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The Liquidity theory of asset prices

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with MICHAEL J OLIVER

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The Liquidity Theory
of Asset Prices

Gordon Pepper
with **Michael J. Oliver**



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The following are quotes about the course ‘The Monetary Theory of Asset Prices’, Module 3, Practical History of Financial Markets, Edinburgh Business School; run by the Stewart Ivory Education Company (SIFECO) and taught jointly by Gordon Pepper and Michael Oliver.

‘An excellent series of lectures’.

‘Quite inspirational’.

‘Very interesting course making me more aware of monetary influences – very worthwhile’.

‘I shall look forward to reading more if not all of the book’.

‘Excellent, stimulating and in my view very important subject’.

‘Very insightful. My eagerness to learn more has increased’.

‘The back to basics. Clear, pithy and informative’.

‘Good double act of academic/professional’.

‘A very interesting course which I plan to follow up with further reading’.

‘Michael Oliver: Highly enthusiastic, very thorough; Gordon Pepper: Very practical – steeped in the real world. An authority on money supply’.

‘Excellent topics and materials. This is cutting edge work’.

‘Excellent combination of presenters – academic background combined with practical examples’.

‘My objective was to make some sense of my experiences over the past thirty years and gain some framework for assessing the future by listening to some of the finest minds in the City and the academic input – I HAVE NOT BEEN DISAPPOINTED’.

The Liquidity Theory
of Asset Prices

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of Asset Prices

Gordon Pepper
with **Michael J. Oliver**



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Foreword

For at least the last decade, there has been a growing sense of frustration among market professionals with the attempts by academics to account for the behaviour of financial markets. Practitioners do not dispute the value of academic analysis, but assert that academic theories do not adequately explain the behaviour of financial markets. The result is that many very experienced practical people have become highly critical of traditional teaching in universities. This book, which represents the culmination of a lifetime's experience, is written by a practitioner who, over his long and distinguished career, has often worked with academics. This is no indigestible academic tome, however, it has been written for practical men and women; indeed it is a cornerstone of a new course in financial education established by The Stewart Ivory Foundation.

The Stewart Ivory Foundation is a charity founded in 2001 to further the development of financial education in Scotland. To cover omissions from conventional teaching, the Trustees, who represent the major investment management companies in Edinburgh, decided to sponsor the new course, which is entitled, 'A Practical History of Financial Markets', as one of the elective units within the Edinburgh Business School's (EBS) MBA programme. EBS currently operates the second largest distance learning MBA programme in the world, and in 1994 and 1999 was awarded a Queen's Award for Export for its MBA product. As well as the endorsement of a UK chartered university, the course is also offered as part of the 'Approved Provider Program' of the CFA Institute.

What is missing from the traditional approach to financial education? When asked about key omissions, investment managers normally reply: 'psychology and liquidity'. In recent years, the former has been partially codified in the field of Behavioural Finance and has been endorsed by

the granting of the Nobel Prize for Economics to Daniel Kahneman in 2002. As this field of study is now well developed, it is not too difficult to find authors and teachers for a new course. However, finding authors and teachers with experience of the world of practical investment, rather than the halls of academe, proved a more difficult hurdle. Fortunately though, the problem was not insurmountable, and Behavioural Finance now forms a core unit of the course.

Matters were significantly more complicated in developing a unit of the course that deals with the issue of 'liquidity'. Liquidity can mean all things to all men. At its core is a belief that sometimes there is a force which exerts individuals to effect a financial transaction when they would not otherwise do so. Such a compelled action can be at odds with the voluntary actions taken by the rational man and normally assumed to result in efficiency. Most investment managers believe that understanding this force of compulsion is a key to understanding a financial market when it appears to be behaving irrationally. The bad news is that the only way in which fund managers have, in the past, come to understand the Liquidity Theory of Asset Prices is through experience. While experience may be the best teacher, the lessons, especially for an investment practitioner, can prove to be very costly. It seems truly remarkable that, despite investment managers proclaiming that liquidity has a crucial role in financial markets, no formal educational course on the Liquidity Theory of Asset Prices exists. It is difficult to explain this lacuna in investor education. One excuse often given is that the subject is so complex that it has proven too difficult to be explained and taught in an understandable format to practical men of finance. There might well be some truth in this, and thus, finding an author and teacher who not only was a master of the brief, but could also make his subject understandable to practitioners, could not be guaranteed. From the outset, the trustees of the Foundation considered that Gordon Pepper was the individual most likely to be able to provide this breakthrough.

Gordon's mastery of the 'liquidity' brief has been recognised for decades, not only by his peers in the industry, but in academia and by politicians in search of policy advice. Crucially, Gordon's understanding of this subject owes everything to his practical experience in the financial markets, rather than to any textbook or university lecturer. In Gordon's 1994 publication, *Money, Credit and Asset Prices*, there was clear evidence that, almost for the first time, here was an author who could make the subject largely understandable to all (that of course

is not the same as saying that it made the subject easy to understand). *The Liquidity Theory of Asset Prices* is a significant advance on *Money, Credit and Asset Prices*. First, the analysis has become tighter since the earlier work was published. Second, it has gone through a series of filters to enhance further the intelligibility of the subject matter.

A major refinement to Gordon's approach came when he was faced with the difficult task of updating and turning his 1994 publication into distance learning materials for students of the 'Practical History of Financial Markets' course. Creating materials which can form the basis of a distance learning course is difficult enough in even the simplest of disciplines. Significant modifications for this particularly difficult subject were required. Even more distillation of the materials was needed to convert these distance learning materials into a series of lectures lasting not more than ten hours. It was at this stage that Gordon sought the assistance of Michael Oliver. Not only is Michael a professional lecturer, but he is also a leading economic historian, whose expertise on monetary policy is well recognised. Michael's input thus further increased the intelligibility of the subject matter, adding the voice of a professional economic historian in those sections of the book which seek to show liquidity in action by examining historical precedent. This was not the end of the distillation process, however. It is a military truism that 'no plan survives contact with the enemy', and a similar comment can be made with regard to educational courses and students. Thus, the final improvement in the materials has been made following the feedback from the students, primarily professional investors, who have taken the course. Student feedback, which has been very favourable – 'inspirational', 'cutting edge work', 'excellent', 'stimulating', 'steeped in the real world', 'insightful' – has also led to further fine-tuning.

The combined impact of these numerous processes has been to produce a book which is the best practical explanation of the Liquidity Theory of Asset Prices currently available for investment managers. For those more interested in theoretical issues, it also explains how the Liquidity Theory of Asset Prices interacts with, and complements, the Efficient Markets Hypothesis. Professional investors are bombarded on a day-to-day basis with assertions about the role liquidity is playing, and will play, in determining prices in the financial markets. Few, if any, of the providers or recipients of such advice can truly claim to understand the well-springs of such liquidity and the transmission mechanisms through which it impacts asset prices. This is a book guaranteed to go

a long way to remedying that embarrassing lack of understanding of an economic force which will increasingly move to the centre stage of financial market understanding.

Russell Napier
Course Director
A Practical History of Financial Markets

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The following must also be thanked for permission to reproduce extracts from one paper and two books, of which the authors were either the author(s) or joint author(s): The Institute of Actuaries for 'Cyclical Changes in the Level of the Equity and Gilt-edged Markets' (Pepper and Thomas, 1973); Palgrave Macmillan for *Money, Credit and Asset Prices* (Pepper, 1994); Edward Elgar Publishing Ltd. and the Institute of Economic Affairs for *Monetarism under Thatcher: Lessons for the Future* (Pepper and Oliver, 2001). Finally, Gordon Pepper would like to thank Robert Thomas for not only being the joint author of the actuarial paper, but also for his immense contributions to the *Monetary Bulletins* whilst they were partners of W. Greenwell & Co.

About the Authors

Gordon Pepper has the unusual combination of an economics degree from Cambridge and actuarial training. Immediately after he finished taking examinations, he became a dealer on the Floor of the London Stock Exchange, where he was exposed to intuitive traders who had ‘market noses’, which was unusual for someone with his academic and professional qualifications. His ‘postgraduate university’ was the marketplace, where he underwent the harshest of disciplines. Forecasts based on conventional theories were often wrong. The inescapable conclusion was that these theories were either incorrect or incomplete. The theories subsequently developed not only helped to explain the past, but also continued to explain the behaviour of markets. He left Cambridge a Keynesian and became a self-taught monetary economist.

Pepper was the joint founder of W. Greenwell & Co’s gilt-edged business (that is, the UK government bond business), which arguably became one of the leading bond-advisory businesses in the world, the advice being about both the best investments and the optimum way to execute business (Pepper, 1994, p. xiv). For more than ten years – that is, before he became Joint Senior Partner and later Chairman of Greenwell Montagu – he was the premier analyst in the gilt-edged market and was often described as the guru of that market. He was the principal author of Greenwell’s *Monetary Bulletin*, which, in the 1970s, became one of the most widely read monetary publications produced in the United Kingdom (Pepper, 1990, p. 11).¹

¹ The Greenwell *Monetary Bulletins* are available on the Internet: <http://www.mjoliver.com/greenwell.html>

Pepper came to realise that the monetary forces that he analysed were important for the level not only of the bond market, but also the equity market. He drew a clear distinction between analysis of the level of the equity market as a whole and analysis of one stock relative to another.

As well as being a Fellow of the Institute of Actuaries, Pepper is a Fellow of the UK Society of Investment Professionals, previously the Institute of Investment Management and Research, and prior to that the Society of Investment Analysts. He has been awarded a Silver Medal by the Institute of Actuaries and was appointed CBE for services to the financial community. Whilst serving as a member of the Economic and Social Research Council, he was chairman of the Macroeconomic Modelling Consortium (consisting of the ESRC, HM Treasury and the Bank of England). Since leaving Greenwell Montagu, Pepper has been a Professor at the Sir John Cass Business School (previously the City University Business School), either as a member of the academic staff or in an Honorary capacity. He was Director of the Centre for Research into Financial Markets at that School.

Pepper is the author of three books and the co-author of a fourth: *Money, Credit and Inflation* (1990), *Money, Credit and Asset Prices* (1994), *Inside Thatcher's Monetarist Revolution* (1998), and (with Michael Oliver) *Monetarism under Thatcher – Lessons for the Future* (2001).

Pepper is also chairman of Lombard Street Research Ltd, which is one of the UK's leading independent firms carrying out investment research and specialising in analysis of money, credit and flows of funds.

Summarising, Pepper's particular strength is the combination of practitioner and academic. Above all, he writes with great authority from his knowledge of what actually happens in the marketplace.

Michael J. Oliver is currently Professor of Economics at École Supérieure de Commerce de Rennes and a director of Lombard Street Associates, UK.

He graduated in economic history at the University of Leicester and was awarded his PhD in economics and economic history from Manchester Metropolitan University. He has held posts at the universities of the West of England, Leeds, Sunderland and has been a Visiting Professor at Gettysburg College, Pennsylvania and Colby College, Maine.

He is the author of several books, including *Whatever Happened To Monetarism? Economic Policy-making and Social Learning in the United Kingdom Since 1979* (1997); *Exchange Rate Regimes in the*

Twentieth Century (with Derek Aldcroft, 1998) and *Monetarism under Thatcher – Lessons for the Future* (with Gordon Pepper, 2001). He has just finished co-editing a book (with Derek Aldcroft) entitled *Economic Disaster of the Twentieth Century*, which is being published by Edward Elgar in 2006. He has contributed articles to *Economic History Review*, *Twentieth Century British History*, *Economic Affairs*, *Contemporary British History*, *Economic Review* and *Essays in Economic and Business History*.

He is currently working on two research projects. The first is a reappraisal of the international monetary system between 1964 and 1972, and includes papers on the Bank of England's exchange market policy in the 1960s, contingency planning for the 1967 devaluation, the discussions by the British and Americans to redesign the international monetary system between 1968 and 1972 and the move to widespread floating between 1972 and 1973. The second is an investigation into the evolution of UK monetary policy since 1971, and includes an examination of the move to competition and credit control, the changes in the gilt-edged market, the abolition of exchange control and the monetary base control debate in the late-1970s and early 1980s.

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Introduction

APPETISER

As an economy starts sliding down into a recession, the stock market usually falls. At some stage, the market stops falling, and people start to 'see through' the recession and focus on the coming economic recovery. After its fall, some investors judge the market to be cheap and start to buy stocks.

In such circumstances, a corporation is quite likely to make a cash bid for another corporation, Corporation A, and to finance the takeover by borrowing from a bank. The stock market rises when the bid is announced. When the bid goes through, the holders of stock in Corporation A receive bank deposits in exchange for their stock. They may well subsequently reinvest the proceeds in other stocks. *It is important to realise that such a reinvestment does not destroy the bank deposit, because the sellers of the stocks in which the reinvestment is made receive bank deposits in exchange for their stocks.* For example, if one of the ex-stockholders in Corporation A switches out of a bank deposit into Corporation B, the person who sells the stock in Corporation B receives the deposit. If this person reinvests the money in Corporation C, the seller of Corporation C's stock receives the deposit. This third person may reinvest the money, and so on. Each time the reinvestment takes place the market tends to rise. The initial credit transaction – that is, a corporation borrowing from a bank to finance the takeover – has a one-off effect, whereas the consequential increase in the money supply has a continuing effect. *The borrowing to finance the takeover produces a one-off rise in the market. The monetary consequence of the borrowing*

*can be responsible for a rise in the market that continues for some time.*¹

If substantial borrowing to finance stock purchases persists for more than a year or so, the continuing monetary effects compound. After a year or so of this happening, the result can be the formation of a bubble in asset prices.

In due course, the bubble will burst. If people start to sell assets to repay loans the previous upward spiral turns into a downward one. Worse still, the value of collateral in general can fall below that of the assets being secured. *People can become forced sellers of assets.* The laws of supply and demand are reversed. A fall in prices forces more people to sell instead of encouraging buyers. *The result can be full-scale debt deflation.*

The Foreword describes the controversy between academics and practitioners, which is the background to this book. It should be read.

STRUCTURE OF THE BOOK

This book has three stages. They are a variation on the advice often given to trainee lecturers: ‘First, tell them what you are going to say; second, say it; and third, tell them what you have said’.

The first stage, this Introduction, is designed to introduce concepts at a simple level and to give a general idea of where the argument is going. Readers should not worry if they do not understand it completely or have unanswered questions. They should wait until they have read Parts I and II, in which more detail is added. The third, and more advanced, stage is in Parts III and V, with Part IV containing practical examples.²

LANGUAGE AND JARGON

Academics use technical language or jargon, including words that are defined to have a meaning that is different from everyday usage, which practical people often do not understand, even if they are experts in the field in which an academic specialises. Practitioners also use jargon, which academics often do not understand. The result is that

¹ Analysis of equilibrium is not included in this book, but see Section 14.5.

² This book is a summary of four books by the author: Pepper, 1990; 1994; 1998 and Pepper and Oliver, 2001. The source is often a reference to more detailed discussion in one or other of these books.

communication between the two can be difficult. Although the authors have attempted to write in plain English that laymen can understand, it has not been possible to avoid jargon and technical words altogether. There is, therefore, a glossary at the end of the book.

The reader is warned that American English and British English are two different languages. For example:

<i>American English</i>	<i>British English</i>
common stock	ordinary share
British government bond	gilt-edged stock
inventories (of raw materials)	stocks (of raw materials)
demand deposit (with a bank)	current account
time deposit (with a bank)	deposit account

During the last 20 years or so, American English has increasingly become the language used in international finance. This book, accordingly, uses mainly American English, with the British English version in brackets where appropriate. If the context is definitely British, British English appears in the text with American English in brackets (the spelling is always British).

ACADEMIC THEORIES

Currently, there are two academic theories that dominate many financial economists' thinking, namely, Modern Portfolio Theory and the Efficient Markets Hypothesis.

Modern Portfolio Theory

Most investors are averse to taking risk. If they are offered two stocks with the same expected return, they will choose the one with the minimum risk of loss. They will want a higher expected return if they are to invest in the riskier stock. In other words, there is a trade-off between expected return and risk. Hence, the first principle of investment is '*to maximise the expected return with the minimum of risk*'.

