

## 1 MONEY AND EXPENDITURE IN THE TRANSMISSION MECHANISM

How does money influence the economy? More exactly, how do changes in the level (or the rate of growth) of the quantity of money affect the values of key macroeconomic variables such as aggregate demand and the price level? As these are straightforward questions which have been asked for over four hundred years, economic theory ought by now to have given some reasonably definitive answers. But that is far from being the case.

Most economists agree with the proposition that in the long run inflation is 'a monetary phenomenon', in the sense that it is associated with faster increases in the quantity of money than in the quantity of goods and services produced. But they disagree about almost everything else in monetary economics, with particular uncertainty about the so-called 'transmission mechanism'. The purpose of this monograph is to describe key aspects of the transmission mechanism from money, on the one hand, to asset prices and economic activity, on the other, in advanced industrial economies with large financial markets. The experience of the UK economy in the business cycles from the 1960s to today will be considered in most detail, with particular emphasis on the two pronounced boom–bust cycles in the early 1970s and the late 1980s. But two other episodes – the Great Depression in the USA from 1929 to 1933 and the prolonged malaise in the Japanese economy in the decade or so from 1992 – will also be discussed.

A central theme will be the importance of the quantity of money, broadly defined to include nearly all bank deposits, in asset price determination. Narrow money measures are shown to be almost irrelevant to asset price determination in a modern economy. One chapter will rebut claims that 'credit' is relevant, *by itself*, to asset price determination and economic activity; it will argue that such claims, which have become surprisingly common in professional journals and central bank bulletins in recent years, are confused and misleading. In order better to locate the analysis in the wider debates, a discussion of the origins of certain key motivating ideas is necessary.

### **Traditional accounts of the transmission mechanism**

Irving Fisher of the University of Yale was the first economist to set out, with rigorous statistical techniques, the facts of the relationship between money and the price level in his 1911 study, *The Purchasing Power of Money*. Fisher's aim was to revive and defend the quantity theory of money. In his review of Fisher's book for the *Economic Journal*, John Maynard Keynes was mostly friendly, but expressed some reservations. In his words, 'The most serious defect in Professor Fisher's doctrine is to be found in his account of the mode by which through transitional stages an influx of new money affects prices.'<sup>1</sup> In the preface to the second edition, Fisher summarised Keynes's criticism as being the claim that, although his 'book shows *that* changes in the quantity of money do affect

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<sup>1</sup> Elizabeth Johnson and Donald Moggridge (eds), *The Collected Writings of John Maynard Keynes*, vol. XI, *Economic Articles and Correspondence* (London and Basingstoke: Macmillan Press for the Royal Economic Society, 1983), p. 376.

the price level', it 'does not show *how* they do so'.<sup>2</sup> In other words, Keynes felt that Fisher had not provided a satisfactory version of the transmission mechanism.

Fisher quickly responded to Keynes. In fact, he used the opportunity of the preface to the second edition of *The Purchasing Power of Money* to direct Keynes to pages 242–7 of another of his works, *Elementary Principles of Economics*, which had been published in 1912 between the first and second editions of *The Purchasing Power*. In those pages, entitled 'An increase in money does not decrease its velocity', Fisher noted that economic agents have a desired ratio of money to expenditure determined by 'habit' and 'convenience'. If 'some mysterious Santa Claus suddenly doubles the amount [of money] in the possession of each individual', economic agents have excess money balances. They try to get rid of their excess money by increasing their purchases in the shops, leading to 'a sudden briskness in trade', rising prices and depleting stocks. It might appear that only a few days of high spending should enable people to reduce their money balances to the desired level, but 'we must not forget that the only way in which the individual can get rid of his money is by handing it over to somebody else. Society is not rid of it'. To put it another way, the payments are being made within a closed circuit. It follows that, under Fisher's 'Santa Claus hypothesis', the shopkeepers who receive the surplus cash 'will, in their turn, endeavour to get rid of it by purchasing goods for their business'. Therefore, 'the effort to get rid of it and the consequent effect on prices will continue until prices have reached a sufficiently high level'. The 'sufficiently high level' is attained

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2 William J. Barber (ed.), *The Works of Irving Fisher*, vol. 4, *The Purchasing Power of Money* (London: Pickering & Chatto, 1997, originally published by Macmillan, New York, 1911), p. 27.

when prices and expenditure have risen so much that the original desired ratio of money to expenditure has been restored. Prices, as well as the quantity of money, will have doubled.<sup>3</sup>

Three features of Fisher's statement of the transmission mechanism in his *Elementary Principles of Economics* are:

- the emphasis on the stability of the desired ratio of money to expenditure;
- the distinction between 'the individual experiment' (in which every money-holder tries to restore his own desired money/expenditure ratio, given the price level, by changing his money balances) and 'the market experiment' (in which, with the quantity of money held by all individuals being given and hence invariant to the efforts of the individuals to change it, the price level must adjust to take them back to their desired money/expenditure ratios); and
- the lack of references to 'the interest rate' in agents' adjustments of their expenditure to their money holdings.<sup>4</sup>

These are also the hallmarks of several subsequent descriptions of the transmission mechanism. In 1959 Milton Friedman – who became the leading exponent of the quantity theory in the

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3 Barber (ed.), *Works of Fisher*, vol. 5, *Elementary Principles of Economics* (London: Pickering & Chatto, 1997, originally published by Macmillan, New York, 1912), pp. 242–4.

