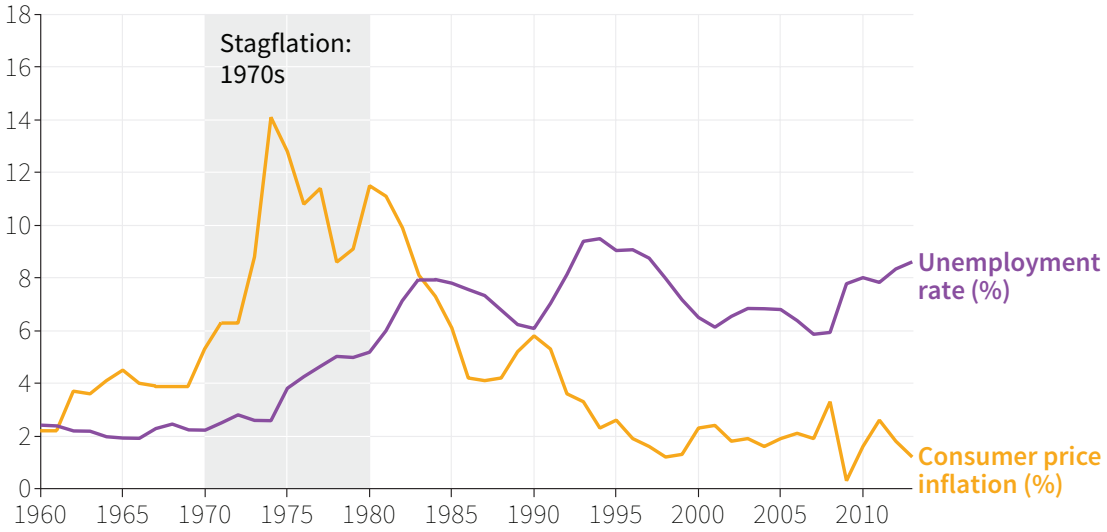


Figure 17.16 *After the golden age: Unemployment and inflation in advanced economies (1960-2013).*

Source: *OECD. 2015. 'OECD Statistics.'*

The end of the golden age set off a new economic crisis—one that was very different from the Great Depression. The economic downturn of the 1930s had been propelled by problems of aggregate demand and for this reason it has been called a *demand-side* crisis. The end of the golden age has been called a *supply-side* crisis, because those problems on the supply side of the economy depressed the profit rate, the rate of investment and the rate of productivity growth.

The period that ensued came to be called stagflation because it combined high unemployment and high inflation. If the golden age was an unusual time during which everything went right at once, stagflation was the unusual time when everything went wrong.

According to the Phillips curve model of Unit 14, inflation goes up when unemployment goes down; this is a movement along the Phillips curve. Figure 17.16 summarises the unemployment and inflation data for the advanced economies from 1960-2013.

Just as the Phillips curve predicts, for most of the period, inflation and unemployment were negatively correlated: as unemployment rose, inflation fell and vice versa. But the entire Phillips curve shifted upward during this period period, as a bargaining gap opened and expected inflation increased. Look at the shaded part of Figure 17.16: inflation and unemployment rose together, giving this period its name.

17.7 AFTER STAGFLATION: THE FRUITS OF A NEW POLICY REGIME

The third major epoch during the last 100 years of capitalism began in 1979. Across the advanced economies, policymakers focused on restoring the conditions for investment and job creation. Expanding aggregate demand would not help: what would have been part of the solution during the Great Depression had now become part of the problem.

Arrangements based on accords between workers and employers continued in northern European and Scandinavian countries. Elsewhere, employers abandoned the accord, and policymakers turned to different institutional arrangements as the basis for restoring the incentives for firms to invest.

The new policies were called *supply-side reforms*, aimed to address the causes of the supply-side crisis of the 1970s. The policies were centred on the need to shift the balance of power between employer and worker in the labour market, and in the firm. Government policy at this time achieved this goal in two main ways:

- *Restrictive monetary and fiscal policy:* Governments showed that they were prepared to allow unemployment to rise to unprecedented levels, weakening the position of workers and restoring the consistency of claims on output as the basis of modest and stable inflation.
- *Shifting the wage curve down:* As we saw in Unit 15, these policies included cuts in unemployment benefits and the introduction of legislation to reduce trade union power.

Figure 17.16 illustrates the new policy environment. Unemployment increased rapidly from 5% to 8% in the early 1980s. This was the price of restoring conditions for profit and investment, and for reducing inflation from greater than 10% to 4%. Policymakers were prepared to depress aggregate demand and tolerate high unemployment until inflation fell.

DISCUSS 17.2: WORKERS' BARGAINING POWER

After the Great Depression most advanced economies adopted policies that strengthened the bargaining power of employees and labour unions. After the golden age, by contrast, the policies weakened workers' bargaining power.

1. Explain the reasons for these contrasting approaches.
2. With hindsight, do you think the economic logic behind each set of policies makes sense?

The increased unemployment beginning with the first oil price shock in 1973 had two effects:

- It reduced the bargaining gap in Figure 17.15, bringing down inflation (shown in Figure 17.16).
- It put labour unions and workers on the defensive as the cost of job loss rose and employees' bargaining power eroded.

Figure 17.17 shows the development of productivity (output per hour) and real wages in manufacturing in the US from the beginning of the golden age. Index numbers are used for each series to highlight the growth of real wages relative to that of output per hour worked. Real wage growth in line with output per hour is not inevitable: in Unit 1, when looking at the growth of real wages in England since the 13th century, we saw that institutions (social movements, changes in the voting franchise and in laws) played a vital role in translating productivity growth into real wage growth.

The figure shows two dramatically different periods:

- *Before 1973*: Fair-shares bargaining meant that wages and productivity grew together.
- *After 1973*: Productivity growth was not shared with workers. For production workers in manufacturing, real wages barely changed in the 40 years after 1973.

By the mid-1990s, the effects of the new supply-side policy regime were becoming clear. The period from this time until the global financial crisis of 2008 was called the great moderation because inflation was low and stable, and unemployment was falling. Although wage growth fell well below productivity growth, policymakers no longer thought of this as a bug; it was a feature of the new regime. The third oil shock that occurred in the 2000s was a good test of the regime. As we saw in Unit 14, it created none of disruption of the two oil shocks in the 1970s.