It is important to be precise about what is meant by both expected return and risk. To give a hint of what is to come in this book, the most likely return on a stock should not be confused with the return that is expected on average. Further, many academics wrongly focus mainly on the volatility of a stock's price, rather than on risk of loss.

The Efficient Markets Hypothesis

In any sophisticated market there are many investment professionals, including market-makers, short-term traders and long-term investors, who scrutinise stock prices continuously to find stocks that are cheap and others that are dear. They assimilate all relevant available information, including everything that influences expectations about the future. They buy stocks that they think are cheap and sell ones that they think are dear. As a result, the prices of the former rise and those of the latter fall, until all stocks are priced correctly, when prices are said to be 'efficient'. When unexpected new information becomes available, the market-makers adjust their prices, and the other professionals act very quickly if they think that the market-makers have adjusted them incorrectly. Prices respond almost instantaneously so that no one else can make money, and they are efficient once again.

Because prices become efficient again so quickly, the Efficient Markets Hypothesis (EMH) states that *investors cannot consistently outperform a market making use of existing available information*. Investment managers should all agree that it is extremely hard to do so.

It should be appreciated that EMH does *not* state that the stock market is efficient in the sense that prices correctly reflect the factors considered to be important by fundamental analysts and industrialists (see below). This is a deduction from EMH that may, or may not, be correct.

FORMS OF INVESTMENT ANALYSIS

There are the following forms of investment analysis:

- fundamental analysis;
- monetary analysis;
- technical analysis;
- the intuitive approach.

Fundamental Analysis

Fundamental analysis is the study of all the factors that industrialists and businessmen consider to be important. The industrial background of a corporation (company) is studied, including the extent of competition, share of market, export prospects, available new capacity, amount of research and development, and so on. The corporation's accounts are also scrutinised, including the dividend, earnings, profits, sales, costs and profit margins. The historical record is examined to find out how

fast the corporation has grown in the past, and whether the growth has been financed by retained earnings or new issues of stock. The quality of management is judged and expectations of the future are assessed, and so on. Factors such as these may be described as the ‘real factors’ that affect the fortunes of an individual corporation.

The real factors affecting the market as a whole are the aggregate of the real factors affecting individual corporations: that is, trends in dividends, corporate earnings and corporate profits. The current phase of the business cycle, which affects the level of sales and profit margins, is obviously relevant. Profits are also affected by such factors as wage inflation and changes in exchange rates. Alterations in interest rates affect financing cost, and so on.

Fundamental analysts, who have spent their formative years concentrating on the relative merits of individual stocks, focus on factors such as these when they are attempting to explain changes in the level of the equity market as a whole. The media and most other commentators do so too. It will be argued in this book that these explanations can be wrong.

Monetary Analysis³

Monetary analysts study the supply and demand for money and credit, and other flows of funds, that influence the level of asset prices as a whole. The start of this Introduction gave an example of investors holding more money than they desired after a cash takeover, and the surplus being invested in the market. More generally, if the existing amount of money in the economy as a whole is greater than the current demand for money, some of the surplus is likely to be spent acquiring existing assets, the prices of which will tend to rise. Conversely, if the existing amount of money is less than the demand for money, people will tend to sell assets to top up their bank balances, and the prices of the assets will tend to fall.

Technical Analysis

The definition of a technical analyst, popularly known as a chartist, is a stock market analyst who predicts stock price movements solely from

³ Investment manager think in terms of ‘liquidity’, whereas academics refer to ‘monetary aggregates’. ‘The Liquidity Theory of Asset Prices’ is the best title of the theory for practitioners. ‘The Monetary Theory of Asset Prices’ is better for academics. For clarity, academic terminology is preferable, for both practitioners and academics, when detail is discussed. The book refers, accordingly, to ‘monetary analysis’, ‘monetary analysts’, and so on.

a study of charts on which individual stock prices and price indices are plotted. There are various patterns in the charts thought to be significant, for example, ‘head and shoulders’.

An explanation of some of the patterns in the charts is the formation, behaviour and psychology of crowds. Speculators are remarkably efficient at detecting ‘the game in town’ making money. When monetary forces are powerful, ‘following the trend’ (buying when the market is rising or selling when the market is falling) is profitable. People join in, and the herd instinct prevails. A crowd forms, and patterns in the charts follow.

The Intuitive Approach

Very experienced investors, who have paid close attention to the behaviour of a market for years, and who have lived through several bull and bear markets, develop an intuition about a market. At times they sense that ‘the market wants to go up’. At other times they say that they ‘do not like the look of the market’ and that ‘the undertone smells’. This approach does not rely on monitoring people’s expectations. Intuitive market operators are well aware that the time to buy is when others are at their most bearish, and the time to sell is when people are most bullish.

At its simplest, intuitive professionals observe how a market is reacting to news. Sometimes the explanation that others give for a rise or fall in a market is news that has been expected. This explanation is invalid because the news should already have been discounted. When the news is unexpected, the intuitive people judge whether the market changes by more or less than it should. At times a market tends to react to good news and ignore bad, giving the impression of wanting to go up. Sometimes it is even-handed. At other times it tends to react to bad news and ignore good, giving the impression that it wants to go down. It will be argued that the market’s bias is a reflection of the amount of money waiting to be invested: that is, of monetary forces.

It will be suggested that technical analysis and the intuitive approach reflect monetary forces, and that these two forms of analysis can provide a crosscheck on monetary analysis.

WHAT THE BOOK IS GOING TO SAY

Some stock exchange transactions occur because someone either needs to raise cash or has surplus money to invest. Other transactions occur

when someone switches from one stock into another, or into or out of cash, in the hope that the transaction will improve the return on a portfolio. The book advances the Liquidity Theory of Asset Prices (LTAP), which concentrates on the former, as a complement to the usual interpretation of the Efficient Markets Hypothesis (EMH), which concentrates on the latter. The book is controversial, because EMH currently dominates the thinking of many academics.⁴ The book describes how LTAP adds greatly to the explanatory power of EMH. Knowledge of LTAP is vital for understanding markets.

Analysis of liquidity is highly relevant for investors, because it can indicate a way of 'beating' EMH. Trading in the stock market is a zero-sum game. For every winner there is a loser. It may be easier to win in the zero-sum game if the counterparty to a transaction is an investor who either needs to raise cash or has money to invest, rather than a professional trying to improve the return on his or her portfolio. Even if the counterparty is a professional, profits can be made out of an understanding of the current behaviour of markets that is better than others.

Understanding liquidity is also important for industrialists; it provides clear warning of a financial bubble in asset prices. Several large companies would not have had the difficulties that arose in the early 2000s if they had understood liquidity.

Further, appreciating the role of liquidity is important for policy-makers because it may well alter the appropriate response when the behaviour of a financial market is giving cause for concern.

⁴ LTAP is not a new theory. Maynard Keynes, Milton Friedman and James Tobin, for example, have all written on the subject. According to Keynes, the quantity of money that people wish to hold is a function of the rate of interest. Keynes assumed that there are only two financial assets: money, which bears no interest, and long-term bonds. According to his liquidity preference function, the rate of interest on bonds falls as the stock of money rises. This happens as money is spent on assets (Keynes, 1930). Milton Friedman and Anna Schwartz dissect the relationship between money and interest rates in Chapter 10 of their book *Monetary Trends in the United States and the United Kingdom* (Friedman and Schwartz, 1982). According to this, a monetary disturbance has three effects: the impact effect, the intermediate income effect and the price anticipation effect. The impact effect includes Keynes's liquidity effect. If monetary growth increases, Friedman and Schwartz argue that nominal interest rates should fall before they subsequently rise. Spending money on existing assets is implicit in their analysis of the short run. Tobin argues that money is merely one of a range of assets (Tobin, 1969). People hold portfolios of assets depending on their preference for each asset. If a system starts in equilibrium, a rise in the quantity of any asset will upset the equilibrium. If people were content with the size of their previous holding of the asset that has risen in quantity, they will not be content with the size of their new holding. They will switch out of it into other assets to restore their portfolios to balance. Relative prices will alter as a result until a new equilibrium is reached. In the case of money, switching out of bank deposits into other assets will tend to increase the price of the other assets. In Tobin's analysis, the link between the money supply and asset prices is explicit.

Part I

The Liquidity Theory

Money is like the ‘hot potato’ of a children’s game:¹ one individual may pass it to another, but the group as a whole cannot get rid of it. If the economy and the supply of money are out of equilibrium, it is the economy that must do the adjusting (Tobin, 1963).

Academic readers may like to read Chapter 14 ‘Forms of Analysis’ first, in particular Section 14.3, which asserts that the market for money is most frequently out of equilibrium. Attention is also drawn to footnotes 1 and 2 in Chapter 1 about cash-flow accounting.

¹ Children sit in a circle with music playing, and pass the ‘hot potato’ round the circle. When the music stops, the child holding the potato loses a ‘life’. One child can pass the potato to another, but the group as a whole cannot get rid of it.

Types of Trades in Securities

A corporation's annual accounts normally consist of a trading account, a balance sheet and a cash-flow statement. The trading account gives details of the corporation's income, expenditure and profit or loss during the corporation's financial year. The balance sheet gives details of its assets and liabilities at the end of the year. The cash-flow statement reconciles the changes in the balance sheet between the start and the end of the year. Managers of small businesses, who may never produce a trading account or a balance sheet, understand the vital need to watch their cash flow. Individuals with bank accounts normally have a bank balance below which they are unhappy and have to take action, either by curtailing expenditure or selling something. Similarly, they have a maximum for a balance that is not expected to be temporary. If their current balance exceeds this amount, either they will be tempted into incurring additional expenditure or they will take action to find a better medium of investment for their surplus funds. In each case, they manage their cash.¹ For non-accountants, cash-flow accounting is simpler than trading accounts and balance sheets.²

¹ Even large firms monitor their cash. Budgets are prepared at the start of a financial year. The main elements of the trading account are predicted, as described in Section 20.5, together with certain key elements of the balance sheet. Emerging data are scrutinised, usually monthly (as part of the Management Information System), to detect how the year is progressing. Questions are asked immediately if cash or net liquid assets have done anything unexpected. Chapter 21 elaborates on how industrial and commercial companies and non-bank financial institutions are likely to respond.

² In the UK, the National Income Accounts are the trading accounts of the nation. Analysis of the economy as a whole (macroeconomic analysis) is based largely on this trading-account approach, although some balance sheet analysis is included, for example, a rise in wealth leads to additional consumption. Monetary analysis, in contrast, is based on cash-flow accounting plus balance sheet analysis. Reconciliation between the trading account, balance sheet and cash-flow statement can be difficult. In theory, if two out of the three are available, the third can be derived, the cash-flow statement being merely a reconciliation of the change in the balance sheet. In practice, the information that is available may be incomplete. Accountants are well aware that it can be difficult to reconcile the cash-flow statement if there are gaps in either the trading account or the balance sheet, for example, if the classification of items is different. Similarly, reconciliation between monetary analysis and other types of analysis can be very troublesome, because the National Income Accounts are neither accurate nor fully comprehensive. 'Residuals' and 'balancing items' are needed to make them add up.

1.1 LIQUIDITY TRADES AND PORTFOLIO TRADES

There are two basic reasons why someone purchases or sells a security. The first type of transaction occurs when someone either needs to raise cash or has surplus money to invest. This type of transaction may be called a *liquidity trade*. The second type of transaction occurs when someone switches from one stock into another, or into or out of cash, in the hope that the transaction will improve the return on a portfolio. A transaction of this second type may be called a *portfolio trade* (Figure 1.1).

1.2 INFORMATION TRADES AND PRICE TRADES

Another distinction is between two types of portfolio trade. A trade can occur either because there has been some unexpected new information that affects the value of a stock, or because the price of a stock has altered in spite of there not being any new information justifying the alteration. The first type of portfolio trade may be called an *information trade*; the second may be called a *price trade* (Figure 1.1).

1.3 ‘EFFICIENT PRICES’

When new information becomes available, market-makers adjust their prices, and information traders act very quickly if they think that they can make a profit, with prices responding until no one else can do so. Prices then become *efficient* once again.

Information trades establish efficient prices, but liquidity trades move prices away from the efficient level. A sale of a stock to raise money will

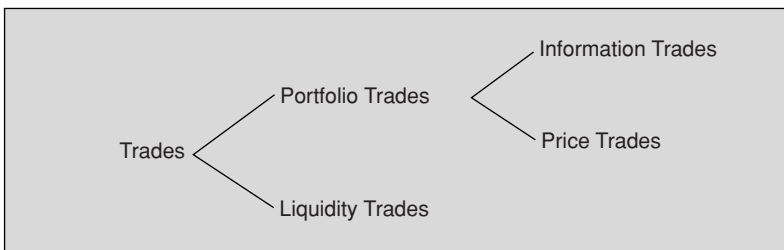


Figure 1.1 Types of trade

initially depress the stock's price. If the price falls without there being any news justifying the fall, price traders will normally judge the stock to be cheap and will purchase it until the price reverts to the efficient level. In the opposite case of a liquidity purchase, the price of the stock will initially rise. If there is no news justifying the rise, price traders will normally judge the stock to be dear and will sell until the prices revert to the efficient level.

Summarising, liquidity trades move prices away from the efficient level and price trades normally push prices back again. There is an enormous number of potential price traders. Anyone can buy stock. Potential sellers include everyone who holds stock and anyone who is prepared to sell stock that they do not own.³ The potential number of price trades is, accordingly, very large compared with liquidity trades, and they are usually sufficient to be able to correct any price discrepancies caused by liquidity trades.

1.4 EXPECTATIONS OF FURTHER RISES OR FALLS

The analysis so far has been conventional. There should be no dispute about it. Disagreement comes because there is a remaining possibility, which some academics ignore. It is that a rise in the price of a stock can lead to expectations of a further rise in price, and a fall in price can lead to expectations of a further fall; in other words, expectations can become extrapolative (that is, expectations assume that the current trend in prices continues).⁴ If this happens, prices will depart further from the previous level.

It might be thought that there is a remote possibility of expectations becoming extrapolative. Indeed they are rarely so for an individual stock, but expectations can easily become extrapolative for a market as a whole. It will be argued that they do so when liquidity transactions persist in one direction: that is, when there are more liquidity purchases than sales, or vice versa, for any length of time. There are three stages to

³ By dealing in the market for financial futures or tradable options.

⁴ Monetary analysts who understand the behaviour of the market will have expected it to rise and will expect the rise to continue in the short term. Their expectations are not myopic or adaptive, see footnote 1 in Chapter 4.

the argument. Each will be described in turn in the following three chapters.

1. The balance of liquidity transactions can persist in one direction for many months.
2. This leads to extrapolative expectations.
3. Why price traders who understand what is happening do not push prices back to the level justified by fundamentals.

Persistent Liquidity Trades

Any stockbroker will confirm from practical experience that a frequent reason for a stock exchange transaction is that the client either needs to raise cash or has cash to invest. A private individual, for example, may need cash to finance a large item of expenditure, for instance a new car; a large tax demand may have arrived; or an estate may be in the process of being wound up. Industrial and commercial corporations need funds to finance industrial investment and any rise in inventories. House building has to be financed. Life assurance corporations receive premiums, and pension funds receive contributions, which need investing. There is no doubt whatsoever that liquidity transactions are numerous. But the fact that they are numerous does not necessarily mean that liquidity purchases can exceed sales, or vice versa, for prolonged periods.

2.1 DEMAND FOR MONEY

A liquidity transaction has been defined as a transaction that takes place because someone either needs to raise cash or has surplus money to invest. In the former case, the amount of money that the person had was less than what he or she wanted. In the latter case, the person had more money than desired. This suggests that the existing amount of money in the economy should be compared with people's current demand for money.

Money is held for two main purposes: first, it is held to facilitate transactions; second, it is held as a medium for savings.¹

2.1.1 Transactions Demand for Money

An essential role of money is to facilitate transactions – for example, expenditure on goods and services. The demand for money for this purpose increases as national income and expenditure rise, whether in real terms or because of inflation.