4 The analysis on pp. 242–7 of *Elementary Principles* is different from that in Chapter 4 of *Purchasing Power*, even though Chapter 4 had ostensibly been on the same subject of 'the transition period' (i.e. the passage of events in the transmission mechanism). Chapter 4 of *Purchasing Power* is highly Wicksellian, with much discussion of the relationship between interest rates and the rate of price change, and then between real interest rates and credit demands. This Wicksellian strand was dropped in pp. 242–7 of *Elementary Principles*.

1960s and 1970s – made a statement to the US Congress about the relationship between money and the economy. He recalled Fisher's themes. After emphasising the stability of agents' preferences for money, he noted that 'if individuals as a whole were to try to reduce the number of dollars they held, they could not all do so, they would simply be playing a game of musical chairs'. In response to a sudden increase in the quantity of money, expenditure decisions would keep on being revised until the right balance between money and incomes had returned. While individuals may be 'frustrated in their attempt to reduce the number of dollars they hold, they succeed in achieving an equivalent change in their position, for the rise in money income and in prices reduces the ratio of these balances to their income and also the real value of these balances'.<sup>5</sup> Friedman has also emphasised throughout his career the superiority of monetary aggregates over interest rates as measures of monetary policy.

The claim that, in a long-run equilibrium, the real value of agents' money balances would not be altered by changes in the nominal quantity of money was also a central contention of Patinkin's *Money, Interest and Prices*, the first edition of which was published in 1955. *Money, Interest and Prices* exploited the distinction between the individual and market experiments in a detailed theoretical elaboration of what Patinkin termed 'the real-balance effect'. In his view 'a real-balance effect in the commodity markets is the *sine qua non* of monetary theory'.<sup>6</sup> The real-balance effect

5 See Milton Friedman, 'Statement on monetary theory and policy', given in congressional hearings in 1959, reprinted on pp. 136–45 of R. James Ball and Peter Boyle (eds), *Inflation* (Harmondsworth: Penguin, 1969). The quotations are from p. 141.

6 Donald Patinkin, *Money, Interest and Prices* (New York: Harper & Row, 2nd edn, 1965), p. 21. Keynes is sometimes said to be the originator of the idea of 'real

can be viewed as the heart of the transmission mechanism from money to the economy. The real balance effect is discussed further in the Appendix (page 139).

### Asset prices in the traditional accounts

Despite the lucidity of their descriptions of the transmission mechanism, the impact of Fisher, Friedman and Patinkin on the discussion of macroeconomic policy in the final 40 years of the twentieth century was mixed. In the 1970s Friedman had great success in persuading governments and central banks that curbing the growth of the money supply was vital if they wanted to reduce inflation. His theoretical work on money was contested, however, by other leading economists and did not command universal acceptance. By the 1990s the preponderance of academic work on monetary policy focused on interest rates, with the relationship between interest rates and the components of demand in a Keynesian income-expenditure model attracting most attention.<sup>7</sup> For example, when it was asked in 1999 by the Treasury

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balances', as he used the general idea in his 1923 book *A Tract on Monetary Reform* in a discussion of inflation in revolutionary Russia in the early 1920s. Patinkin's view on the importance of the real-balance effect seems to have changed in his later years. In an entry on 'Real balances' in the 1987 *Palgrave* he said: 'the significance of the real-balance effect is in the realm of macroeconomic theory and not policy'. (See John Eatwell et al. [eds], *The New Palgrave: Money* [London and Basingstoke: Macmillan, 1989, based on 1987 *New Palgrave*], p. 307.) See also the Appendix to this text.

- 7 In the autumn of 1995 *The Journal of Economic Perspectives* published a number of papers on the transmission mechanism of monetary policy. Not one of the papers focused on the real-balance effect as the heart of this mechanism. Indeed, despite Fisher's and Friedman's clear statements many years earlier, and Friedman's and many others' vast output on the empirical relationship between money and the economy, Bernanke and Gertler opined that 'empirical analysis of the effects of

Committee of the House of Commons for its views on the transmission mechanism, the Bank of England prepared a paper in which ‘official rates’ (i.e. short-term interest rates under the Bank’s control) influenced ‘market rates’, asset prices, expectations and confidence, and the exchange rate, and these four variables then impacted on domestic demand and net external demand. In a twelve-page note it reached page ten before acknowledging that ‘we have discussed how monetary policy changes affect output and inflation, with barely a mention of the quantity of money’.<sup>8</sup> The links between money, in the sense of ‘the quantity of money’, and the economy were widely neglected or even forgotten.