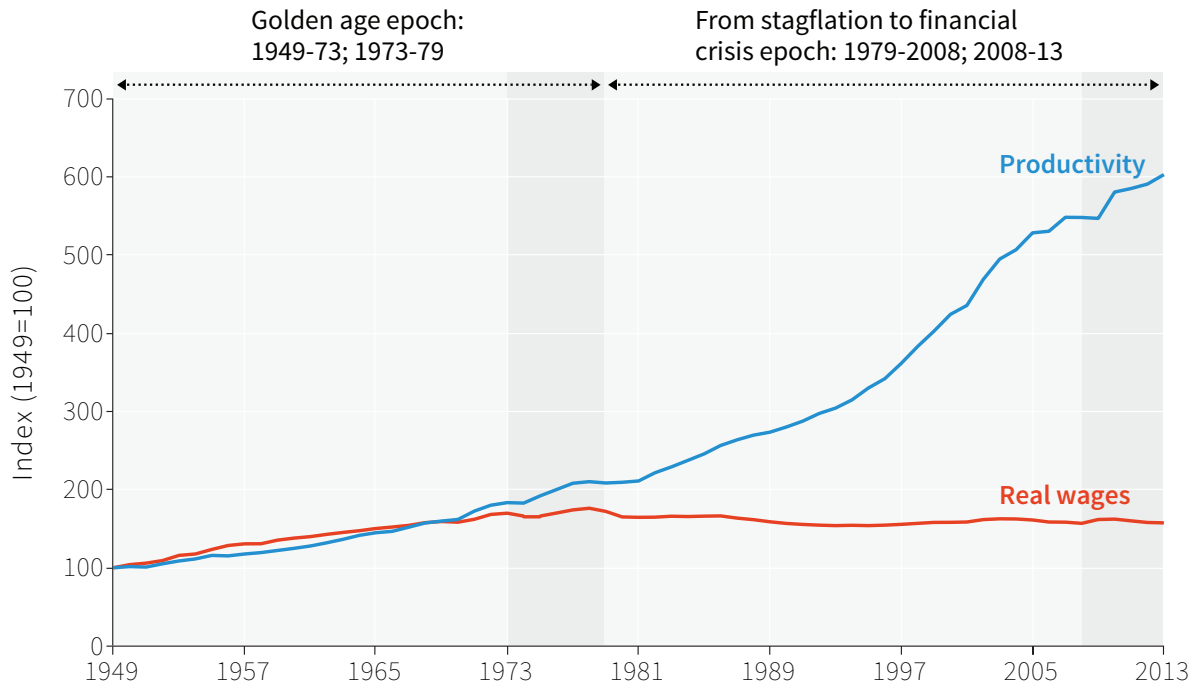


Figure 17.17 *The Golden Age and its Aftermath: Real wages and output per production worker in manufacturing in the United States (1949-2013).*

Source: *US Bureau of Labor Statistics. Note: "production workers" exclude supervisory employees such as foremen and managers.*

In virtually all of the advanced economies the new supply-side policies redistributed income from wages to profits. In the US (Figure 17.3) the after-tax profit rate gradually increased between the 1970s and 2008. But investment responded only weakly to the profit incentives, so that the rate of growth of the capital stock declined. The economy had settled at some point below the profit curve in Figure 17.15, with more than sufficient profits to motivate an expansion to the higher employment equilibrium, but with investment not fully responding.

Supply-side policy advisors could not recreate the improbable package of high employment, high investment and growing wages of the golden age. The growth of profits unmatched by investment in new equipment would also help to cause the next crisis.

17.8 BEFORE THE FINANCIAL CRISIS: HOUSEHOLDS, BANKS AND THE CREDIT BOOM

The great moderation masked three changes that would create the environment for the global financial crisis. While these changes were common across the advanced economies, actors in the US economy played a pivotal role in the global financial crisis, just as they had during the Great Depression:

- *Rising debt:* The sum of the debt of the government and of non-financial firms changed relatively little as a proportion of GDP between 1995 and 2008, but the mountainous shape of total debt in the US economy shown in Figure 17.4 was created by growth in household and financial sector debt.
- *Increasing house prices:* Rising house prices, which became more pronounced after 1995.
- *Rising inequality:* The long-run decline in inequality that began after the Great Depression reversed after 1979 (Figure 17.2). Workers no longer shared in the gains from productivity.

How can we make an argument that connects the financial crisis to the great moderation, and to long-run rising debt, house prices and inequality? We use what we learned in Units 9, 11, 12 and from section 17.4 to help us. We know that, during the great moderation, from the mid-1990s to the eve of the financial crisis, the real wages of those with earnings in the bottom 50% hardly grew. Relative to the earnings of the top 50%, they lost out. One way they could improve their consumption possibilities was to take out a home loan. Before the 1980s, financial institutions had been restricted in the kinds of loans they could make and in the interest rates they could charge. *Financial deregulation* generated aggressive competition for customers, and gave those customers much easier access to credit.

THE GREAT MODERATION AND THE GLOBAL FINANCIAL CRISIS

The *great moderation* was a period of low volatility in output between the 1980s and 2008. It was ended by the *global financial crisis*, triggered by falling US house prices from 2007 onwards.

- At the onset of the crisis, government and central bank stabilisation policies, notably including *bank bailouts*, avoided a repeat of the Great Depression.
- Nevertheless, there followed a sustained global fall in aggregate output, popularly known as the *great recession*.

Housing booms and the financial accelerator

When households borrow to buy a house, this is a secured or collateralised loan. As part of the mortgage agreement, the bank can take possession of the house if the borrower does not keep up repayments. Collateral plays an important role in sustaining a house price boom. When the house price goes up—driven, for example, by beliefs that a further price rise will occur—this increases the value of the household's collateral (see the left-hand diagram in Figure 17.18). Using this higher collateral, households can increase their borrowing, and move up the housing ladder to a better property. This, in turn, pushes up house prices further; because the banks extend more credit based on the higher collateral, it sustains the bubble. Increased borrowing, made possible by the rise in the value of the collateral, is spent on goods and services as well as on housing.

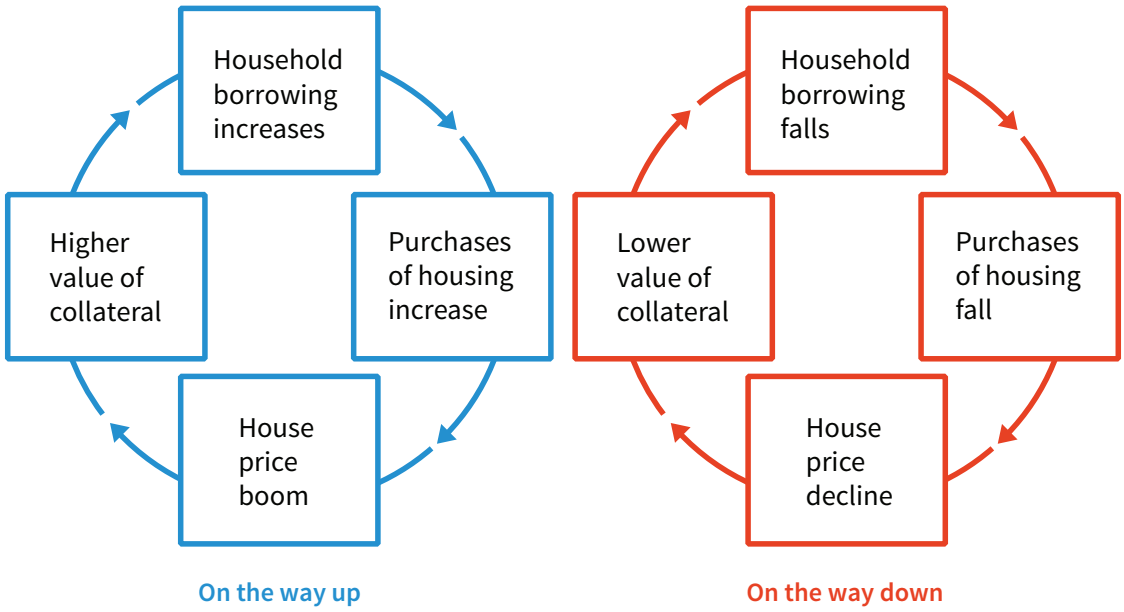


Figure 17.18 *The housing market on the way up and on the way down.*

Source: *Adapted from figure in Shin, Hyun Song. 2009. 'Discussion of "The Leverage Cycle" by John Geanakoplos'. Also presented as Figure 6.1 in Carlin, Wendy, and David Soskice. 2014. Macroeconomics: Institutions, Instability, and the Financial System. Oxford: Oxford University Press.*

When house prices are expected to rise, it is attractive to households to increase their borrowing. Suppose a house costs $200,000, and the household makes a downpayment of 10% ($20,000). This means it borrows $180,000. Its initial *leverage ratio*, in this case the value of its assets divided by its equity stake in the house, is $200/20 = 10$. Suppose the house price rises 10% to $220,000. The return to the equity the household has invested in the house is 100% (since the value of the equity stake has risen from $20,000 to $40,000: it has doubled). Households that are convinced that house prices will rise further will want to increase their leverage: that is how they get a high return. The increase in collateral, due to the rise in the price of their house, means they can satisfy their desire to borrow more.