¹ Another function of money is to act as a unit of account.

2.1.2 Savings Demand for Money

The main determinants of the demand for money for saving purposes are wealth and the merit of bank deposits as an investment relative to the alternatives available. The latter depends on how the rate of interest on bank deposits compares with the expected return on other assets, after taking risk into account. (Expected return and risk are discussed more fully in Chapter 11.)

2.1.3 Interest Rates and the Demand for Money

Interest rates have a direct impact on the demand for money, but the influence is complicated.² Money has various forms: notes and coin, demand deposits (current accounts), time deposits (deposit accounts), and so on (explained in more detail in Chapter 19). Notes and coin and demand deposits tend to be held for transactions purposes and are called *narrow money*. Notes and coin do not earn any interest, and demand deposits have a lower rate of interest than that on time deposits. When interest rates rise, people tend to run down holdings of notes and coin and demand deposits and switch into time deposits. Hence, narrow money tends to fall when the *level* of interest rates rises, and the opposite happens when interest rates fall.

Broad money is narrow money plus time deposits. The demand for broad money is not affected directly by changes in the *level* of interest rates, because the switching affects only its composition and not its total. Changes in *relative* interest rates affect broad money because these affect the demand for money for savings purposes (explained in more detail in Chapter 6).

2.2 SUPPLY OF MONEY

Money can be created in two ways – governments can *print money* and bankers can create *fountain-pen money*.

2.2.1 Printing-press Money

Over the years, governments have financed themselves by *printing money* in various ways. In olden days, when coins were the most important form of money, kings debased the coinage to finance wars.

² Interest rates have an indirect effect on the demand for money via their influence on national income and expenditure.

After paper money became more important than coins, governments resorted to the printing press – for example, when hyperinflation occurred in Germany in the 1920s (during the Weimar Republic). In today’s environment, bank deposits are the most important form of money, and the modern way of printing money is for a government to borrow from the banking system. This is *printing-press money*. Banks’ liabilities and assets have to balance. If their assets rise, their deposits, which are their main liabilities, do so too. The overall effect is that the money supply increases as banks’ holdings of government debt rise. (This is explained more fully in Chapter 9.)

2.2.2 Fountain-pen Money

Fountain-pen money is created by banks when they make a loan. The simplest case is when two people use the same bank and one of them increases his overdraft when he makes a payment to the other. The latter’s bank deposit rises. In the bank’s books, loans rise on the asset side of the balance sheet and deposits rise on the liability side. The money supply increases as the entry is made in the bank’s books. Until the late twentieth century, the records were kept manually by clerks using fountain pens, and the money was created at the stroke of a banker’s pen. This is the explanation of the term *fountain-pen money*. (This is explained more fully in Chapter 10.)

2.2.3 Interest Rates and the Supply of Money

Powerful forces other than interest rates influence the supply of both printing-press and fountain-pen money. A government does not, for example, alter its expenditure plans or tax rates because interest rates have changed. The supply of fountain-pen money depends on bank lending which is influenced by many factors other than interest rates.

2.3 MONETARY IMBALANCES

At this stage of the discussion, the important point is that the supply of money is often either in excess of, or less than, people’s demand for money.³ A crude way of illustrating this is to compare monetary growth

³ If interest rates were determined by market forces, they would, after complicated lags, bring the supply and demand for money into balance. They are however almost invariably set by the central bank (see Chapter 10 and Section 14.3). The result is that they are rarely at the right level to bring supply and demand into balance.

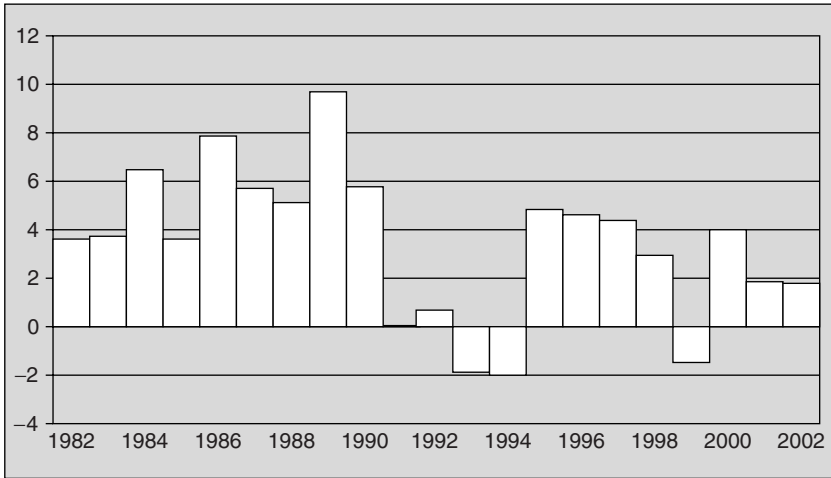


Figure 2.1 Excess monetary growth

with that of GDP.⁴ Figure 2.1 shows the percentage change in M4 less that of GDP. It will be seen that in some years, the growth of M4 has been substantially in excess of that of GDP, whereas in other years, it has been lower.

2.4 EXCESS MONEY IN THE ECONOMY

If the amount of money in the economy is in excess of the demand for money, the excess can be spent in three ways:

1. On goods and services. Economic activity will rise as a result, and this may lead in due course to an increase in the price of goods and services. This type of inflation may be called *product-price inflation*.
2. On existing domestic assets. Equity, bond and property prices will tend to rise as a result. This is a type of inflation that may be called *asset-price inflation*.⁵
3. On non-sterling assets. For example, sterling deposits may be exchanged for dollar ones, in which case, sterling will tend to fall.⁶

⁴ A more sophisticated illustration would be to derive a demand for money function, including the trend in velocity of circulation, and compare the result with the growth of the money stock.

⁵ The change in wealth will, in due course, affect economic activity and then product-price inflation.

⁶ The level of the exchange rate will, in due course, affect product-price inflation.

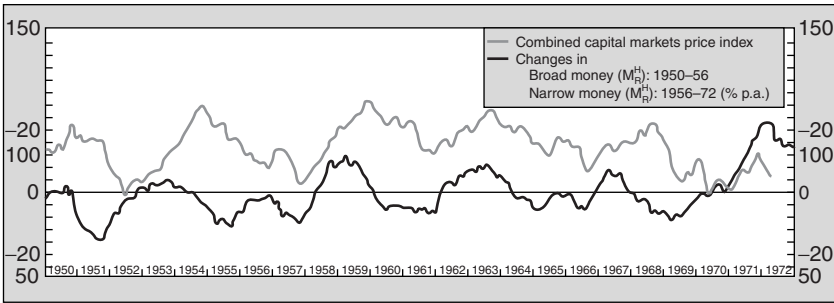


Figure 2.2 UK money supply and a combined capital market price index, 1950–1972

The second point is the subject of this book. The first is relevant because of its influence on the fundamental factors affecting security prices (see the Introduction). The third is largely outside the scope of this book (the effect of central bank intervention in the foreign exchange market is considered in Section 20.7).⁷

As an appetiser, Figure 2.2 shows the relationship between the growth of the money supply in real terms in the UK and a combined capital market index covering both equities and bonds. A full explanation and commentary are given in Chapter 15.

2.5 SUMMARY

- Liquidity transactions are numerous and large.
- The supply of money can be in excess of the demand for money, or less than the demand for money, for prolonged periods.
- If money is in excess, some of the excess will be spent on existing assets. Conversely, assets will be sold if money is deficient.
- Purchases of assets for liquidity reasons can, as a result, exceed sales, or vice versa, for many months.

⁷ One of the ways in which growth of the money supply affects inflation, which is stressed by ‘international monetarists’, is through the impact of excess or inadequate monetary growth on a country’s exchange rate (see Frenkel and Johnson, 1976). If monetary growth is excessive, some of the excess will tend to flow abroad; the exchange rate will tend to fall; prices of imports (for example, raw materials) will increase; and inflation will rise. If monetary growth is inadequate, money will tend to be sucked in from abroad, and the opposite will happen. In the 1970s, this transition mechanism was important in the UK, through the impact on the short-term capital account of the balance of payments. In the 1980s, it became relatively less important with the growth of the long-term capital account of the balance of payments after stock markets became global (see Pepper, 1994, Ch. 17).

Extrapolative Expectations

3.1 SENTIMENT

A market responds if liquidity transactions persist in one direction. Prices rise if the transactions are net purchases, and fall if they are net sales. People then think up plausible explanations for why the market is behaving as it is. At its simplest, there are always bullish and bearish factors present in a market. If the market rises, the bullish ones are advanced as the explanation for the rise. If the market falls, the bearish ones are advanced. The truth is that both factors have already been allowed for in prices, and the explanations for the behaviour of the market are invalid. The erroneous explanations nevertheless receive publicity and affect sentiment. People tend to be bullish when prices are rising and bearish when they are falling. *Few, if any, observers of a market dispute that the direction in which the market is moving can have an important influence on sentiment.* It is not argued that this always happens, but merely that it can happen. This is another way of stating that expectations can become extrapolative (that is, expectations assume that the current trend in prices continues).

3.2 INTUITION

A further factor is the intuitive approach to investment analysis mentioned in the Introduction, which is described more fully in Chapter 13. Many speculators are influenced by intuition, and this is often a reflection of the amount of money about. If people have money to invest, not all the funds will be invested as they accrue; some will be allowed to accumulate. When unexpected good news occurs, decision-taking inertia is broken and accumulated funds are invested. The greater the accumulation of liquidity, the larger will be the rise in the market, and the market's response to good news will be clearly apparent. In the opposite case, people needing to raise cash are often prompted into action by unexpected bad news. The size of the fall in the market depends on

how many people are waiting to raise cash. If many people are waiting, the market's response to bad news will be clear. On the other hand, if institutions have funds awaiting investment, they are likely to bargain hunt on bad news when prices fall, and the market may well bounce back.

As explained in the Introduction, professionals who are close to a market observe how the market is reacting to news. A market tending to react to good news and to ignore bad gives the impression of wanting to go up; a market reacting to bad news and ignoring good gives the impression of wanting to go down. Speculators who rely on intuition are influenced strongly by the amount of money about, although they may not realise it. Intuition is another reason why rising prices can lead to expectations of further rises, and vice versa for falling prices.

3.3 DECISION-TAKING INERTIA

The importance of decision-taking inertia in a world of uncertainty needs stressing. Investment decisions often appear obvious with the benefit of hindsight, and therefore seem to have been easy to take. At the time the decisions are taken, in contrast, the uncertainties nearly always appear to be great. The easiest option is to do nothing. Further, investment managers are only too well aware how difficult it is to outperform a market and that, in the event, successful transactions will most probably be balanced almost exactly by unsuccessful ones. Many investment managers take the view that their chance of overall success is increased if they confine their transactions to ones about which they are reasonably confident at the time they take the decision. If they are not reasonably confident, they are reluctant to act.

Funds for investment arrive constantly: life assurance corporations receive premiums; pension funds receive contributions; mutual funds (unit trusts) receive money from new investors. Because of decision-taking inertia, this 'new money' is often not invested as soon as it arrives, but tends to accumulate. The institutions' reaction to unexpected news depends not only on the amount of new money awaiting investment – that is, on the *stock* of money – but also on the tendency for the funds to grow or diminish – that is, on the *flow* of new money. For example, if the stock of new money is both unusually high and growing, an institution is likely to become anxious not to miss buying opportunities; it will be

keen to bargain hunt on bad news, or be willing to accept rising prices on good news.

3.4 CROWDS

For the reasons given, price movements tend to persist when monetary forces are powerful, and ‘following the trend’ (buying when the market is rising and selling when it is falling) becomes profitable. Speculators are remarkably good at detecting ‘the game in town’ that is making money. They join in. Prices rise or fall further. This encourages others. The herd instinct prevails. A crowd forms. People in a crowd act differently from the way they would act if they were alone. Crowd psychology prevails. The behaviour of a crowd is different from the sum of the behaviour of individuals if they are acting in isolation. Patterns in the charts follow, as will be explained in Chapter 12. Chartists react to the patterns in the charts and buy or sell as the case may be. Their followers join in. This is another reason why rising prices can lead to expectations of further rises and, in the opposite case, falling prices lead to expectations of further falls.

3.5 FUNDAMENTAL AND MONETARY FORCES IN THE SAME DIRECTION

It must be stressed that, although little space will be given to them in this book, *fundamental factors are very important*. Major market movements occur when both fundamental factors and monetary forces are in the same direction. Recapitulating, if an unexpected item of good news about fundamentals occurs, and there is a great deal of money about, there will be a lot of attempted buying. If an unexpected item of good news about fundamentals occurs, and there is not much money around, there will be much less attempted buying. If there is a lot of money about, but there is no good news about the fundamentals, there may again not be much attempted buying. Monetary and fundamental forces in the same direction are the circumstance in which substantial bull and bear markets occur. When this happens, following the trend is profitable. If monetary forces and fundamental factors are in opposite directions, the outcome is often a trading market (fluctuating market), when going against a trend (selling after the market has risen and buying after a fall) is profitable.

The extreme case is when something major happens to the fundamentals – for example, the revolution in information technology in the 1990s – and people continue to borrow to acquire assets, as described in the start of the Introduction. Fountain-pen money becomes very buoyant and the continuing monetary effects compound. The result is like pouring gasoline on a bonfire that is already alight. A financial bubble forms, the excess money being the fuel that inflates it. This is discussed more fully in Chapter 7.

Discounting Liquidity Transactions

Chapter 2 explained how liquidity transactions can persist in one direction for some time. Chapter 3 explained how expectations can become extrapolative and a market can become undervalued or overvalued in terms of the fundamentals. Finally, an explanation is needed for why speculators, who understand what is happening, do not, in accordance with the Efficient Markets Hypothesis, discount liquidity transactions in the same way as they do news announcements and push prices back to the level justified by fundamentals.

First, a recapitulation. When the supply of money exceeds the demand for money, people tend to have money to invest and liquidity trades tend to be purchases. Prices of securities tend to rise as a result. Monetary analysts, intuitive traders and technical analysts follow the rise in prices and also purchase securities. Fundamental analysts (price traders) sell, because prices have risen without there being unexpected news of fundamentals justifying the rise. There is a battle between the two groups. The former wins. The latter makes losses (at least on paper). Fundamental analysts start to lose confidence and the market rises further. As prices rise even further above the level justified by the fundamentals, more selling by fundamental analysts may occur, but these transactions also lose money. Selling by fundamental analysts then dries up, because the risk of additional losses if more securities are sold becomes unacceptable. Fundamental analysts are a spent force. The question becomes: what discourages monetary analysts, who judge the market to be overvalued in terms of the fundamentals and understand the reasons for its rise, from taking profits and pushing prices back to the level justified by fundamentals?¹

¹ The expectations of some of the participants, but not those of monetary analysts who understand the behaviour of the market, may be adaptive or myopic. Adaptive means modified, in the light of recent experience. In contrast, monetary analysts will have expected the market to rise. Myopic means short-sighted, which is a defect that can be remedied. In the circumstances described, monetary analysts correctly judge that the market will most probably continue to rise in the short term. They are forced to give priority to these short-term expectations over their long-term ones because, if they act in accordance with their long-term expectations, the risk of loss in the short

4.1 SPECULATION

One crucial reason why liquidity transactions are not discounted in the same way as news announcements is that whereas the latter occur at a *point* of time, the former are spread over a *period* of time. If actual purchases and sales are to match, a continuous sequence of speculative transactions would be needed to offset the liquidity transactions as they occur. But speculators do not, in practice, act in this way. This is explained more fully in the Appendix to this chapter.

4.2 TIMING

The main reason for inaction by people who understand financial bubbles, and who are quite sure that the market is much higher than can be justified by fundamentals, is that they do not know when the bubble will burst. The danger is that stocks will be sold too soon, that the market will carry on rising for some time, and that the rise will be substantial. Indeed, the final rise in a market just before a bubble bursts is frequently hectic. Departing from the herd can be very risky. An investment manager can lose his job. A fund management firm can lose clients; the firm may not even survive as an independent entity. The short-term risks can easily become unacceptably high.