The relatively simple accounts of the transmission mechanism in Fisher’s *Purchasing Power of Money* and some of Friedman’s popular work were particularly vulnerable on one score. They concentrated on the relationship between money and expenditure on the goods and services that constitute national income, but neglected the role of financial assets and capital goods in the economy; they analysed the work that money performs in the *flow* of income and expenditure, but did not say how it fits into the numerous individual portfolios that represent a society’s *stock* of capital assets. As Keynes had highlighted in his *Treatise on Money*

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monetary policy has treated the monetary transmission mechanism as a “black box” (Ben Bernanke and Mark Gertler, ‘Inside the black box: the credit channel of monetary policy transmission’, *Journal of Economic Perspectives* [Minneapolis: American Economic Association, 1995], pp. 27–48. The quotation is from p. 27).

8 The Monetary Policy Committee of the Bank of England, *The transmission mechanism of monetary policy* (London: Bank of England, in response to suggestions by the Treasury Committee of the House of Commons, 1999), p. 10. The note is believed to have been written by John Vickers, the Bank’s chief economist at the time. See also Spencer Dale and Andrew G. Haldane, ‘Interest rates and the channels of monetary transmission: some sectoral estimates’ (London: Bank of England, Working Paper Series no. 18, 1993), for a description of the transmission mechanism in which the quantity of money plays no motivating role.

(published in 1931), money is used in two classes of transaction – those in goods, services and tangible capital assets (or ‘the industrial circulation’, as he called it), and those in financial assets (‘the financial circulation’).<sup>9</sup> The need was therefore to refurbish monetary theory, so that money was located in an economy with capital assets and could affect asset prices as well as the price level of goods and services. Much of Friedman’s theoretical work for a professional audience was a response to this requirement. For example, in a 1964 paper written with Meiselman he contrasted a ‘credit’ view, in which monetary policy ‘impinges on a narrow and well-defined range of capital assets and a correspondingly narrow range of associated expenditures’, with a ‘monetary’ view, in which it ‘impinges on a much broader range of capital assets and correspondingly broader range of associated expenditures’.<sup>10</sup>

But most macroeconomists have remained more comfortable

9 Johnson and Moggridge (eds), *Collected Writings of Keynes*, vol. V, *A Treatise on Money: The Pure Theory of Money* (London and Basingstoke: Macmillan Press for the Royal Economic Society, 1971, originally published 1930), ch. 15, ‘The industrial circulation and the financial circulation’, pp. 217–30. Keynes argued that ‘the industrial circulation ... will vary with ... the aggregate of money incomes, i.e., with the volume and cost of production of current output’ (p. 221), whereas ‘the financial circulation is ... determined by quite a different set of considerations’ (p. 222). In his words, ‘the amount of business deposits ... required to look after financial business depends – apart from possible variations in the velocity of these deposits – on the volume of trading  $\times$  the average value of the instruments traded’ (also p. 222). Arguably, these remarks contained the germ of the later distinction between the transactions and speculative motives for holding money. In the discussion of the financial circulation in *A Treatise of Money*, securities (i.e. equities and bonds) are the alternative to money; in the discussion of the speculative demand to hold money in *The General Theory* bonds are the alternative to money.

10 Friedman and David Meiselman, ‘The relative stability of monetary velocity and the investment multiplier in the United States, 1897–1958’, in *Stabilization Policies* (Englewood Cliffs, NJ: Prentice Hall for the Commission on Money and Credit, 1963), pp. 165–268. See, in particular, p. 217.



with the notion that interest rates affect investment (and, at a further remove, the level of national income) than with the claim that the quantity of money has an empirically significant and verifiable role in asset price determination (and that asset prices are fundamental to cyclical fluctuations in national income). The purpose of this study is to challenge the dominant view; it is to show that money was crucial to asset price fluctuations in the UK in the last four decades of the twentieth century, in the USA during the Great Depression and in Japan in the decade or so leading up to the 21st century.

The next chapter will present a monetary account of asset price determination, set in a UK context. It will abstract from institutional complexities in order to convey the essence of the processes at work; it will appeal to the first two of the three distinctive features of the naive transmission mechanism discussed by Fisher in 1912 and Friedman in his 1959 congressional testimony, namely the stability of the relevant agents' demand for money and the need to differentiate between the individual and market experiments; and it will argue that these ideas are useful in the context of the financial markets where asset prices are set, just as they are in the markets for the goods and services which enter consumer price indices. Of course, the real world is a complicated place, and agents' preferences for money and other assets may change radically in a world of extreme asset price turbulence. Even so, Chapters 3 and 4 will contain a discussion of the asset price experiences of three nations widely separated in space and time, and will demonstrate the relevance to all of them of the analytical approach adopted here.