The mechanism through which a rise in the value of collateral leads to an increase in borrowing and spending by households and firms is called the financial accelerator (look this up in Unit 13 if you cannot remember the details). The left-hand side of Figure 17.18 shows the outcome of the interaction between the bubble in house prices and its transmission through the economy via the financial accelerator during a boom. On the right-hand side, we see what happens when house prices decline: the value of collateral falls and the household's spending declines, pushing house prices down.

The assets and liabilities of a household can be represented in its balance sheet, and this can be used to explain the interaction of a house price bubble and the financial accelerator. The house is on the asset side of the household's assets. The mortgage owed to the bank is on the liabilities side. When the market value of the house falls below what is owed on the mortgage, the household has negative net worth. This condition is sometimes referred to as the household being "underwater". In the example: if the leverage ratio is 10, a fall in the house price by 10% wipes out the household's equity.

As we saw with households in the Great Depression, if a decline in net worth means that a household is below its target wealth, it responds by cutting what it spends. When a housing bubble is forming, the rise in the value of collateral reinforces the boom by boosting both borrowing and spending; on the way down, the fall in the value of house increases household debt and the household reduces spending. Rising house prices immediately before 2008 were prices that sent the "wrong" message. We know that resources were misallocated because the US, and some countries in Europe, were left with thousands of abandoned houses.

DISCUSS 17.3: LAGGING BEHIND THE WEALTHY

1. Use section 10.9 to identify the market failure described in the quote below.
2. Would you recommend policy intervention to correct this market failure?

"In 1995 [Mr Baggett] moved into a house in the Harvard-Yale section of Salt Lake, [US], a tree-lined neighbourhood near the University of Utah that is home to many doctors, lawyers and professors. Mr Baggett used credit cards to furnish the home with the kind of carpets and furniture his neighbours and relatives could afford. 'I felt insecure; I was an hourly-paid worker in this fancy neighbourhood,' says Mr Baggett. He says he was making $13 an hour for a time doing back-office work at a local bank while supporting two children."
– Wall Street Journal, *Lagging Behind the Wealthy, Many Use Debt to Catch Up* (2005)

Financial deregulation and subprime borrowers

In the boom period the expectation of rising house prices reduced the riskiness of home loans to the banks making them and, as a result, banks extended more loans. The opportunities for poor people to borrow for a home loan expanded as lenders asked for lower deposits, or even no deposit at all. This is shown in Figure 17.19. The financial accelerator mechanism is an example of positive feedback: from higher collateral, to more borrowing, to further increases in house prices.

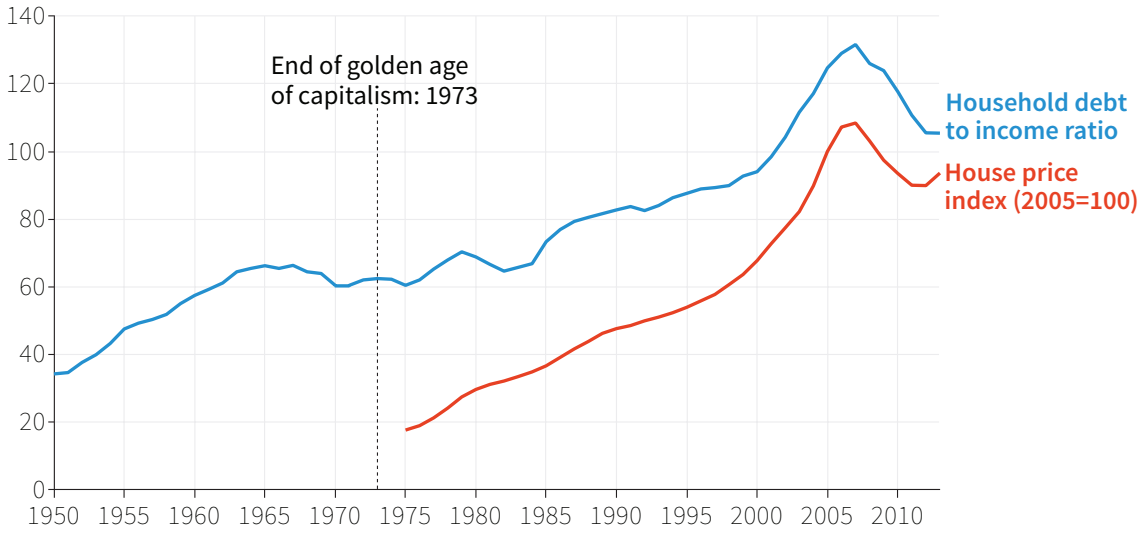


Figure 17.19 *The household debt-to-income ratio and house prices in the United States (1950-2014).*

Source: *US Federal Reserve. 2015. 'Financial Accounts of the United States, Historical.' December 10; US Bureau of Economic Analysis; Federal Reserve Bank of St Louis (FRED).*

Figure 17.20 shows the contrast between the material wealth of a household in the bottom and top fifth of households, according to their net worth in 2007. Using the definitions introduced in section 13.3 and used in section 17.4, the household's material wealth is equal to the value of its house (which will by definition be equal to the sum of the debt outstanding and the household's home equity) minus the mortgage debt, plus financial wealth (net of non-housing debt).

The left-hand bar represents borrower households. These are poor households, normally only able to borrow when they have housing collateral to use as security. They have little financial wealth, as shown by the size of the green rectangle. These households have much more debt than equity in their houses, and are vulnerable to a fall in house prices.

Rich households have a lot of assets, mainly in the form of financial wealth: bank account and money market deposits, government and corporate bonds, and shares. They also have little debt. These are the saver households of Unit 11.

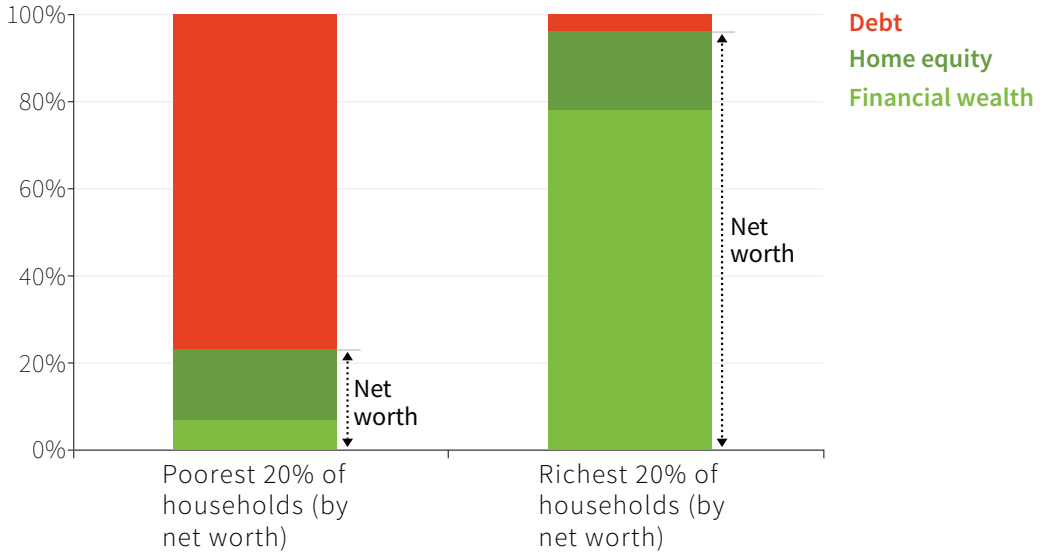


Figure 17.20 *Household wealth and debt in the United States: Poorest and richest quintiles by net worth, 2007.*

Source: *Adapted from Figure 2.1 in Mian, Atif, and Amir Sufi. 2014. House of Debt: How They (and You) Caused the Great Recession, and How We Can Prevent It from Happening Again. Chicago, Il: The University of Chicago Press.*

DISCUSS 17.4: HOUSEHOLD WEALTH AS A BALANCE SHEET

1. Show the information in Figure 17.20 in the form of example balance sheets for one household from the lowest and one from the highest net worth quintile (use the balance sheet of the bank in section 11.10 as a guide).