4.3 SHORT-TERM RISK VERSUS PROFITS IN THE LONGER TERM

According to Modern Portfolio Theory, when people choose investments they select stocks that will maximise their expected yield, subject to minimising risk of loss. There is a trade-off between maximising yield and minimising risk (explained more fully in Chapter 11). When a financial bubble is building up, an investor may confidently expect a sale of stocks to result in abnormally high profits *in the long term*, but risk of loss *in the short term* can rise to such an extent that the opportunity has to be declined. In particular, there is great danger of a short-term loss if stocks are sold while the growth of the money supply is still excessive. In these circumstances, many investors will have missed the market. Liquidity will have accumulated that should have been invested, and will still be growing. When unexpected bad news occurs and prices fall,

term and adverse consequences become unacceptable. Short-term expectations are different from short-sighted ones.

these investors are likely to hunt for bargains. If they do so, anyone who has sold stocks will make a loss as prices bounce back up.

An excellent example of what can happen occurred in the second half of the 1990s, when Mr Tony Dye was Chief Investment Officer of P&D Fund Managers. At the time, the firm was one of the four largest fund managers in the UK. As a financial bubble built up in US and UK equity prices, Mr Dye became convinced that prices had risen well above what could be justified by fundamentals. In the mid-1990s, P&D started to switch out of common stocks. Unfortunately for them, prices continued to rise and the short-run performance of the funds concerned became worse than that of their competitors. Their clients became unhappy, and some of them took their funds away. P&D received considerable adverse publicity. Mr Dye came under great pressure and eventually left the group, ironically a few days before markets reached their peak. P&D's parent corporation, UBS, subsequently dropped the name P&D. This episode illustrates only too clearly the dangers of selling too soon, both for an investment manager personally and for his or her firm.

APPENDIX: SPECULATION AND MARKET PATTERNS

This appendix analyses market patterns caused by speculators. It contrasts the patterns associated with persistent liquidity transactions with those associated with news announcements, starting with the latter. The reader may think it too theoretical, but something similar to what is described occurred in the US in the 1970s and early 1980s, when Dr Henry Kaufman (see the appendix in Chapter 14) was dominating markets, and, to some extent, during the heyday of the Greenwell *Monetary Bulletins*.

Item of News: Unexpected

The first case to be analysed is a totally unexpected item of bad news. Figure 4.1 overleaf shows a typical market reaction. The price index is assumed initially to be 70. The index remains unchanged until the news announcement at time A, when it falls to an assumed 30, a level at which it remains for the rest of the period.²

² There may not be any transactions, the fall in price discouraging anyone from selling. Note that the fall in prices occurs at the time of the news announcement.

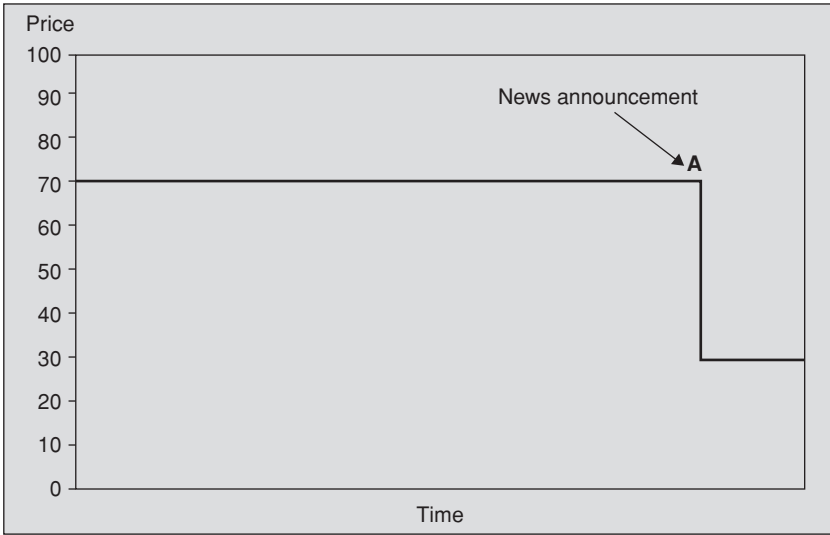


Figure 4.1 Item of news: unexpected

Item of News: Fully Anticipated

The next case is an item of bad news that is expected, rather than unexpected. If everyone knows that the news has been anticipated very widely, no one will sell at the time of the announcement. The market will not fall then, but at the time that the expectation was formed. The simplest case is to assume that completely confident expectations were formed very suddenly – for example, that there was a leak – in which case, the whole of the fall in the market will occur at the time of the leak, at point A in Figure 4.2.³

Item of News: Market Professionals and Investors

Extending the analysis, suppose that there are two classes of participants – namely market professionals and investors (academics may prefer the terminology ‘insider’ and ‘outsider’) – with the former having access to information more quickly than the latter. Suppose, further, that the market professionals know about the leak but the investors do not. The fall in prices will then occur in two stages. The first batch of

³ There may again not be any transactions, the fall in price at the time of the leak discouraging anyone from selling.

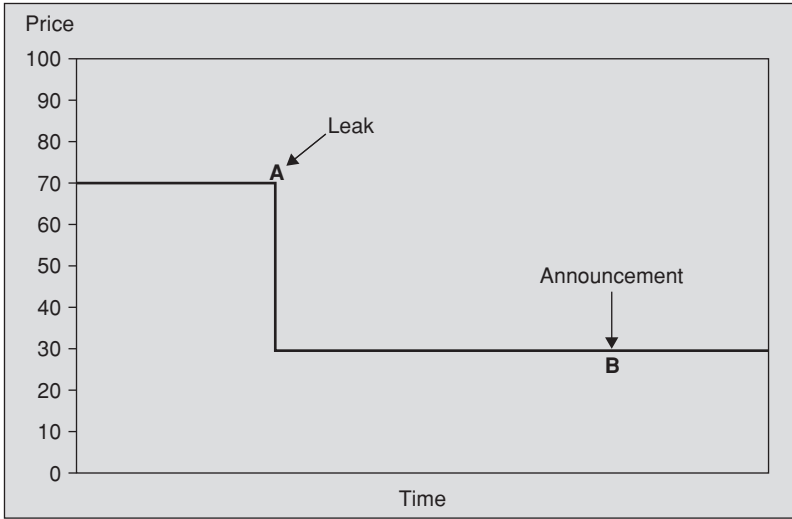


Figure 4.2 Item of news: fully anticipated

transactions will occur at the time of the leak. For a transaction to occur, both a sale and a purchase must be executed. At the time of the leak, market professionals will sell because they know about the coming announcement and expect to be able to repurchase at a profit when the announcement is made. Market professionals will be able to execute their sales as investors, who are unaware of the leak, purchase in response to the fall in prices. The second batch of transactions will occur at the time of the announcement. Investors will sell because of the bad news, which they did not expect. Market professionals will purchase as they take their profits. The pattern is shown in Figure 4.3 overleaf.⁴

Item of News: Market Professionals Growing in Confidence

Suppose now that market professionals do not become completely confident about the coming item of news at a point of time, but instead that their confidence grows progressively. In Figure 4.4, the probability of

⁴ The size of the fall in prices at the time of the leak will depend on the amount of capital available to market professionals; the larger the amount, the greater will be the fall at point A compared with that at point B. Figure 4.3 has been drawn assuming that insiders' capital is a limiting factor. If the capital were unlimited, the fall at point B would be very small. It would not disappear entirely because of the need for an incentive to discourage market professionals from taking their profits before point B.

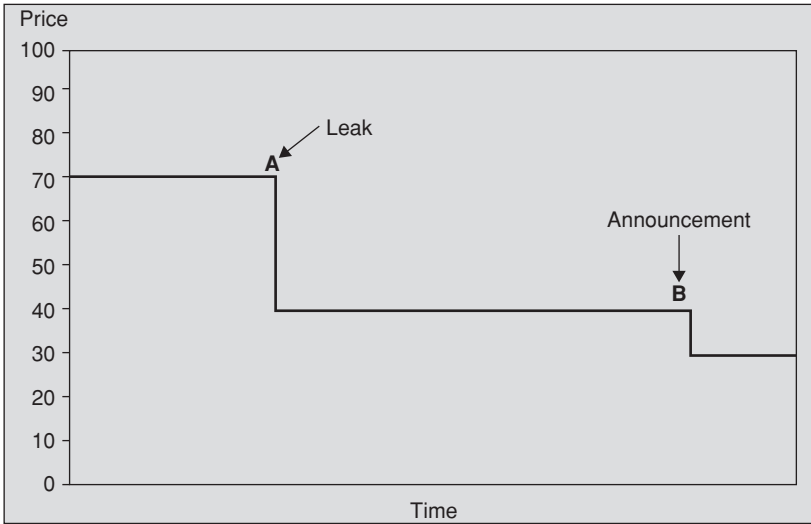


Figure 4.3 Item of news: market professionals and investors

the news is assessed at zero prior to point A, and it then grows progressively until it reaches 100% immediately prior to the announcement at point B. The diagram shows how prices will decline smoothly during the period preceding the announcement. During this period, market

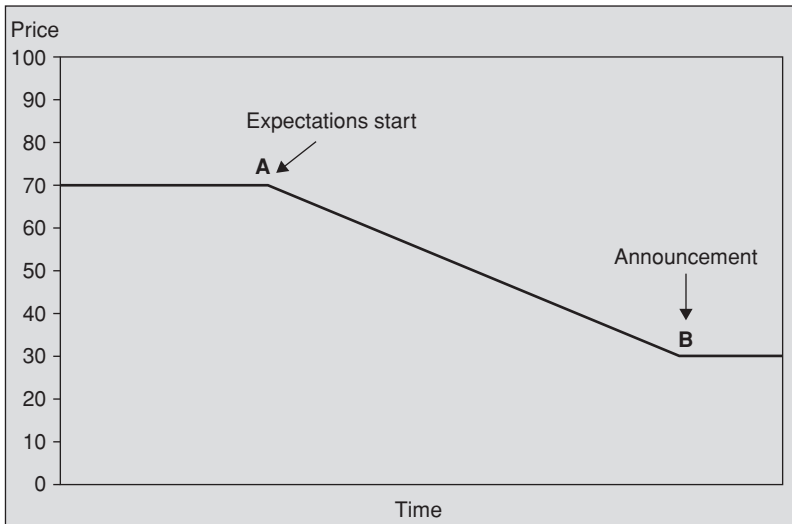


Figure 4.4 Item of news: market professionals growing in confidence

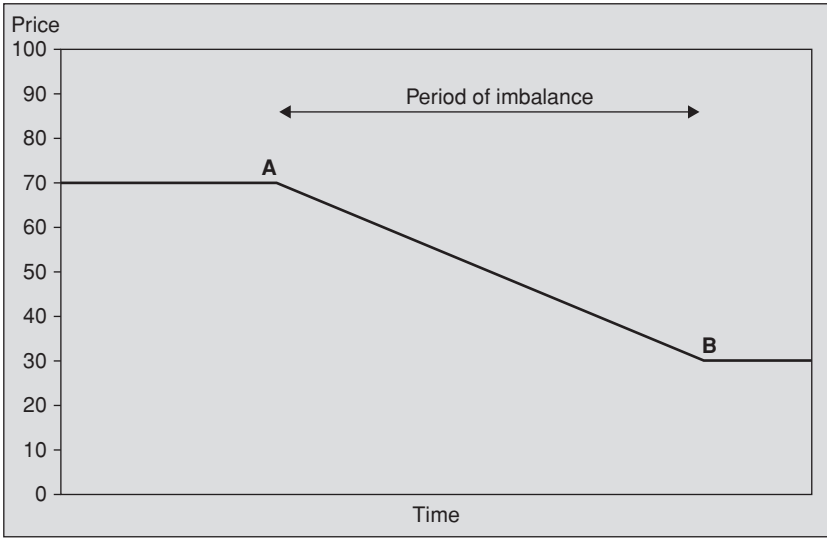


Figure 4.5 Persistent liquidity transaction: unexpected

professionals sell continually as they become progressively more confident, and investors buy in response to steadily falling prices. Upon the announcement, market professionals are able to repurchase their stock and take their profits as investors sell in response to the bad news, which they did not expect.

Persistent Liquidity Transaction: Unexpected

Suppose now that the event is not an item of bad news that will be announced on a particular date, but a tendency for liquidity sales to occur over a period of time. Suppose, initially, that the sales are unexpected. Prices will fall throughout the period of the sales to bring supply and demand into balance. As the sales are unexpected, the fall in price will begin at the start of the sales, at point A in Figure 4.5, and stop at their end, at point B.⁵

In the cases analysed so far, speculation has been stabilising. Figures 4.3 and 4.4 show how market professionals anticipating news announcements smooth market movements. In contrast, in the

⁵ The long-run equilibrium is not considered. It will be seen that the graphs in Figures 4.3 and 4.4 are similar.

subsequent cases analysed, speculation is destabilising. Speculators who anticipate liquidity transactions can cause violent fluctuations in a market.

Persistent Liquidity Transaction: Market Professionals and Investors – One Market Professional

Suppose that the situation is similar to the previous case (Figure 4.5), except that market professionals expect the liquidity sales to occur. The simplest example is when there is just one market professional, with limited capital, who understands about the liquidity sales and is completely confident that they will occur. The market professional will open his or her speculative position – that is, sell stock – immediately before the liquidity sales start to occur, at point A in Figure 4.6. The market will fall as a result. The stock that the market professional sells will be bought by investors attracted by the fall in prices. In this example it is assumed that the market professional repurchases his or her stock immediately prior to the end of the liquidity sales, at point B, and prices then rise, as shown in Figure 4.6.

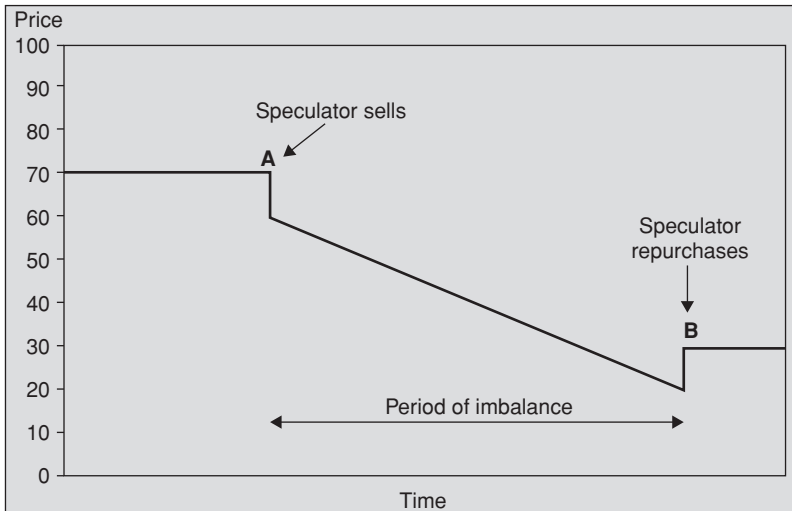


Figure 4.6 Persistent liquidity transaction: expected by one market professional. Position closed at the end of the sales

Persistent Liquidity Transaction: Market Professionals and Investors – Two Market Professionals

The next case is when there are two market professionals. Again, it will be assumed that they have limited capital and certain knowledge of the liquidity sales, and that they each know the size of the other's position. It will also be assumed that there is no collusion between the two of them (or else the case would be similar to just one market professional).