Think about the proportions of debt held by these households that might consist of mortgage debt. Now consider the relative effects on the households of a fall in house prices.

2. In your example balance sheet for the poorer family, estimate the fall in house prices that would push this household into negative equity.
3. Would such a household be insolvent? Explain.

Financial deregulation and bank leverage

In the context of the deregulated financial system, banks increased their borrowing:

- To extend more loans for housing
- To extend more loans for consumer durables like cars and furnishings
- *To buy more financial assets based on bundles of home loans*

The combination of the great moderation, rising house prices, and the development of new, apparently less risky, financial assets such as the *derivatives* called *collateralised debt obligations* (CDOs), based on bundles of home loans called *mortgage-backed securities* (MBSs), made it profitable for banks to become more highly leveraged.

Figure 17.21 shows the leverage of US investment banks, and of all UK banks:

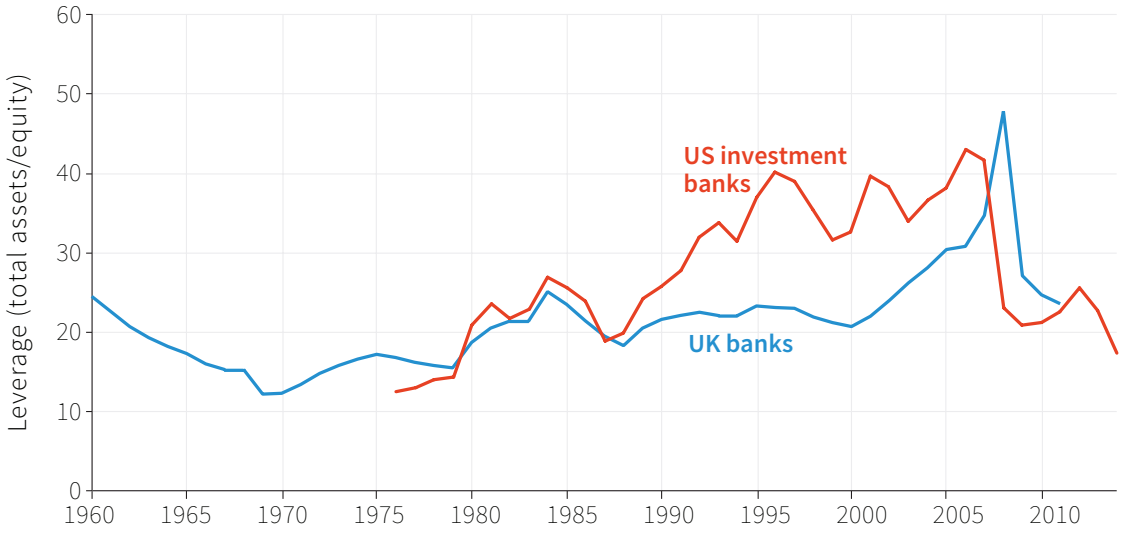


Figure 17.21 *Leverage of banks in the UK and US (1960-2014).*

Source: *US Federal Reserve. 2015. 'Financial Accounts of the United States, Historical.' December 10; Bank of England. 2012. Financial Stability Report, Issue 31.*

In the US, the leverage of investment banks was between 12 and 14 in the late 1970s, rising to more than 30 in the early 1990s. It hit 40 in 1996 and peaked at 43 just before the financial crisis. By contrast, the leverage of the median UK bank remained at the level of around 20 until 2000. Leverage then increased very rapidly to a peak of 48 in 2007. In the 2000s British and European global banks, including firms called shadow banks, increased borrowing to buy CDOs and other financial assets that originated in the US housing market.

Leverage increased because of financial deregulation and the business model of banks. But why were savers prepared to continue lending to the increasingly leveraged financial system and, indirectly, to the highly leveraged household sector?

Firms called *credit ratings agencies* (the big three are Fitch Ratings, Moody's and Standard & Poor's) assess the risk of financial products, and part of their role is to provide evidence to reassure lenders that their investments are safe. After almost 20 years of the great moderation economic crises seemed like a historical idea, and so these companies gave the highest ratings (meaning the lowest risk) to many of the assets created from *subprime mortgages*.

The subprime housing crisis of 2007

The interrelated growth of the indebtedness of poor households in the US and global banks meant that, when homeowners began to default on their repayments in 2006, the effects could not be contained within the local or even the national economy. The crisis caused by the problems of subprime mortgage borrowers in the US spread to other countries. Financial markets were frightened on 9 August 2007 when French bank BNP Paribas halted withdrawals from three investment funds because it could not "fairly" value financial products based on US mortgage-based securities: it simply did not know how much they were worth.

The recession that swept across the world in 2008-09 was the worst contraction of the global economy since the Great Depression. Unlike the bushfires in south-eastern Australia in 2009, the financial crisis took the world by surprise. The world's economic policymakers were unprepared. They discovered that a long period of calm in financial markets could make a crisis more likely.

This was an argument that the economist Hyman Minsky had made long before the great moderation. Minsky developed these ideas while a professor of economics at the University of California, Berkeley, and so he may even have been thinking of fires: in northern Mexico the fire management authorities allow small fires to burn, and as a result dry undergrowth does not accumulate. Major fires are more frequent across the US border in California, where small fires are quickly extinguished.

In 1982 Minsky wrote a book about the way in which tranquil conditions lead firms to choose riskier methods of financing their investment. His warning went unheeded. Instead of producing increased vigilance, the calm conditions of the great moderation bred complacency among regulators and economists. It was the increasingly risky behaviour of banks, as Minsky had predicted, that created the conditions for the crisis.

GREAT ECONOMISTS

HYMAN MINSKY

Hyman Minsky (1919-1996) was an American economist who developed a financial theory of the business cycle. His ideas have attracted renewed attention among both academics and banking and finance professionals since the global economic crisis of 2008.

Minsky argued that macroeconomic fluctuations could not be properly understood without taking account of the manner in which business investment is financed. At a time when most economists viewed firms as the location of a production function, Minsky focused instead on the assets and liabilities on the firm's balance sheet. The assets, including plant and equipment, but also less tangible assets such as patents, copyrights and trademarks, are expected to generate a steam of revenues stretching far into the future. The liabilities include the firm's obligations to its creditors, and imply a stream of payments due at various points in time.

New investment by the firm expands its capacity to produce goods and services, and thus alters its expected stream of revenues. If it is financed by debt, it also changes the firm's financial obligations at future dates. In deciding how to finance its investment, the firm faces a choice:

- *Issue long-term debt:* It anticipates that revenues would be sufficient to cover obligations at all points in time.
- *Issue short-term debt:* This debt needs to be repaid before the anticipated revenues are available. It creates the need for further borrowing to repay debt at the end of this term.

In general long-term borrowing is more expensive, since lenders demand a higher interest rate. But short-term borrowing is risky, because the firm may be unable to refinance debt as it comes due. Even if it can refinance, it may be forced to borrow at high rates if credit availability is constrained.

Firms that chose the safer but more expensive option, matching revenues and debt obligations, were said by Minsky to be engaged in *hedge finance*. Those that took the cheaper but more risky option, borrowing short-term to finance long-term investments, were engaging in *speculative finance*.

A key component of Minsky's theory concerned the manner in which the distribution of financial practices in the economy changed over time. As long as financial market conditions remained relatively tranquil, so that rolling over short-term debt was easy, firms with the most aggressive financial practices would prosper at the expense of those that were the most prudent. Not only would the most aggressive firms grow faster, they would also attract imitators, and the distribution of financial practices in the economy would become increasingly speculative. There would be a rise in the demand for refinancing short-term debt, and hence an increase in financial fragility: a severe financial market disruption, with a contraction in credit or a spike in short-term interest rates, would become increasingly likely.

In Minsky's view, this process leads inevitably to a crisis because, as long as a crisis is averted, the most aggressive financial practices proliferate and financial fragility continues to rise. When a crisis finally occurs, the most aggressive firms will suffer disproportionately and the prudent firms will prosper. The sharp shift in the aggregate distribution of financial practices lowers fragility and sets the stage for the process to begin again. In Minsky's words:

"Stability—even of an expansion—is destabilising in that more adventurous financing of investment pays off to the leaders, and others follow."
– Hyman Minsky, *John Maynard Keynes* (1975)

A period like the great moderation, in other words, sows the seeds of the next financial crisis.

Some echoed Minsky's thinking. In September 2000, Sir Andrew Crockett, general manager at the Bank for International Settlements, told banking supervisors:

"The received wisdom is that risk increases in recessions and falls in booms. In contrast, it may be more helpful to think of risk as increasing during upswings, as financial imbalances build up, and materialising in recessions."
— Andrew Crockett, *Marrying the Micro- and Macro-Prudential Dimensions of Financial Stability* (2000).

In 2007 Charles Prince, chief executive of Citigroup, explained to the *Financial Times* the difficulty of resisting "adventurous financing" during booms. "As long as the music is playing, you've got to get up and dance," he said in July, as the global economy hurtled towards a crisis deeper than anything seen since the Great Depression, "We're still dancing."

17.9 THE FINANCIAL CRISIS AND THE GREAT RECESSION

Rising house prices in the US in the 2000s were driven by the behaviour of lenders, encouraged by government policy, to extend loans to poorer households. They were able to fund these subprime loans by packaging them into financial derivatives, which banks and financial institutions across the world were eager to buy. Rising house prices created the belief that prices would continue to rise, which shifted the demand curve further to the right by providing households with access to loans based on housing collateral.

Figure 17.22 illustrates the house price cycle on the way down. The housing market in the US economy in 2006 is shown at point A. Once prices began to fall, the demand curve for housing shifted to the left. It was apparent to households that housing was no longer an asset that could be counted on to increase in value. This was the shift from A to B: it can be related to the fall in the house price index, from a level of 100 at the peak to 92 in 2007. Once prices were falling, the belief took hold that prices would fall further. The demand curve shifted further to the left: the house price index fell to 76 in 2008.

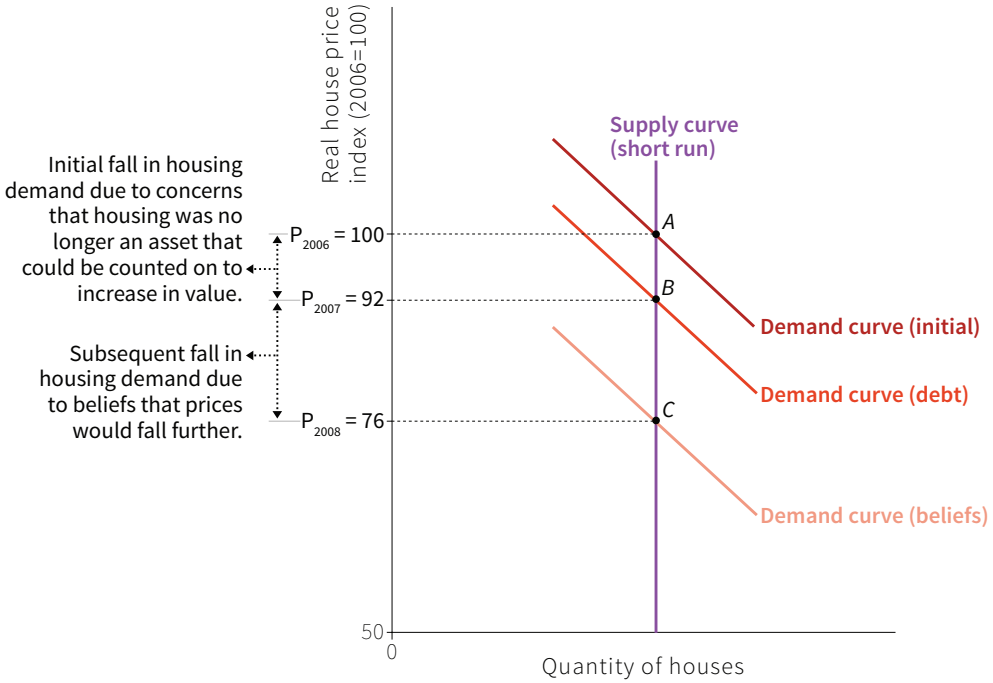


Figure 17.22 *The financial crisis: House price collapse in the US.*

Source: *Bank for International Settlements. 2015. 'Residential Property Price Statistics.' November 20, and other national sources.*

In Figure 17.23 you can see the contribution of the components of GDP to growth in the 18 months before the crisis in the US economy, then in the five quarters of recession from the start of 2008, followed by the recovery phase to the end of 2010. The fall in residential investment (the solid red bar) was the most important feature of the onset phase: at that stage it was the only drag on growth. This was the consequence of the fall in house prices that began in 2006. In the recession, a further fall in housing investment was compounded by a fall in non-residential investment and consumption.

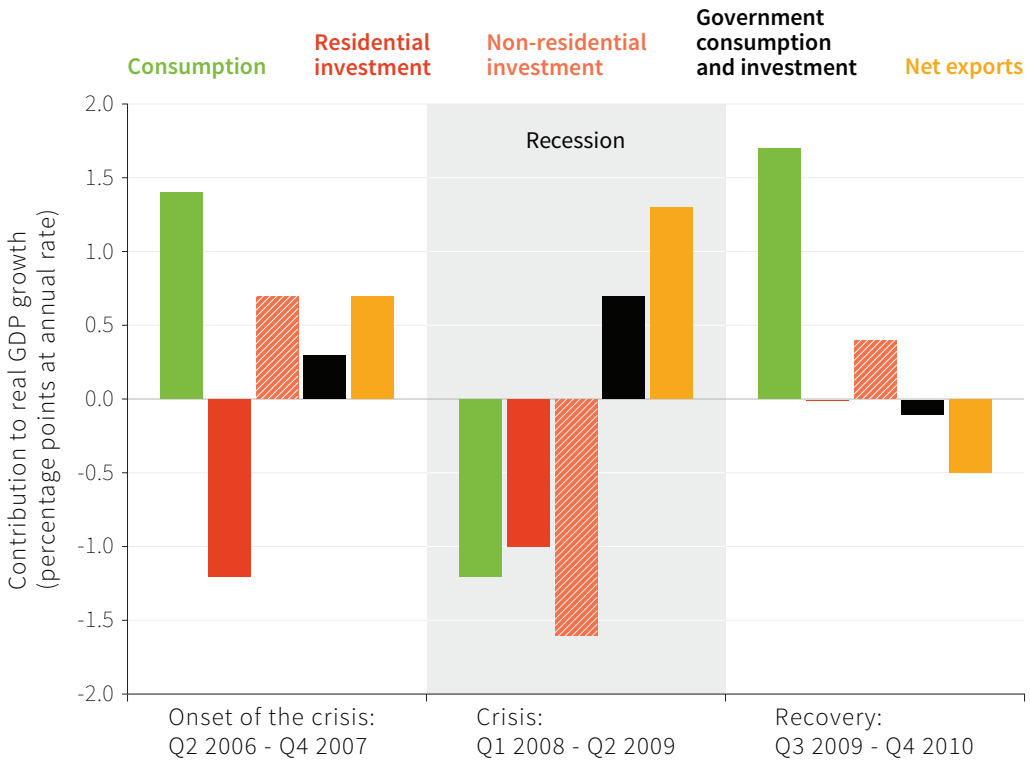
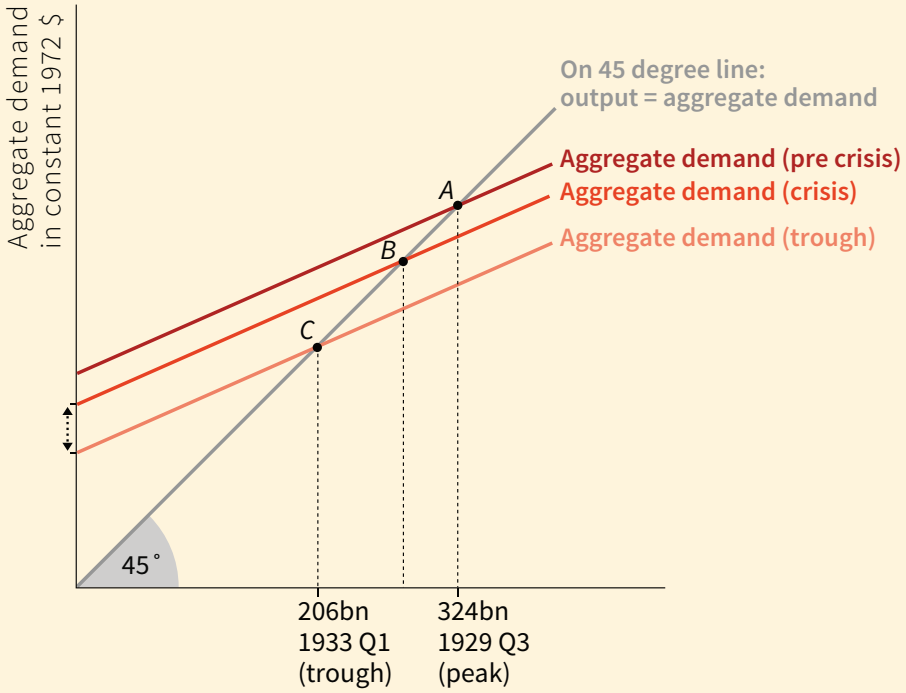