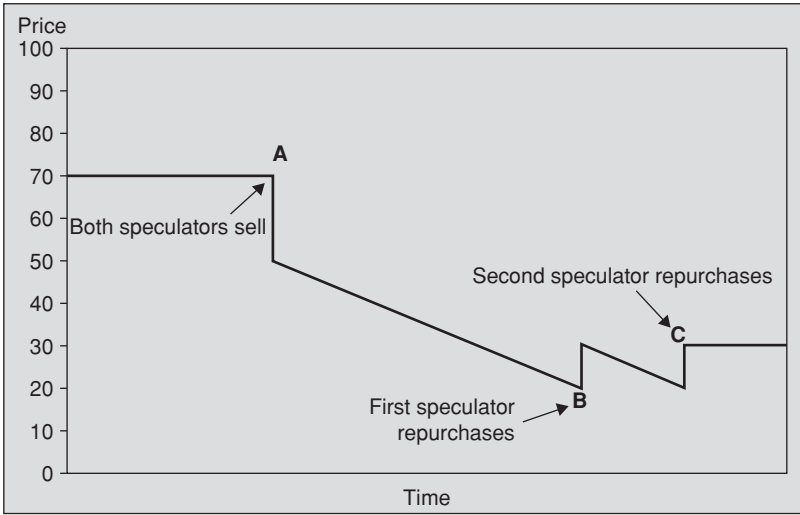
The crucial feature of this case is that the profit of one market professional is affected by the actions of the other. When the positions are being closed, prices will rise when the first market professional to act takes a profit. The profit of the other professional will fall accordingly. The market, however, will resume its decline if the liquidity sales have not yet finished, and will continue to do so for as long as the sales continue. Provided the amount of the sales yet to be executed exceeds the repurchase by the professional who has closed, prices will reach a new low in due course. If the other professional waits for this to happen, his or her profit will not be reduced. If, on the other hand, the liquidity sales remaining are less than the repurchase by the first professional to close, prices will not reach a new low and the second professional will have lost some of his or her profit.

It follows that a professional who does not want to run the risk of his or her profit being lower than that of the other professional should close his or her position as soon as the remaining liquidity sales are equal to the speculative position of the other professional. If he waits longer than this he may make a profit greater than the current one, but only at the expense of a reduced profit for the other professional.

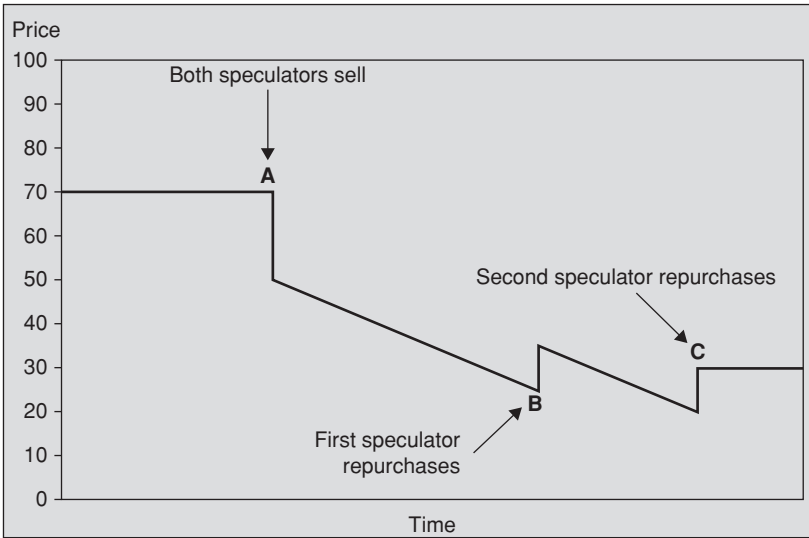
Figures 4.7 (a)–(c) overleaf show three scenarios. Figure 4.7(a) shows closure by the first professional exactly at the time that the remaining liquidity sales are equal to the position of the other professional. Both professionals make the same profit. Figure 4.7(b) shows the first professional closing too soon and making a lower profit than he could have done. Figure 4.7(c) shows the first professional closing late; his profit is greater than that of the other professional.

Uncertainty

In practice, there will be more than two market professionals, and they will not know the size of each other's positions. Further, there is a

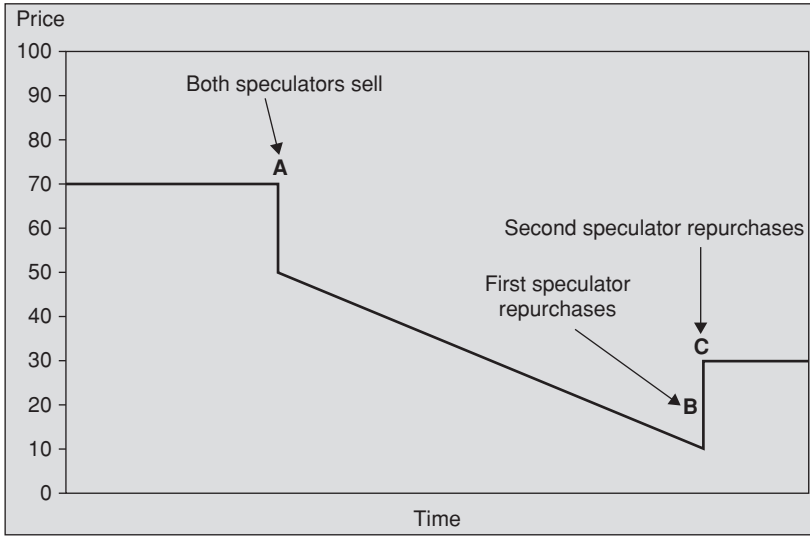


(a)



(b)

Figure 4.7 (a) The first professional reverses to preserve profit; (b) the first professional reverses too soon



(c)

Figure 4.7 (continued) (c) the first professional reverses late

temptation to postpone taking profits as long as prices continue to fall, because the profit is becoming larger. At the first hint of other speculators taking profits, a market professional will tend to act very quickly in an attempt to beat them to it. During such endplay, any unexpected item of good news can trigger a wave of repurchases, and a classic 'bear squeeze' can develop.

Conclusion

This appendix has shown how knowledge of persistent liquidity transactions by speculators does not enable them to smooth market movements. Far from it; competition between speculators can easily cause violent movements in prices.

Cyclical Changes Associated with Business Cycles

Harold Wilson, when he was Prime Minister of the UK, criticised the City of London for ‘celebrating the misery of the masses’ when the equity market rose to a new peak at the same time as unemployment reached a new record.

5.1 INTRODUCTION

If the supply of money exceeds the demand for money, ignoring international factors, there are two major consequences. First, some of the excess will be spent on goods and services, in which case economic activity will be higher than would otherwise be the case. Second, some of the excess will be spent on existing assets, in which case asset prices will tend to rise. In a recession, if there is not enough money about to produce a rise in asset prices, there will not be enough money about to turn the economy out of recession.

Elaborating, to turn the economy out of recession, the supply of money must exceed the current demand for money. Some of the surplus will be spent on goods and services, which produces additional sales and the rise in economic activity to turn the economy out of recession. Some of the surplus will be spent on assets, which produces a rise in the stock market. Both will tend to happen. The latter not happening is an indication that little surplus money exists: that is, that the surplus is too small to turn the economy out of recession. In the opposite case of a boom, if the squeeze in the money supply is insufficient to produce a fall in asset prices, it will be insufficient to end the boom.

The assertion is, therefore, that monetary forces are an explanation of the cyclical behaviour of asset prices that are associated with the business cycle. Because of the monetary forces, stock exchange prices are almost inevitably high when unemployment reaches a peak. In the above quotation, Harold Wilson was playing politics.

5.2 DIRECT AND INDIRECT EFFECTS OF MONEY ON ASSET PRICES

Monetary analysis is of interest to investors for two reasons. First, excess money that is spent on assets has a direct effect on asset prices. Second, excess money that is spent on goods and services affects the level of economic activity, which has an indirect effect on asset prices. The direct and indirect effects on an asset's price may be in the same direction or in opposite directions.

5.2.1 Money, Business Cycles and Inflation

As is well known, monetarists claim that excessive monetary growth precedes upswings in inflation, although they stress that the time lag before inflation rises is long and variable, possibly about two years. Practical experience with monitoring the *underlying* growth of the money supply in the UK since the early 1970s has shown that excessive monetary growth has indeed preceded the three major rises in inflation, and that inadequate monetary growth has also preceded the four recessions during the period. (The distinction between published and underlying monetary growth is explained in Chapter 19.) Monitoring the underlying growth of the money supply has given advance warning of all the major rises in inflation and recessions but, because of the variable time lags, the precise timing of the event has not been forecast.¹ In other words, monetary analysis has proved to be a useful tool for predicting upswings and downswings in economic activity, but not the timing.

5.2.2 Business Cycles and Fundamental Factors: the 'Indirect Effect' on Asset Prices

Equities

Economic upswings are bullish for equity prices. Corporate sales, profits, earnings per share and dividends all tend to increase with the rise in economic activity. The reverse happens in an economic downswing.

Bonds

Fundamental factors have the opposite effect on bonds. With a lag, economic upswings are bearish for bond markets for three reasons. First,

¹ For evidence see Pepper (1998, Chs 8 and 9 and Section 12.3)

in a recession, short-term interest rates are usually lowered below the average level for a cycle, in order to stimulate the economy. As the economy recovers, short-term rates are normally raised towards the average during a business cycle. Long-term rates follow short rates upward and bond prices fall. Second, as the recovery continues and the economy approaches full employment and spare industrial capacity is absorbed, inflation tends to rise. This leads to more falls in the bond market, as investors fear further rises in short-term interest rates to stop the economy from overheating. Third, new investors require a higher yield on bonds to compensate for the rise in inflation: that is, they require a higher nominal yield to maintain their required real rate of return. The reverse happens in an economic downswing.

5.2.3 The Combination of the Indirect and Direct Effects

The indirect effect of buoyant monetary growth in a recession – that is, excess money being spent on goods and services – is bullish for equities and, with a lag, bearish for bonds. The direct effect of excess money being used to purchase assets is bullish for both markets. The indirect and direct effects are therefore in opposite directions for bonds, but in the same direction for equities. Both fundamental and liquidity factors are favourable for equities, and these are the conditions for a substantial bull market.

In the opposite case, the indirect effect of sluggish monetary growth in a boom is bearish for equities and, with a lag, bullish for bonds. The direct effect is bearish for both markets. The indirect and direct effects are again in opposite directions for bonds, but in the same direction for equities, and a substantial bear market in equities is likely.

The impact on the equity market of the direct and indirect effects in the same direction is shown in Figure 5.1 overleaf, which illustrates the relationship in the UK between growth of the money supply in real terms and an equity price index. The ‘T’s and ‘B’s mark the tops and bottoms of the market. They roughly coincide with the ‘S’s marking significant rises and falls in the growth of the money supply. A larger scale graph, full explanation and commentary are given in Chapter 15.

5.3 STRATEGY

In theory, the optimum strategy is to hold cash prior to the boom turning point of a business cycle, then invest in bonds, and finally equities,

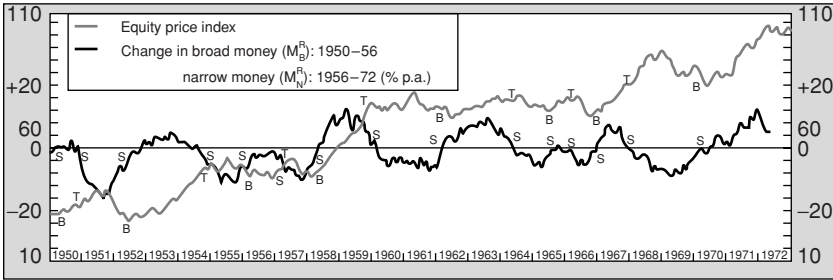


Figure 5.1 UK money supply and the UK equity market, 1950–1972

because expectations that the rise in interest rates has come to an end will occur sooner than expectations of a business recovery. In practice, given the uncertainties, when the time appears right to buy bonds, it is best to ignore bonds and purchase equities, because the latter are more volatile than the former, and their prices are likely to rise faster.

5.4 TIMING

The flows of funds of the banking sector may be helpful in timing the move out of cash into equities. Banks have surplus funds when their deposits grow faster than their loans. This happens when the government is printing money. As will be explained in Chapter 9, banks' holdings of reserve assets and treasury bills will initially rise. If these reserves increase faster than necessary to cover the growth of deposits, banks will wish to switch into assets that are expected to give an additional yield, usually ones that are less liquid and have a longer term. The result is that banks are keen to buy government bonds as soon as they think that the bear market may be coming to an end. Such purchases can mark the end of the bear market. Alternatively, if a bank does not think that the bear market is coming to an end, it will focus on the profit margin between its most expensive liabilities and its least profitable assets. For example, is it making a profit issuing certificates of deposit (CDs) and investing the money in treasury bills? If it is not, it will lower its CD rates, or borrow less in the interbank market. In this way, it will pass its surplus funds on to another bank or someone else, who may or may not buy bonds.²

² In jargon, the bank will manage its liabilities rather than its assets.

5.5 SEQUENCES

The sequences of events can be summarised as follows:

Monetary growth, asset prices and economic activity

	Monetary growth increases
	Asset prices start to rise
Trough of recession	Economic activity starts to pick up
	Monetary growth declines
	Asset prices start to fall
Peak of boom	Economic activity slows

Expectations of fundamental factors

Trough of recession	<i>Equities</i> Expectations of rising economic activity Expectations of rising profits
	<i>Bonds</i> Expectations of no further reduction in interest rates Expectations of rising short-term rates Expectations of rising inflation Higher nominal long-term rates required
Peak of boom	<i>Equities</i> Expectations of slowing economic activity Expectations of falling profits
	<i>Bonds</i> Expectations of no further rise in short- term rates Expectations of falling short-term rates Expectations of falling inflation Lower nominal long-term rates acceptable

Banks' flow of funds, monetary growth, bond and equity prices

	Banks' flow of funds turns positive? Bond market starts to rise Equity market starts to rise
Trough of recession	Economic activity starts to pick up Banks' flow of funds turns negative? Bond market starts to fall Equity market starts to fall
Peak of boom	Economic activity starts to slow

5.6 TRIGGERS

In spite of what has been stated above about timing, the actual turning point of a market will most probably be triggered by some unexpected item of good news about a fundamental factor affecting bonds. In general, when fundamental and liquidity factors are in the same direction, news about a fundamental factor is nearly always the explanation for the timing of a market movement. Fundamental analysts will almost always claim that the factors that they consider important are the explanation for the behaviour of the market. A monetary analyst should concede that they have explained the timing, but not why the market is reacting in the way it is. To prove the point, the monetary analyst should point to an occasion in the past when there was very similar unexpected news about fundamentals but the market reacted differently, the explanation being different monetary forces.³

³ A market may, for example, have risen substantially following unexpectedly good data for international trade – that is, for exports and imports. To win an argument with a fundamental analyst, a monetary analyst must find an occasion in the past when there were similar unexpected good data and the rise in the market was modest and short lived.

Shifts in the Savings Demand for Money

Another explanation of cyclical changes in asset prices associated with the business cycle is shifts in the savings demand for money. Interest-bearing bank deposits are merely one asset amongst the many in which people hold their wealth. Although bank deposits have the special attractions of security and liquidity, the amount of them that people wish to hold for savings purposes depends on their merit as an investment – that is, on how the rate of interest on bank deposits compares with the expected return on other assets, allowing for differences in risk. If the rate of interest on bank deposits is high relative to the expected return on other assets, the amount of bank deposits that people wish to hold for savings purposes will also be high. If the rate of interest on bank deposits is relatively low, the amount of bank deposits that people wish to hold for savings purposes will also be low.

If the rate of interest on bank deposits alters relative to the expected return on other assets, people will no longer be satisfied with the size of their old holdings of deposits. This can happen either because the rate of interest on bank deposits alters or because the expected return on other assets changes. In both cases, people will switch between bank deposits and other assets until their holdings of bank deposits are at the desired level in the new circumstances. The switching will affect the prices of other assets, and hence the expected return on them. It will continue until the expected return on other assets alters in line with the prevailing rate of interest on bank deposits, with the latter varying only a little from the level set by the central bank (the Bank of England in the UK and the Federal Reserve in the US).