Figure 17.23 *Aggregate demand and the financial crisis in the US (Q2 2006 to Q4 2010).*

Source: *US Bureau of Economic Analysis.*

Just as in the Great Depression, the fall in consumption was not simply due to the multiplier process. Households stopped buying new houses, but also cut spending on consumer durables. The financial accelerator mechanism helps to explain the transmission of falling house prices through the fall in the value of collateral to aggregate demand. Cutbacks in spending on new housing and on consumer durables were concentrated among the poorer households who had taken out subprime mortgages. The timing of the collapse of demand is consistent with the central role played by housing and debt in the financial crisis. There was also a fall in investment. Orders for new equipment were cancelled and factories closed. Workers were laid off; job creation slumped.

DISCUSS 17.5: THE CRISIS AND THE MULTIPLIER



The US economy in 1929
The aggregate demand line defines a level of goods market equilibrium before the crisis. In Q3 of 1929, output was $324bn, its highest level.

Decline in aggregate demand (late 1929 to early 1930)
The fall in firm and household investment created an initial fall in aggregate demand.

The US economy in early 1930
The new goods market equilibrium was at point *B*.

The US economy in 1933
The downward shift in the consumption and investment functions in 1930 and 1931, associated with uncertainty about earnings and assets, the banking crisis, falling prices and higher real interest rates meant that aggregate demand continued to fall. By 1933 output had declined from $324bn to $206bn.

Aggregate demand in the Great Depression: Multiplier and positive feedback processes.

1. Show the features of the 2008 crisis in the multiplier diagram using the figure above for the Great Depression as a model. Use the concepts of the consumption function, a house price bubble, the financial accelerator and positive feedback in your answer.
2. How can you represent the role played by the higher marginal propensity to consume of households in the bottom quintile in your analysis?

We can link the pattern of aggregate demand in Figure 17.23 to the decisions of households by using a diagram similar to the one we developed for the Great Depression. This is Figure 17.24. These two figures are different ways of looking at the same developments: Figure 17.24 is an individual household-eye-view of the unfolding crisis; Figure 17.23 is the same process from the perspective of the whole economy.

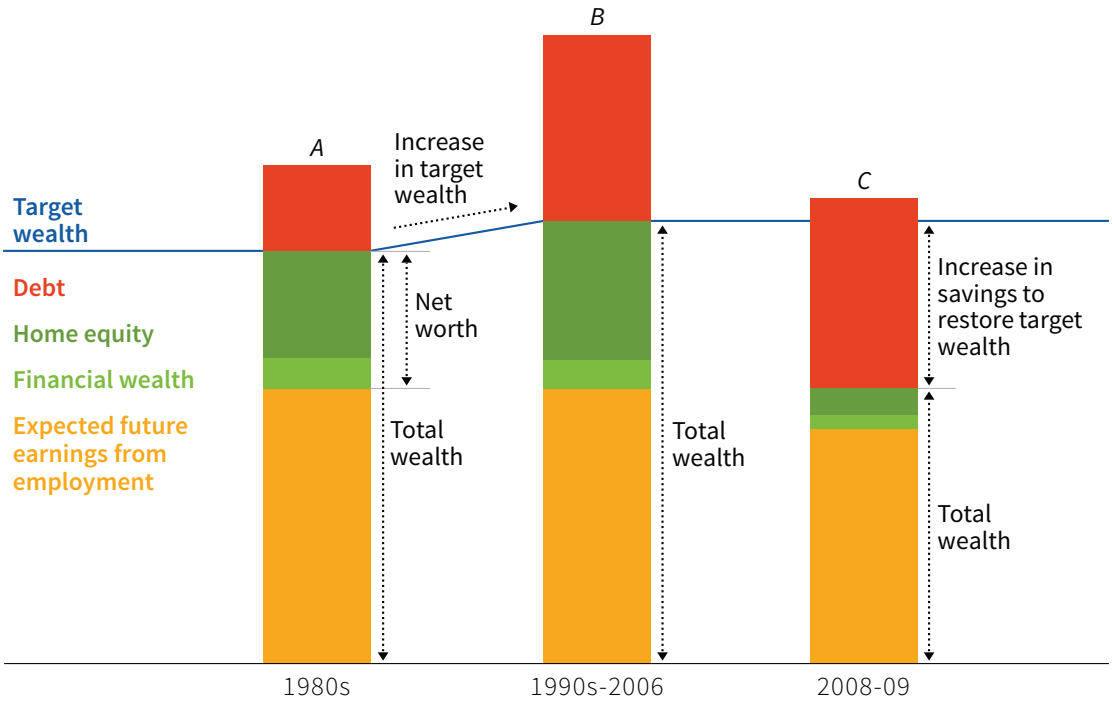


Figure 17.24 *The financial crisis: Housing boom, household debt and house price crash.*

Column A in Figure 17.24 shows the situation in the 1980s. As we have seen, through the 1990s and especially in the early 2000s, households took advantage of rising house prices to increase their debt. From Unit 11, we know that an increase in the price of a house allows the household to borrow more because the value of the collateral has risen. Over this period, expected earnings from employment remained constant for many households and we show this component of expected wealth as unchanged between column *A* and column *B* (the yellow rectangles). But the

increase in housing wealth pushed up households' assessment of their wealth (the dark green rectangles). The upward trend of house prices in real terms appeared to be a reliable feature of the world and households uprated their target wealth to reflect the increase in collateral and in their ability to borrow to raise their level of consumption. This is shown in column *B*. The higher level of debt of the household is shown by the larger debt rectangle (red).

From 2006, house prices in the US began to fall. The household's viewpoint in 2008 and 2009 is shown in column C. Rising unemployment led to a downward re-evaluation of expected future earnings from employment. Household net worth shrank, as we can see in column *C*. Note that the size of the debt rectangle has not changed between columns *B* and *C*. Given the fall in house and asset prices, the increased debt acquired in the boom years, combined with lower expected earnings, had the effect of reducing wealth below target. As a result, households cut consumption and increased savings. This is shown in column *C* by the double-headed arrow labelled "Increase in savings to restore wealth to target".

The household shown in Figure 17.24 still has positive net worth following the fall in house and asset prices in the crisis. This is shown by the sum of the red and green rectangles in column C. But the behaviour of households whose net worth became negative following the fall in house prices was an important feature of the great recession that followed the financial crisis in the US. To show this in a diagram like Figure 17.24, the debt rectangle would slide down into the box labelled "expected earnings from employment", wiping out the red and green rectangles, reducing total wealth, and increasing the gap between expected and target wealth. It is easy to see how households in the bottom quintile shown in Figure 17.20 went underwater in 2008 and 2009. In the US in 2011, 23% of properties with a mortgage were worth less than the mortgage. Households in this position would have cut consumption as they paid down their debt to restore their financial position.

17.10 THE ROLE OF BANKS IN THE CRISIS

House prices and bank solvency

The financial crisis was a banking crisis—and it was global, as BNP Paribas demonstrated in August 2007 when it would not pay out to bondholders in one of its investment funds. The banks were in trouble because they had become highly leveraged and were vulnerable to a fall in the value of the financial assets that they had accumulated on their balance sheets (refer back to Figure 17.21 for the leverage of US and UK banks). The values of the financial assets were in turn based on house prices.

With a ratio of net worth to assets of 4%, as in the example of the bank in Figure 11.15, a fall in the value of its assets of an amount greater than this will render a bank insolvent. House prices fell much more than 4% in many countries in the recent financial crisis. In fact, the peak-to-trough fall in house price indices for Ireland, Spain and the US were 50.3%, 31.6% and 34.6% respectively. This creates a problem of solvency for the banks: just as with the underwater households, banks were in danger of their net worth being wiped out. It is relatively easy for a household to calculate whether this has happened, but not for a bank.

Unlike a house, obscure financial assets on (or often designed to be kept off) a bank's balance sheet, with acronyms like *CDO, CDS, CLO* and even CDO^2, were hard to value. This made it difficult to judge which banks were in trouble.

Bank liquidity and the credit crunch

Doubts about the solvency of banks created another problem in the financial system—the problem of liquidity, which we introduced in Unit 11. A characteristic feature of banking is the mismatch between short-term liabilities, which it owes to depositors, and long-term assets, which are loans owed to the bank. In consequence banks rely on the money market to fund themselves when they need short-term liquidity. But the operation of the money market relies on borrowers and lenders having trust in the solvency of those with whom they trade. The expected profit on a loan is the interest rate multiplied by the probability that the borrower will not default:

$$\textit{Expected profitability of loan} = (1 + r) \times (1 - \textit{probability of default})$$

Therefore, as people feared that those to whom they were lending were more likely to default, they would only lend at a high interest rate. In many cases, banks or others operating in the money markets simply refused to lend at all. Newspapers called it the *credit crunch*.

In Unit 11 we learnt that the interest rate in the money market is tied tightly to the policy interest rate set by the central bank; this relationship broke down in the credit crunch. Borrowing on the interbank market became much more expensive and hampered the ability of central banks to stabilise the economy: even when the central banks reduced the interest rate to the zero lower bound, the fear that banks would default kept money market rates high. This led to high mortgage lending rates: high money market interest rates raised a bank's funding costs, as we would predict using the model in Unit 11.

Fire sales: A positive feedback process

The forced sale of assets, known informally as a *fire sale*, is a positive feedback process. It reinforces the fall in asset prices and hastens the insolvency of banks. In the financial crisis, the fire-sale external effect affected both the housing market and the markets for financial assets, and both affected banks.

In the housing case, it is easy to visualise: think of a household that is underwater and cannot repay a housing loan. Its debt exceeds the market value of the house. The household defaults on repayments, and either walks out or is foreclosed by the bank. After foreclosure, the bank owns the house, which it sells. The bank accepts a low price because it is not in the business of owning and maintaining houses, and the value of the house falls further if it is unoccupied. This is a market failure due to the external effect of the fire sale, which is conferring a cost (a fall in price) on other owners of the same type of asset. Similar fire sales of financial assets by distressed banks push prices down, and impose costs on other asset owners by reducing their net worth. This in turn threatens their solvency.

Governments rescue banks

Across the advanced economies, banks failed and were rescued by governments (to find out how they did this, and for more background on how the financial system failed during the crisis, use this web site). In Unit 11 we highlighted the fact that banks do not bear all the costs of bankruptcy. The bank owners know that others (taxpayers or other banks) will bear some of the costs of the banks' risk-taking activity. So the banks take more risks than they would take if they bore all the costs of their actions. Excess risk-taking by banks is a negative external effect leading to a market failure. And it arises because of the principal-agent problem between the government (the principal) and the agent (the bank). The difference of interest arises because the government will bear the cost of bank bailout as a consequence of excessive risk-taking by banks. Governments cannot write a complete set of rules that would align the interests of the banks with those of the government or the taxpayer.

Banks are rescued because the failure of a bank is different from the failure of a typical firm or household in a capitalist economy. Banks play a central role in the payments system of the economy and in providing loans to households and to firms. Chains of assets and liabilities link banks, and those chains had extended across the world in the years before the crisis.

The interconnectedness of banks was vividly illustrated in the credit crunch, where liquidity dried up in the money markets because of doubts of each bank about the solvency of other banks. The event associated most closely with the financial crisis, the bankruptcy of US investment bank Lehman Brothers on 15 September 2008, showed how interconnected banks were (and are). This was not the beginning of the crisis—we have seen that the contraction of aggregate demand in the US began with the troubles in the housing market—but it signalled its escalation at the national and global level.

Thus the banking system, like an electricity grid, is a network. The failure of one of the elements in this connected network—whether a household or another bank—creates pressure on every other element. Just as happens in an electricity grid, the process in a banking system may create a cascade of subsequent failures, as occurred between 2006 and 2008. In our *Economist in action* video, Joseph Stiglitz, one of the

few economists who warned repeatedly about the risks inherent in the financial system in the lead-up to the financial crisis, explains the combination of incentives, external effects and positive feedback processes that led to this cascade of financial failure.

DISCUSS 17.6: BEHAVIOUR IN THE FINANCIAL CRISIS

Watch this explanation of the behaviour of households and banks in the financial crisis.

1. Which models that you have used in this unit can you fit to the story told in the video?
2. Are there parts of the video that you cannot explain using this unit?

DISCUSS 17.7: POST-CRISIS POLICIES

1. Compare the Great Depression and the 2008 financial crisis in terms of their institutional context (for example rules about exchange rates, trade union power).
2. How did these institutions affect the success of the policy responses by governments?

17.11 CONCLUSION

The human body is a miracle of self-stabilising processes, mobilising an immune system to repel infection and restoring damaged tissue or even brain cells. The *homeostatic* mechanisms of a modern economy are often similarly miraculous.

What have economists learned in the last century? One hundred years ago economists would have thought that the economy is always reliably self-correcting. Now they understand it is more like the human body: sometimes the economy's homeostatic mechanisms are overwhelmed, and it needs a doctor.

Economists learned the lesson of the Great Depression. They learned that an economy could get stuck with low output and high unemployment because of a lack of adequate aggregate demand. And they learned that the self-stabilising behaviour of private sector actors couldn't be relied on to end the crisis because of positive feedback processes. As we have seen, new policy regimes were developed at the national and international level after the second world war. Governments introduced or broadened the scope of stabilising mechanisms like unemployment insurance.