6.1 THE PEAK OF A BUSINESS CYCLE

In the run up to the peak of a business cycle, short-term interest rates rise by more than long-term rates, because the large financial institutions that dominate the government bond market (the professional investors) expect the rise in rates to be temporary (see Appendix 6A for a fuller

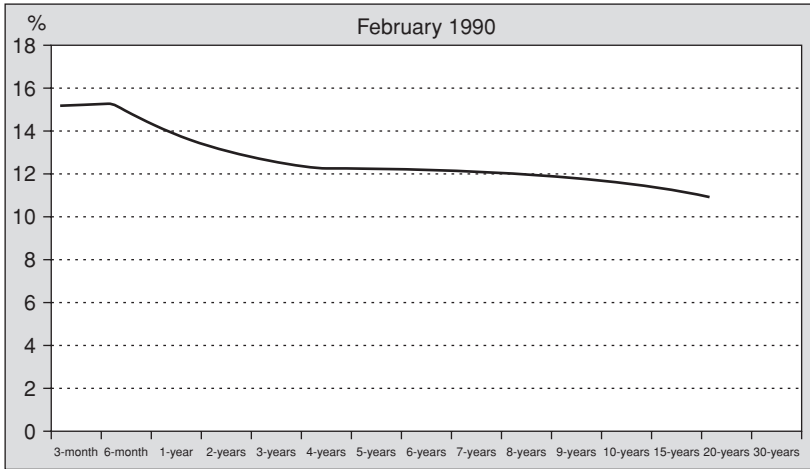


Chart 6.1 UK benchmark yield curve – term structure of interest rates: expectations of falling interest rates

explanation). As a result, the yield of a bond tends to fall as the term of the bond lengthens (that is, the yield curve becomes inverted). This means that *the immediate income from an investment in a bank deposit is the highest, or close to the highest, available in the market* (ignoring securities on which there is a significant risk of default). This high income attracts personal investors. Chart 6.1 shows the downward-sloping yield curve in the UK in February 1990, when the economy was heading into recession and interest rates were expected to fall.

As an economy starts to slide down into a recession, confidence also tends to be low. The risk involved in holding long-term securities, for example equities, is often perceived to be high. Bank deposits enjoy the relative advantage that comes from a combination of very little risk of default and price stability.

The result of a combination of the above factors is that, at the peak of a business cycle, personal investors usually want to hold an unusually large amount of their wealth in bank deposits. In other words, the savings demand for money is abnormally high (that is, the precautionary demand for money is high).

6.2 RUNNING DOWN BANK DEPOSITS

As an economy passes the peak of the business cycle and starts to slide down into a recession, the factors responsible for people wanting to hold

an abnormally large amount of bank deposits begin to reverse. The rate of interest on bank deposits starts to fall relative to the expected return on other assets.

The simplest reason is a decline in the rate of interest on bank deposits as monetary policy is eased, but changes in the expected return on other assets usually occur sooner. Expectations in the bond and equity markets alter as investors start to anticipate bull markets. Expectations in the government bond market change when professional investors judge that the rise in interest rates during the upswing of the business cycle is approaching its end. Those in the equity market change as people begin to focus on the business recovery that will follow the recession. With such changes in confidence, the expected returns in both the equity and government bond markets rise above the rate of interest on bank deposits.

As a result of the change in expected returns, people start to switch out of bank deposits into other securities. Such switching does not reduce the amount of bank deposits directly (the 'hot potato' is passed round the circle). Expected returns are equalised mainly through a rise in the prices of other assets, reducing the expected returns on them, so that they fall back into line with the rate of interest on bank deposits.

A little later in the cycle, the central bank reduces short-term interest rates, possibly by a substantial amount. Personal investors dislike the resulting reduction in their income. Expenditure may well have risen to equal the previous high income (Parkinson's Law).

Personal investors may have come to rely on the high rates paid at the peak of the cycle. With the drop in short-term rates, the pattern of yields in the bond market alters. Yields rise as the term of a bond lengthens. Personal investors are likely to start to switch out of bank deposits into longer-dated bonds in an attempt to preserve income. If short-term rates fall further, they may be tempted to switch into progressively more risky securities if this is the only way in which they can achieve their aim of maintaining high income. Chart 6.2 overleaf shows the upward-sloping yield curve in March 1993 after the 1990–92 recession in the UK, when interest rates were expected to rise.

Summarising, as an economy starts sliding down into a recession, people start switching out of bank deposits into shorter-term securities, then into longer-term ones and, at the low point of interest rates during the trough of the recession, into a range of riskier assets, feeding through to common stocks. Appendix 6B contains a more detailed description of what happens in the bond market.

APPENDIX 6A: SOME BOND ARITHMETIC

Consider two bonds, both priced at 100, the first redeemable (repayable) in one year's time (that is, its *term* is one year) and the second redeemable in two years' time. Suppose that interest rates rise by 1%. The price of the one-year bond will fall to almost 99, with the capital profit at redemption contributing to the additional 1% return. The price of the second bond will fall to nearly 98, with the capital profit at redemption providing the additional 1% return for two years. This illustrates the way in which the price of a long bond falls by more than that of a short bond when interest rates rise. For investors, such as banks, who want security of capital, long bonds are riskier than short bonds.

The yield curve is a graph showing the yield of a bond (vertical axis) plotted against the bond's term to redemption (horizontal axis). If interest rates are not expected to change, the yield curve rises as term lengthens to compensate for additional risk, in accordance with Modern Portfolio Theory, as shown in Chart 6.2.

Interest rates may be expected to change. A factor determining the yield of a long bond is the expected average of short-term interest rates during the life of the bond. If interest rates are expected to rise and remain high, this average rises as the term of a bond lengthens, as do the yields of the bonds. This means that the upward slope of the yield curve is steeper than usual. If interest rates are expected to fall, the yield

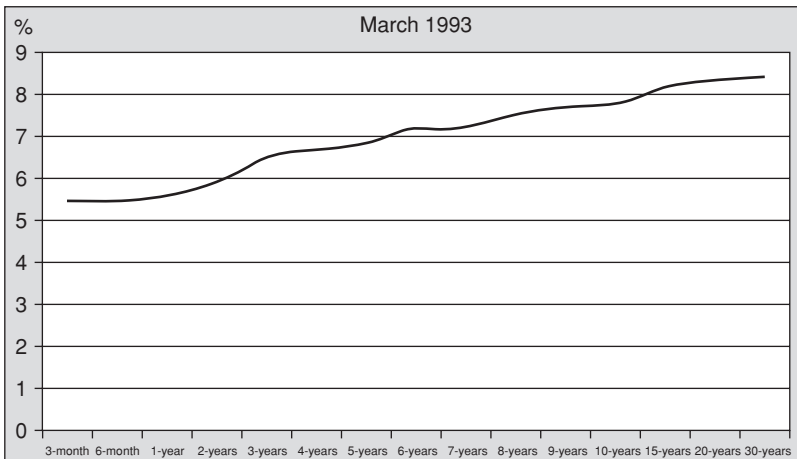


Chart 6.2 UK benchmark yield curve – term structure of interest rates: expectations of rising interest rates

curve's slope is shallower than usual. If interest rates are expected to fall substantially, the yield curve has a downward slope (that is, it is inverted).

APPENDIX 6B: GOVERNMENT BOND MARKETS

The first switching to occur out of bank deposits is into the most closely comparable assets. Treasury bills and government bonds (gilt-edged stock) have a similar characteristic of security, in the sense of risk of default being very small, and high liquidity. The main difference is in the term of the investment. Bank deposits are at the short end of a spectrum of securities of differing terms. Treasury bills come next and then government bonds of progressively longer term, with irredeemable bonds at the far end of the spectrum:

- bank deposits
- treasury bills
- short-dated government bonds
- medium-dated government bonds
- long-dated government bonds
- irredeemable government bonds

The government bond markets in the US and UK are dominated by large financial institutions – for example, banks, life assurance corporations and pension funds. There are three reasons for this. First, they deal in huge quantities; in comparison, the total of dealings by individual investors is small. Second, the dealing expenses for large transactions are much smaller relative to the size of the transaction than they are for small ones, which gives an institution a competitive advantage over an individual investor. Third, the institutions use statistical and mathematical techniques that are complicated and which very few personal investors understand. The result is that the prices of bonds in a government bond market, and hence their yields, are determined by the professionals. Personal investors then react to these prices.¹

The return on a bond is a combination of income and capital profit or loss. The former (the income yield) is known for certain when a bond is purchased. The latter is not unless the bond is held until redemption, when capital is repaid. A bond's *redemption yield* is a combination of income and capital gain or loss at redemption. Most personal investors focus on either the income yield or the redemption yield. The time horizon

¹ Wholesalers are the price-setters and retailers are the price-takers.

of many institutions, in contrast, is much shorter than redemption, perhaps about a year. The expected capital profit over this period is often the dominant component of institutions' expected return. In contrast, in the absence of fairly clear factors suggesting otherwise, many personal investors purchase the bond with the highest income yield.² Their purchases are insufficiently large to upset the pattern of rates established by professional investors.

² An example of a factor suggesting otherwise – that is, one likely to discourage investors from choosing the security with the highest current return – is a rate of interest below the rate of inflation. If the real rate of return is negative, investors may well prefer to invest in real assets, rather than nominal ones, in an attempt to preserve the real value of their capital.

Part II

Financial Bubbles and Debt Deflation

Recapitulating on the start of the Introduction to this book:

As an economy starts sliding down into a recession, the stock market usually falls. At some stage, the market stops falling and people start to ‘see through’ the recession and focus on the coming economic recovery. After its fall, some investors judge the market to be cheap and start to buy stocks.

In such circumstances, a corporation is quite likely to make a cash bid for another corporation, Corporation A, and to finance the takeover by borrowing from a bank. The stock market rises when the bid is announced. When the bid goes through, the holders of stock in Corporation A receive bank deposits in exchange for their stock. They may well subsequently reinvest the proceeds in other stocks. It is important to realise that such a reinvestment does not destroy the bank deposit, because the sellers of the stocks in which the reinvestment is made receive bank deposits in exchange for their stocks. For example, if one of the ex-stockholders in Corporation A switches out of a bank deposit into Corporation B, the person who sells the stock in Corporation B receives the deposit. If this person reinvests the money in Corporation C, the seller of Corporation C’s stock receives the deposit. This third person may reinvest the money, and so on. Each time the reinvestment takes place, the market tends to rise. The initial credit transaction – that is, a corporation borrowing from a bank to finance the takeover – has a one-off effect, whereas the consequential increase in the money supply has a continuing effect. The borrowing to finance the takeover produces a one-off rise in the market. The monetary consequence of the borrowing can be responsible for a rise in the market that continues for some time.

If substantial borrowing to finance stock purchases persists, the continuing monetary effects compound. After a year or so of this happening, the result can be the formation of a bubble in asset prices.

Financial Bubbles

Chapters 5 and 6 discussed the behaviour of asset prices during a typical business cycle. Occasionally something much more substantial occurs. The invention of railways is an example of an innovation of fundamental importance. The event may also be financial: for example, there are historical instances of an economy being flooded with money because a new goldmine had been discovered. Another financial example is the invention of hire purchase in the US in the 1920s, which opened up a new reservoir of credit. Currently, the revolution in information technology is a fundamental factor, and financial innovation (the markets in financial futures and interest rate swaps are examples) is a financial factor.

A book about financial bubbles that is essential reading is *Manias, Panics and Crashes*, by Charles P. Kindleberger. The 1978 edition analyses 29 market crashes, starting with the South Sea Bubble in England in 1720. The fundamental factors are different in each case, but the monetary forces are similar. Each time, the event is so significant that people carry on borrowing to acquire assets, and the continuing monetary effects compound. Given the extremely favourable news about fundamentals, the monetary injection is like pouring gasoline on a bonfire that is already alight. Fuel is provided to inflate a financial bubble.

7.1 DETECTION OF A BUBBLE

A bubble almost certainly exists in the prices of some category of assets if money and credit have been growing for well over a year at a rate that is clearly much higher than normal, given the current growth of the economy and inflation. The category of assets will depend on the favourable fundamental factors. The valuation of these assets will clearly exceed what has been normal in the past, even allowing for optimistic expectations of the future. If the category of assets is equities, for example, dividend yields will be historically low and price/earnings ratios will be historically high.

Kindleberger identifies various patterns that may provide confirming evidence. One example is financial scandals. These tend to occur in the

atmosphere of greed encouraged by a financial bubble. News of a current scandal is confirming evidence that a financial bubble exists.

7.2 PHASES

A financial bubble has three phases: chronically dangerous, acutely dangerous, and the burst. ‘Chronic’ is used in the sense of lingering, and ‘acute’ in the sense of coming sharply to a crisis. The burst probably needs a trigger. The two extremes will be discussed first.

7.2.1 Chronically Dangerous

The equity market may be described as chronically dangerous when the prices of stocks are clearly grossly overvalued in terms of the fundamentals – for example, dividend yields are extremely low – and the money supply continues to grow very rapidly. In these circumstances, there are likely to be substantial funds that ought to have been invested in equities, but the investor has missed the market. If unexpected bad news occurs, some of these investors will almost certainly bargain hunt as prices are marked down, in which case, prices may well bounce back. In the short run, a sale of stocks in these circumstances is likely to make a loss, probably a substantial one. Anyone considering selling stocks should be aware of the risk. They should not sell if they cannot stand a most adverse outcome in the short run.

7.2.2 The Burst

Unexpected bad news usually acts as a trigger that bursts the bubble. Such news, being unexpected, cannot be forecast. Waiting for the trigger almost certainly means missing high prices and accepting substantially lower ones.

7.2.3 Acutely Dangerous

The danger of a sharp break in the market turns from chronic to acute when monetary growth decelerates. The situation is then on a knife-edge. If monetary growth rebounds, the bull market is likely to continue. If the deceleration in monetary growth continues, investment managers, who understand monetary analysts, are likely to sell, and there is a possibility that the market will crash without a trigger.

7.3 CROSSCHECKS

The current behaviour of the money supply should be subjected to the full analysis described in Part V. At first, there will inevitably be doubt about whether a downturn in monetary growth is likely to continue and become significant. If it does continue, the danger of a substantial fall in the market moves from chronic to acute. The views of technical analysts (see Chapter 12) and experienced intuitive investors (see Chapter 13) should be sought as a crosscheck. If they are turning bearish, the wisest course of action is to sell at once, almost irrespective of price.

Debt Deflation

The effect of a financial bubble in the equity market is not merely financial. Wealth increases as a result of the rise in asset prices. Economic activity responds as people spend some of their increased wealth and as confidence improves. Part of the rise in the market is validated. The effects spiral upward. The bubble eventually bursts. Asset prices fall and a downward spiral starts.

The downward spiral starts symmetrically with the previous upward spiral. The earlier rise in asset prices, confidence, wealth and expenditure on goods and services is balanced by falls in the downswing. But there is a danger of asymmetry because of the gearing, and associated concentration of risk, inherent in the banking system's balance sheet.

The process becomes asymmetrical during the downswing, when the value of asset prices falls to a level at which the value of collateral in general is no longer sufficient to cover the bank loans being secured. There are various stages to this process. In order of intensity they are:

1. Borrowers become forced sellers of assets.
2. People start to go bankrupt.
3. Others retrench as they observe the pain of bankruptcy.
4. Banks suffer from bad debts.
5. Bankers become cautious about making new loans. They have more than enough trouble with bad debts on existing loans. The last thing they want is a bad debt on a new loan. Loan officers become afraid of jeopardising their careers if they are not very cautious about new loans.
6. Both the demand for and the supply of new loans subside.
7. As bad debts multiply, banks may lack capital to make new loans.
8. As bad debts multiply further, banks have to call in existing loans because they have insufficient capital to support their current business.
9. Banks fail because the level of bad debts has wiped out their capital.
10. Depositors lose money as banks fail.

Meanwhile, monetary growth has progressively collapsed – that is, monetary growth at first slowed, then declined sharply, and finally turned negative. Economic activity and equity prices fall with it. The whole of the process is called debt deflation. The various stages of intensity should be noted. In the early 1930s, the US reached stage 10, whereas the UK only reached stage 6 in the early 1990s. In 2003 Japan went beyond stage 7.

Recapitulating, excessive monetary growth leads to asset-price inflation. Persistent asset-price inflation leads to a financial bubble in asset prices. The bubble bursts. Markets fall. The result becomes asymmetrical when the value of collateral in general falls below the loans being secured. Various degrees of debt deflation follow.