Economists learned about the importance of aggregate demand, but it gave them an undue confidence that a combination of fiscal and monetary policy would virtually eliminate unemployment in the long run. This helps explain most economists' failure to diagnose the supply-side character of the first oil shock in 1973. Figure 17.25 illustrates this policy mistake for the US. The doubling of the oil price (in real terms) is indicated by the increase in the index from 5 to 10 in the chart in 1973. From Unit 14 and this unit, we know that when the national economic pie is reduced by a commodity price shock, this will intensify the conflict of interest over its division, and so inflation increased to more than 10% in 1974. Yet policymakers were focused on the effect of the oil price shock in reducing aggregate demand and raising unemployment. They responded by loosening monetary policy (look at the falling nominal and real interest rates). Fiscal policy was not tightened.

A different response followed the second oil shock in 1979. The focus was on the need to reduce inflation and restore expected profits. Economists shifted their attention away from aggregate demand to the supply side of the economy. Policymakers used supply-side policies closely associated with Prime Minister Margaret Thatcher in the UK and President Ronald Reagan in the US.

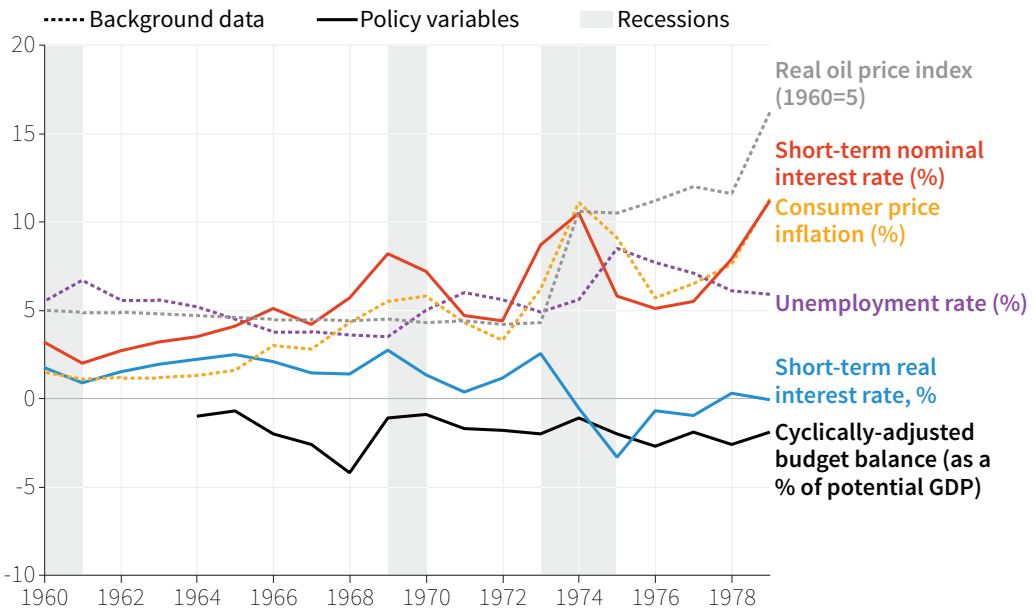


Figure 17.25 *Policy choices during the end of the golden age: United States (1960-79).*

Source: *Federal Reserve Bank of St Louis (FRED); Congressional Budget Office; US Bureau of Labor Statistics.*

In Figure 17.26 we summarise the lessons for economists from each epoch.

EPOCH	DATES	PRIOR CONVENTIONAL WISDOM	THE LESSON	WHAT ECONOMISTS LEARNED	PRIMARY AUTHOR
1920s AND GREAT DEPRESSION	1921-1941	Markets are self-correcting, efficient, and ensure the full use of resources.	Collapse of aggregate demand, high and persistent unemployment.	• Instability is an intrinsic feature of the aggregate economy • Aggregate demand can be stabilised by government policy • Demand matters	Keynes
GOLDEN AGE OF CAPITALISM AND ITS DEMISE	1948-1979	Government policy can implement an employment target by picking a point on the Philips curve.	Late 60s decline in profits, investment and productivity growth. Stable Phillips curve trade-off disappears.	• With given institutions, the need to maintain profits, investment and productivity growth can limit the ability of a government to implement sustainable low unemployment • Supply matters • Institutions matter	Friedman
FROM STAGNATION TO THE FINANCIAL CRISIS	1979-2013	Instability has been purged from capitalist dynamics; minimally regulated financial markets work well.	Financial and housing market crash of 2008.	• Debt-fuelled financial and housing bubbles will destabilise an economy in the absence of appropriate regulations • Institutions matter • Money matters	Minsky

Figure 17.26 *The economy as teacher: What economists learned in the three epochs.*

We can draw three conclusions:

1. *Economists have learned from the successes and the failures of the three epochs:* Though the process has been slow, economics today is the result of this process.
2. *Successful policies in each epoch did not prevent positive feedback processes that contributed to subsequent crises:* Each epoch succeeded initially because the policies and institutions that had been adopted addressed the shortcomings of the previous epoch. But then policymakers and economists have been taken by surprise when virtuous circles have turned into vicious circles.

3. *No school of thought has policy advice that would have been good in every epoch:* The value of competing approaches and insights depends on the situation. Ideas from both Friedman and Keynes have been essential to what economists have learned.

When Germany invaded France in 1914 at the beginning of the first world war, the French soldier Andre Maginot was wounded in the attack. When he later became minister of war he was determined to construct an impregnable line of defence, which we remember as *The Maginot Line*, in case German soldiers tried to march into France again.

At the beginning of the second world war Germany's *blitzkrieg* (lightning war) attack used tanks and motorised troop carriers. They didn't breach the Maginot line. They didn't have to: they drove around it instead.

Economists today are trying to avoid Maginot's error. A careful study of the economic history of the past century will help us not always to fight the "last war", and to prepare for whatever new difficulties will arise.

CONCEPTS INTRODUCED IN UNIT 17

Before you move on, review these definitions:

- *Positive feedbacks*
- *Global financial crisis*
- *Golden age of capitalism*
- *Great Depression*
- *Gold standard*
- *Catch-up growth*
- *Oil price shocks*
- *Subprime mortgage*
- *Stagflation*
- *Effective tax rate on profits*
- *Postwar accord*
- *Financial accelerator*
- *Financial deregulation*
- *Great moderation*
- *Great recession*
- *Zero lower bound*
- *Bank bailouts*
- *Austerity policy*

DISCUSS 17.8: HOOVER'S BALANCED BUDGET

On 4 April 1932, as the US economy spiralled downward, President Hoover wrote to the US Congress (you can read the letter here) to advocate a balanced budget and cuts in government spending.

Write a critique of Hoover's letter, using the economics in Units 11 to 17.

DISCUSS 17.9: AUSTERITY POLICY

In Unit 13 we introduced the *paradox of thrift* and examined the use of *austerity policies* in many countries before their economies had recovered from the recession that followed the 2008 crisis.

Were the lessons of the Great Depression forgotten when austerity policies were introduced? (This analysis written by Barry Eichengreen and Kevin O'Rourke will help you.)

Key points in Unit 17

Positive feedback

This can turn what would otherwise have been an ordinary downturn into a major fall in output, as occurred following the stock market crash of 1929 and the financial crisis of 2008.

The golden age

During this epoch institutional change and positive feedbacks supported rapid growth in investment, productivity and wages; but the result was unsustainable due to negative effects on profits, leading to the period of stagflation.

The role of household wealth

We can understand the dynamics of the three epochs by tracking the wealth of households and their attempts to adjust to the shocks of unemployment or falling house prices.

The roles of demand, wages and finance

The three epochs taught economists that aggregate demand matters; that successfully pursuing high employment involves detaching the wage bargain from the unemployment rate; and that unregulated financial markets are prone to instability.

Distinct actors invest, work and save

Their interests are sometimes in conflict, and private contracts or government policies cannot adequately regulate their actions. This is the source of dynamism, but also of instability in the capitalist economy.

17.12 READ MORE

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