8.1 THE CURE FOR DEBT DEFLATION

Irving Fisher described debt deflation and prescribed its cure as long ago as 1932 (Fisher, 1932). The money supply must not be allowed to decline when prices are falling. Money supply policy must be eased. But this advice needs interpreting for today's circumstances.

Some non-monetary economists are likely to misinterpret the advice straight away. They will confuse money supply policy with monetary policy. They will argue that reducing interest rates may be an insufficient stimulant because rates cannot fall below zero, which can be a high rate in real terms if retail prices are falling. Reducing interest rates has been likened to pushing on a string.

8.1.1 Money Supply Policy

It is correct to argue that growth of the money supply can become inadequate if the only action taken by the monetary authorities is to lower interest rates. It is nevertheless wholly within the power of a government to ensure adequate growth of broad money. The government can print money to offset any fall in fountain-pen money. Chapters 9 and 10 contain a full explanation. The point here is that a government can employ debt management to increase its borrowing from banks. Listed in order of aggressiveness, it can:

- reduce the sales of its own debt, below that needed to cover its net cash requirement;¹

¹ The policy is called underfunding.

- buy back bonds that it has issued previously;
- extend the range of bonds that it buys, to include, for example, corporate bonds;
- extend the type of security, to include, for example, common stocks.

It should be stressed that it is wholly within a government's power to stop the growth of broad money from undershooting.

Increasing printing-press money to offset a decline in fountain-pen money allows people to sell assets to repay a bank loan, without the money supply falling. It slows the downward spiral at its origin. People do not have to either sell assets or reduce their expenditure on goods and services because they are unhappy about the amount of money in their bank account. Further, it helps directly to underpin asset prices and mutes the whole mechanism of debt deflation.²

8.1.2 Fiscal Policy

Easing fiscal policy is another way of increasing government borrowing from banks and, therefore, boosting the money supply. This can be done by either cutting taxes or increasing public expenditure. This is the Keynesian remedy for debt deflation. There are two disadvantages. First, the result can be an increase in the national debt to an unsustainable level and, in extreme cases, national debt compounding out of control. The alternative of the government purchasing assets does not suffer from this disadvantage, because the increase in the national debt is backed by holdings of assets. Indeed, there is a good chance that purchases of equities will turn out to be profitable in due course, as capital profits are enjoyed when the stock market rebounds. The final result of the appropriate debt-management policy may thus be a fall in the national debt. Second, fiscal policy cannot be eased as quickly as can debt management. There is a time lag between a decision to ease fiscal policy and the full effect on the amount that the public sector needs to borrow, and from there to the economy.

Unfortunately, many governments, including those of the US, the UK and Japan, appear either to be unaware of, or to disagree with, the cure for debt deflation prescribed by Irving Fisher (see the appendix in this chapter). Hopefully, the situation will change, but the uncomfortable conclusion at the time of writing is that the pain will probably be prolonged, and

² It also helps banks to replenish capital as they enjoy profits in the bond market, for elaboration, see Pepper (1993, pp. 36–8).

the equity market will not recover quickly should debt deflation occur in another country. Bargain hunting should be delayed until either the growth of the money supply has started to recover, or it is likely that the government will follow an appropriate policy to boost monetary growth.

APPENDIX: IGNORANCE OF IRVING FISHER'S PRESCRIPTION

The first evidence that many governments are either unaware of, or disagree with, the cure for debt deflation prescribed by Irving Fisher is that the Japanese, before 2002, failed to boost their money supply. There is anecdotal evidence (reports by highly respected economists and officials) that one reason why they eased fiscal, rather than money supply, policy was pressure from the US, where the Administration did not want the yen to fall against the dollar. If these reports are correct, the US, too, is ignorant of the cure.

The UK Treasury appears not to understand the cure either. In the late 1970s and early 1980s, when the UK authorities were trying to hit the published targets for the money supply, a policy of overfunding was followed, under which the Bank of England sold more gilt-edged stock (government bonds) than was necessary to cover the government's need to borrow. In other words, it destroyed printing-press money to offset excessive creation of fountain-pen money. In 1985, Nigel Lawson abolished the policy when he was Chancellor of the Exchequer. His memoirs disclose that he, and presumably Treasury officials, did not understand the effect of overfunding (they focused on the one-off credit effect and ignored the continuing monetary effect).³ If this is correct, they are unlikely to understand underfunding either.

It is also worrying that various countries have institutional barriers to stop a government from printing money excessively (after the German experience in the 1920s under the Weimar Republic); see Chapter 9. Such barriers may also stop them from employing the cure for debt deflation.

A final cause for concern in the UK is that in 1998 operational responsibility for debt management was taken away from the Bank of England and transferred to a newly formed Debt Management Office, to bring the UK into line with practice elsewhere in Europe.

³ For elaboration see Pepper and Oliver (2001, Ch 8).

Part III

Elaboration

This part elaborates first on the creation of printing-press money, the control of fountain-pen money and the ‘counterparts of broad money’. It then expands on what was written in the Introduction about Modern Portfolio Theory and the nature of risk, technical analysis and crowds, and the intuitive approach to asset prices. Finally, it discusses some of the alternatives to monetary analysis.

increased because of the rise in non-government bank deposits. The opposite happens when the government has a surplus.

Comparison with position before Stage 1

\uparrow \uparrow

government deposits + non-gov. deposits = treasury bills + investments + loans

The UK is an example of a country where the government does not keep operational deposits with banks. The result is exactly the same, but the process is a little more complicated, although more direct. The Bank of England (the Bank) is banker to the government, as well as being the country’s central bank. Suppose, again, that the government makes a payment for some expenditure by sending someone a cheque. When the cheque is cleared, the person’s bank is credited with a deposit at the Bank to match the rise in its customer’s deposit.

Banks’ liabilities and assets – Stage 1

\uparrow \uparrow

non-gov. deposits = balances with B of E + treasury bills + investments + loans

The total of its deposits with the Bank will be larger than the person’s bank needs and, because such deposits earn a very low rate of interest, the person’s bank will want to switch the money into treasury bills to obtain a higher rate. It can obtain these bills from the Bank on the same day when the Bank, as a matter of routine, sells banks whatever quantity of treasury bills the banks want to purchase.²

Banks’ liabilities and assets – Stage 2

\downarrow \uparrow

non-gov. deposits = balances with B of E + treasury bills + investments + loans

The result is a rise in non-government bank deposits that is matched immediately by an increase in banks’ holdings of treasury bills. The result is the same as the end result in the first case.

Comparison with position before Stage 1

\uparrow \uparrow

non-gov. deposits = balances with B of E + treasury bills + investments + loans

² The Bank ‘mops up’ any surplus in the money market as part of its routine ‘open market’ operations, which includes ‘repos’.

In many countries, including the UK, the government's residual borrowing requirement is provided automatically in the short run by banks. Before 1970, the government in the UK was not even aware that it was printing money when it was doing so. Since the mid-1970s, the UK government has been constrained, either by having a target for the money supply or by a promise to fund its own deficit.

Following hyperinflation in Germany in the 1920s (under the Weimar Republic), some countries have institutional barriers to stop their governments printing money excessively. In 1998, the UK came more into line with these countries, when it adopted the practice of the rest of the European Union and transferred responsibility for debt management from the Bank of England to a new Debt Management Office.

9.1 THE UK IN MORE DETAIL

The government's (the Exchequer's) main need for finance is to cover the difference between its revenue from taxes, etc. and its expenditure, more formally known as the public sector net cash requirement (PSNCR), but it also needs funds to finance any increase in the UK's foreign exchange reserves less any money raised directly from foreigners, for example through foreign purchases of gilt-edged stock. The Exchequer's main source of finance is borrowing from the non-bank private sector, with sales of gilt-edged stock again being the main example. Any finance not met from this source comes from the banking sector. The position is summarised in the following three *accounting identities*.

Accounting Identity 1

The public sector's net cash requirement
 plus
 the increase in the UK's gold and foreign exchange reserves
 less
 public sector borrowing from abroad
 less
 sales of public sector debt to the non-bank private sector
 equals
 the public sector's residual need for finance.

Accounting Identity 2

The public sector's residual need for finance
 equals
 government borrowing from the banking system.

Accounting Identity 3

Government borrowing from the banking system
equals
the supply of printing-press money.

9.2 FOUR POLICIES

It should be noted that the public sector net cash requirement is influenced heavily by fiscal policy. Changes in the UK's gold and foreign exchange reserves depend on the policy regarding intervention in the foreign exchange market. Sales of public sector debt are a matter for funding and sterilisation policies (funding policy is how the government's domestic deficit is financed – for example, by sales of bonds – whereas sterilisation policy is how foreign exchange intervention is financed). The combination of these four policies – fiscal, funding, foreign exchange intervention and sterilisation policies – determines the supply of printing-press money. It follows that the supply of printing-press money can, in theory, be controlled by a combination of these four policies. In practice, the weapon used to fine-tune the published data for the money supply in the early 1980s was sales of public sector debt to the non-bank private sector.

Control of Fountain-pen Money and the Counterparts of Broad Money

Chapter 2 explained how banks create fountain-pen money when they make a loan. This means that bank lending must be controlled if fountain-pen money is to be controlled.

10.1 CONTROL OF BANK LENDING

Most textbooks teach that bank lending is controlled by the central bank managing the supply of bank reserves (for example, Mishkin, 2001). With the possible exception of the Swiss National Bank, central banks do not, in practice, operate in this way (Lawson, 1992).¹

10.1.1 The Teaching in Textbooks

The textbooks are correct when they state that many countries have mandatory ratios for the level of reserves to deposits, and that a bank's ability to make loans is constrained by its reserves. This means that a central bank, in theory, could control the amount that banks lend by controlling the supply of reserves. Suppose, for example, that the reserve ratio is $12\frac{1}{2}\%$.

Banks' balance sheet

$$\begin{array}{rcccc} \text{deposits} & = & \text{reserve assets} & + & \text{investments} & + & \text{loans} \\ 100 & & 12\frac{1}{2} & & 87\frac{1}{2} & & \end{array}$$

If reserves are increased by 1, banks can increase their balance sheet by 8 (1 divided by $8 = 0.125 = 12.5\%$), as shown overleaf.

¹ A discussion of monetary base control is contained in Pepper and Oliver (2001, pp. 63–83).

Banks' balance sheet

deposits = reserve assets + investments + loans

108 13½ 94½ (ratio of reserve to deposits still 12½ %)

10.1.2 How Central Banks Operate in Practice

Central banks attempt instead to control bank lending by influencing people's demand for bank loans by altering interest rates. Central banks invariably follow this demand-side approach. It should be noted that the central bank sets the level of short-term interest rates. Interest rates are not determined by market forces, that is, by the balance between the supply and demand for credit.²

Why then do many countries have mandatory reserve ratios? The answer is to increase their central bank's control over interest rates. A clear example is what happened in the UK when the Bank of England had the power to squeeze the banks by calling for 'special deposits' that banks had to place with the central bank. The banks had to find these funds from somewhere. In practice, they were supplied by the Bank when giving 'assistance' to the money market, as described in the previous chapter. The left hand of the Bank squeezed the system and the right hand of the Bank undid the squeeze. At first sight, this appears to be a contradiction. The Bank, however, bought treasury bills at a price of its own choosing and so set short-term interest rates. The Bank's intention all along was merely to reinforce its control over interest rates. There are other devices that appear to be intended for controlling bank reserves in one form or another, but which are, in fact, designed to increase a central bank's control over interest rates (for a discussion, see Pepper and Oliver, 2001, pp. 9–10).

The main reason why central banks follow the demand-side approach to controlling bank lending, rather than the supply-side one of managing bank reserves, is because they fear that the latter would lead to very volatile interest rates. A full discussion of the reasons is outside the scope of this book (see Pepper and Oliver, 2001, Part 3).

10.2 BANK CAPITAL

Banks also need capital to support their business. From time to time, especially when they have just suffered from a series of bad debts, banks

² Under monetary base control, short-term interest rates would be determined by market forces.

are constrained by the availability of capital. At other times, banks have abundant capital, either because they have raised new capital in the market or because they are making substantial profits that they are ploughing back into the business. When capital is abundant, banks make every effort to increase their loans, albeit at a rate of interest set by the central bank.³

Some have advocated that banks should be controlled through a mandatory capital ratio that can be varied. The difficulty with this proposal is that banks tend to be short of capital in a recession and have surplus capital in a boom, which is the wrong way round for stabilising the business cycle. To offset this, any capital ratio would have to be varied considerably. This would conflict with the prudential controls that have been internationally agreed under the auspices of the Bank for International Settlements (BIS).⁴

Summarising, in practice, nearly all central banks supply whatever quantity of reserves banks want. They attempt to control bank lending by altering interest rates, which influences the demand for loans. The outcome in the UK is that there is little control over bank lending and, therefore, over the creation of fountain-pen money.

10.3 THE UK IN MORE DETAIL

Banks' assets rise when they make loans and their liabilities increase in line. Most of the liabilities are deposits of the non-bank private sector, but some will be deposits of foreigners and others will be non-deposit liabilities, such as banks' capital, including retained earnings. The accounting identity for fountain-pen money is:

Accounting Identity 1

Banks' sterling lending to the private sector
 less
 banks' borrowing in foreign currency and from abroad
 less
 the growth of banks' non-deposit liabilities
 equals
 the supply of fountain-pen money.

³ They may cut their profit margin – that is, the difference between the rate they charge for a loan and the rate they pay for a deposit.

⁴ Capital ratios would also put banks in a country with a high ratio at a disadvantage to banks in a country with a low ratio in a business that is very competitive.

10.4 THE 'COUNTERPARTS' OF CHANGES IN BROAD MONEY

Putting the accounting identities in this section and the previous one together:

Accounting Identity 2

The supply of printing-press money
plus
the supply of fountain-pen money
equals
the growth of M3.

(The definitions of the various monetary aggregates, M1, M2, M3 and M4, are given in Chapter 19 and the glossary.) The final accounting identity is a summary:

Accounting Identity 3

Public sector's net cash requirement
less
sales of public sector debt to the non-bank private sector
less
public sector's borrowing in foreign currency or from abroad
plus
banks' sterling lending to the private sector
less
banks' borrowing in foreign currency and from abroad
less
growth of banks' non-deposit liabilities
equals
growth of M3.

The elements in Accounting Identity 3 are known as the 'counterparts' of M3. A similar identity, replacing banks with banks and building societies, can be constructed in the UK for M4.

10.5 RELATIONSHIP BETWEEN THE COUNTERPARTS

The relationship between broad money and its counterparts is complex. Taking the public sector net cash requirement as an example, if tax rates are altered, both the PSNCR and broad money will tend to be affected

in the same direction; both will tend to rise if tax rates are reduced, and fall if tax rates are increased. On the other hand, if discretionary fiscal policy remains unchanged, the PSNCR will tend to rise in a recession and fall in a boom, because of variations in tax revenue, unemployment benefits, and so on. Bank lending to the private sector will, however, tend to do the opposite, rising in a boom and falling in a recession. The fluctuations in bank lending tend to be greater than those in the PSNCR and, because of this, broad money may fall when the PSNCR increases and rise when the PSNCR decreases. In short, the relationship between the two is not a simple correlation, but changes in discretionary fiscal policy do affect the growth of broad money.

Modern Portfolio Theory and the Nature of Risk

This book argues that the Efficient Markets Hypothesis is an incomplete, rather than an incorrect, theory. The Liquidity Theory of Asset Prices is a complementary one. This chapter contains a fuller description of how the two theories interact.

11.1 SUMMARY

- According to Modern Portfolio Theory, the first principle of investment is to maximise the expected yield with the minimum of risk.
- The expected yield is the yield that is expected on average. The possibilities of losses, as well as high profits, are included in the average. The expected yield should not be confused with the most likely yield.
- Risk implies an adverse outcome – that is, below average return or loss.¹
- Some academics focus on the volatility of a stock's price. This is a good measure of risk if the probability of below average return is symmetrical with the probability of above average return. If there is no symmetry, volatility is a bad measure of risk.
- Unlike volatility, risk depends on the circumstances of an investor; it changes as those circumstances alter. Risk can also change as the behaviour of a market alters.
- Risk in the short run can be very different from risk in the long run.
- EMH states that investors cannot consistently outperform a market making use of existing available information. A more accurate version is that investors cannot consistently outperform a market making use of existing available information without taking unacceptably high

¹ Some academics use the word 'risk' to have a precise technical meaning that is different from everyday usage. In everyday usage, risk implies loss or below average return, and the word is used in this sense in this book. The technical meaning is as follows: the word is used if an investment has more than one outcome and the probabilities of the different outcomes are known. If the probabilities are not known, the situation is described to be 'uncertain'. Risk of loss in everyday usage is 'downside uncertainty' in technical language.

risk of loss, bearing in mind the way risk of loss can vary with the circumstances of an investor and the behaviour of a market.

- Sharp rises in the risk of loss in the short run explain why the level of a stock market may not reflect correctly the factors considered to be important by fundamental analysts and industrialists.
- Sharp rises in the risk of loss in the short run explain why believers in EMH are wrong to disregard LTAP.

11.2 EXPECTED YIELD

The return on some investments is certain. For example, the return over three months on a three-month treasury bill is certain, because there is no risk of default, and it is certain that the proceeds will be received as expected. With most investments there are various possible outcomes. For example, the return over one year on a five-year government bond is not certain, because interest rates may change during the year, and the price of the bond will vary as its yield alters.

Example 1

Consider an investment with a 50 % probability of a 6 % return during the next year, a 25 % probability of 4 %, and a 25 % probability of 8 % (Figure 11.1).

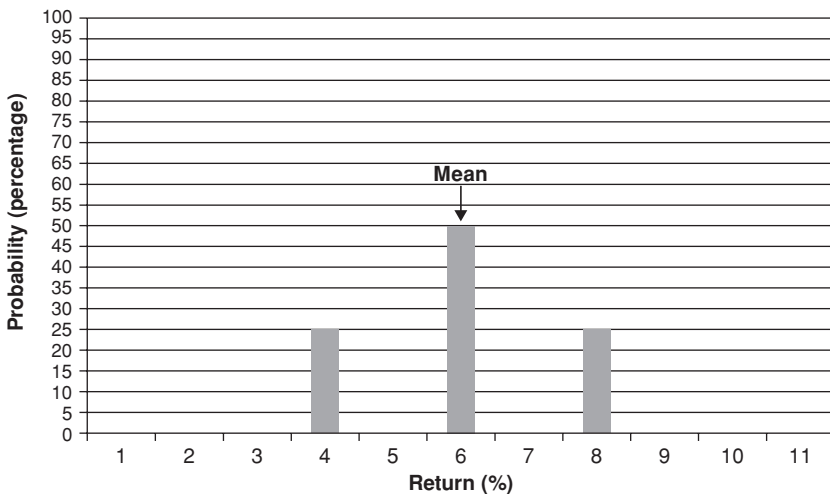


Figure 11.1 Different outcomes: returns and probabilities (Example 1)

The mean is:

$$0.25 \times 4\% + 0.5 \times 6\% + 0.25 \times 8\% = 6\%$$

Example 2

To give another example, there may be a 10% probability of a 2% return, a 20% probability of 4%, a 40% probability of 6%, a 20% probability of 8%, and a 10% probability of 10% (Figure 11.2).

The mean is:

$$0.1 \times 2\% + 0.2 \times 4\% + 0.4 \times 6\% + 0.2 \times 8\% + 0.1 \times 10\% = 6\%$$

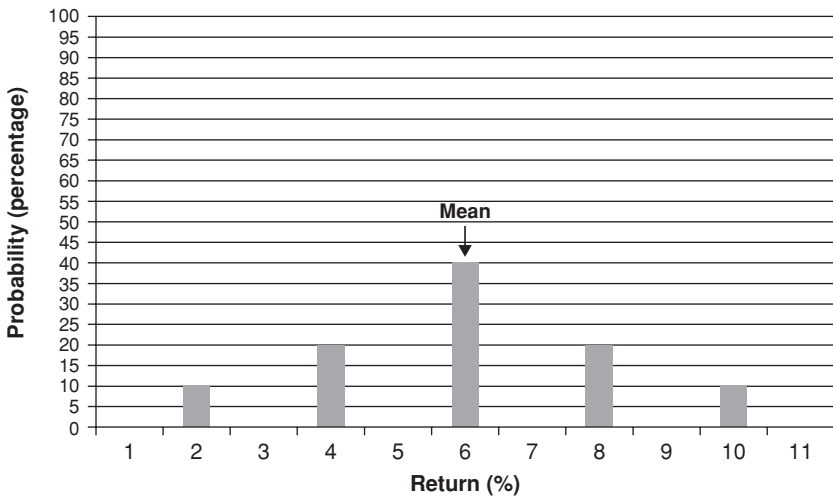


Figure 11.2 Different outcomes: returns and probabilities (Example 2)

Figure 11.3 overleaf shows the general case of many possible outcomes, where the probability of below average return is symmetrical with that of above average return.

The expected return is the sum of the returns of all possible outcomes, each return being multiplied by the probability of the outcome. The formula is:

If there are n possible outcomes, and the x th outcome has a probability of p_x and a return r_x , the expected return, \bar{r} , is $\sum p_x r_x$.

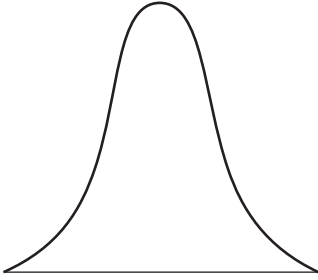


Figure 11.3 Frequency distribution: normal

11.3 RISK

The first of the above investments is less risky than the second. With the first, there is a 25 % probability of below average return, and the lowest return is 4 %, compared with a 30 % probability of below average return and a possibility of a return as low as 2 % with the second. A measurement of the risk of below average return is the amount that the return is below the mean return multiplied by its probability – that is, $0.25 \times 2\% = 0.5\%$ for the first investment, and $0.1 \times 4\% + 0.2 \times 2\% = 0.8\%$ for the second.

A measure of risk that is often used is the dispersion of the returns around the mean. The difference between each possible return and the mean return is calculated. The difference is then squared to stop negative ones from cancelling out positive ones (a minus times a minus is a plus). The squared difference is then multiplied by the probability of the outcome, and all the results are added together to obtain the *variance*. The square root of the variance is the *standard deviation*. The formulae are:

$$\text{Variance} = \sum p_x (\tilde{r} - r_x)^2$$

$$\text{Standard deviation} = \sqrt{\sum p_x (\tilde{r} - r_x)^2}$$

The variance and standard deviation are good measures of risk *provided the returns are symmetrical about the mean* – that is, the probability of below average return is the same as that of above average return – as in the above two examples. In many investments, however, the possible returns are lopsided, or *skewed*. The next two distributions, which have the same mean and standard deviation, are skewed.

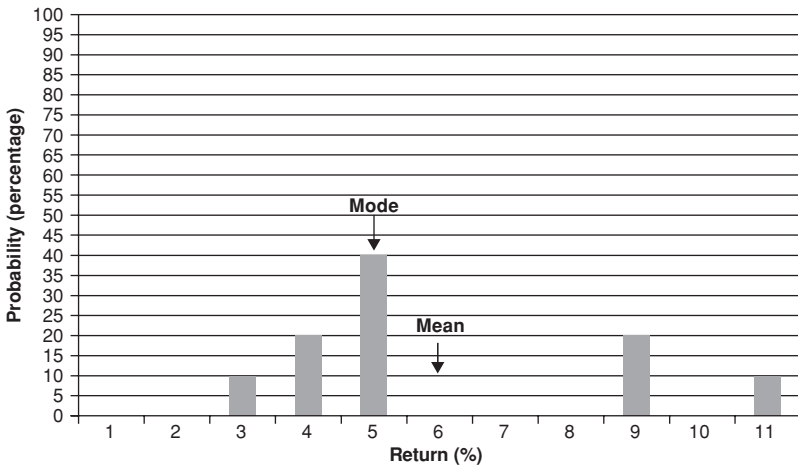


Figure 11.4 Different outcomes: returns and probabilities (Example 3)

Example 3

There is a 10 % probability of 3 %, 20 % probability of 4 %, 40 % probability of 5 %, 20 % probability of 9 %, and 10 % probability of 11 % (Figure 11.4).

The mean is:

$$0.1 \times 3 \% + 0.2 \times 4 \% + 0.4 \times 5 \% + 0.2 \times 9 \% + 0.1 \times 11 \% = 6 \%$$

The variance is:

$$0.1 \times 9 + 0.2 \times 4 + 0.4 \times 1 + 0.2 \times 9 + 0.1 \times 25 = 6.4$$

Note that the expected return – that is, the mean – is 6 %, whereas the most likely return – that is, the *mode* – is 5 %.

Example 4

There is a 10 % probability of 1 %, 20 % probability of 3 %, 40 % probability of 7 %, 20 % probability of 8 %, and 10 % probability of 9 %. This is shown in Figure 11.5 overleaf.

The mean is:

$$0.1 \times 1 \% + 0.2 \times 3 \% + 0.4 \times 7 \% + 0.2 \times 8 \% + 0.1 \times 9 \% = 6 \%$$

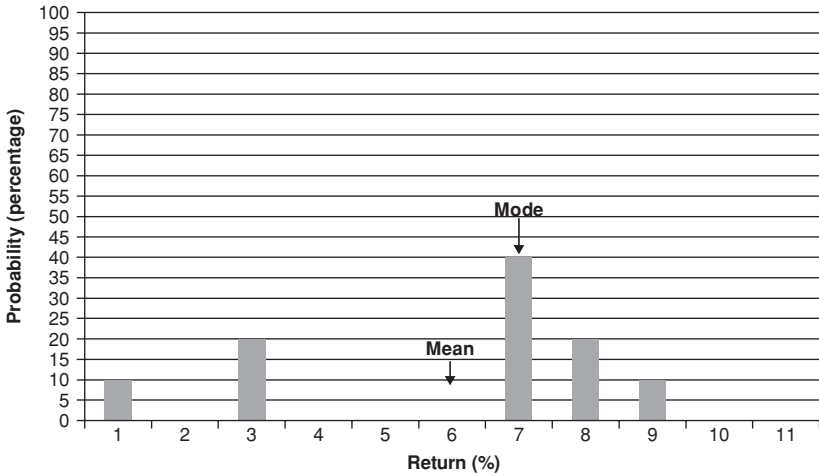


Figure 11.5 Different outcomes: returns and probabilities (Example 4)

The variance is:

$$0.1 \times 25 + 0.2 \times 9 + 0.4 \times 1 + 0.2 \times 4 + 0.1 \times 9 = 6.4$$

The second investment's risk of very poor return (10 % probability of 1 % return compared with a 10 % probability of a 3 % return) is clearly greater than that of the first, in spite of the variance being the same. (The mean at 6 % is again different from the mode at 7 %.)

Figure 11.6 shows the general case of many possible outcomes, where the probability of below average return is greater than that of above average return. It will be seen that it is skewed left.

Summing up, variance and standard deviation are bad measures of risk of poor return if a stock's distribution of possible returns is skewed.

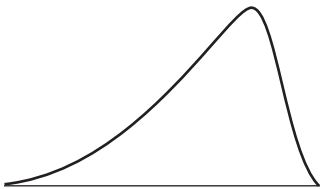


Figure 11.6 Frequency distribution: skewed left

Standard deviations and variances are best considered as measures of a stock's *volatility*, rather than risk of poor return.²

Note also that the expected return is an average, which should not be confused with the most likely return, on which analysts may focus.

11.3.1 Risk and the Circumstances of the Investor

An important difference between risk of loss and volatility is that risk of loss depends on the circumstances of the investor, whereas the volatility of a stock's price is the same irrespective of who the investor may be. A long-dated government bond, for example, is a much riskier investment for a bank, which has short-term liabilities, than for a life assurance office, which is writing long-term, without-profit business, but the volatility of the prices of long-dated bonds is the same for both institutions. Risk of loss can also change as the circumstances of an investor change, as well as with the behaviour of a market.

11.3.2 Variation in Risk – Life Assurance Funds

In the 1950s and 1960s, there was an interesting example of opportunities in the gilt-edged market in the UK resulting from constraints on life assurance funds. Generalising, there are three types of life assurance contract: without-profit, with-profit, and unit-linked. Before inflation rose in the 1970s, without-profit contracts were popular, and this type of

² Volatility, as distinct from risk of loss, is not irrelevant. If two stocks have the same expected yield and risk of loss, most investors will choose the stock with the lower volatility. When discussing the principles of investment, it was stated that most investors are averse to taking risk and will choose the stock with the minimum risk of loss when deciding between two stocks with the same expected return. A minority of investors, however, like gambling, and will choose the investment with the highest possible gain, even if the probability of such a gain is remote. Similarly, a minority of investors may attach greater importance to avoiding volatility than to minimising risk of loss. They give higher priority to an investment performance that appears to be reliable rather than avoiding substantial loss, because the benefits of the former are enjoyed most of the time, whereas the latter occurs rarely. A gambler, for example, can follow a doubling-up system. Suppose that he is playing roulette (without a zero). The odds of the ball landing on an odd number will be the same as those for an even number. Suppose that gambler bets £1 on an odd number. If he wins, he makes a profit of £1. If he loses, he doubles his stake. If he loses a second time, he doubles his last stake, and so on. Eventually, an odd number will turn up, in which case, he will have made an overall profit of £1. On the vast majority of occasions, such a system produces a reliable stream of profits. Very occasionally, the run of even numbers will continue. When the table's limit has been reached, the gambler's loss will be enormous. (Cynically, an investment manager following such a strategy successfully should change jobs with his reputation intact and leave his successor to incur the enormous loss!)

business was substantial. Under such contracts, a fixed sum in cash terms is payable in return for annual premiums. The least risky investment for the life office issuing the contract is long-dated fixed-interest securities, in particular gilt-edged stock, such assets being matched to liabilities. The office, nevertheless, is exposed to the risk that future premiums cannot be invested at rates of interest as high as those assumed in the premium calculation. This risk can be hedged if the office purchases bonds that are longer in term than the maturity dates of the policies. As interest rates fall, bond prices rise and, under the hedge, the additional capital profit on very long-dated bonds helps to offset the loss of income, because future premiums cannot be invested at the old high level of rates.

The most common reason for a substantial fall in interest rates is a recession. As rates fall, the life office's actuary becomes concerned initially because the office's profit is being eroded, and subsequently because of the possibility of overall loss. He will be most anxious to ensure that the hedge remains in place – that is, that the investments are very long term.

The appropriate tactic for the investment manager is the opposite. As the trough of the recession approaches, the investment manager will realise that the bull market in bonds is nearly over and will want to sell bonds, or at least switch into shorter-dated securities, to lock in the capital profits enjoyed in the previous bull market, because these will reduce when interest rates rise, as normally happens during an upswing of the business cycle. *The investment manager will wish to do the opposite to the actuary.* In the 1960s and 1970s, the actuary usually won the argument.

In terms of Modern Portfolio Theory, the risk to the life office from selling long-dated bonds rose rapidly as interest rates continued to fall. Although the investment opportunity at the trough of the recession was perceived to be exceptionally attractive – that is, the expected return was above normal – the opportunity could not be taken because risk had risen by too great an amount.

11.3.3 Investment Managers' Personal Risk

The job of an investment manager can be lonely. To anticipate movements in a market, an investment manager often has to do the opposite to the policy advocated by non-investment colleagues, as illustrated above. Criticism is likely if investment profits do not materialise quickly, especially if the investment manager is in a minority of one among the

executives. Being right in due course may not prevent the investment manager from losing his job. The personal experience of Mr Tony Dye, described in Chapter 4, is a warning of the sort of thing that can happen. The easiest course for the investment manager is to ignore some very attractive opportunities. Personal risk and inertia work in the same direction as rising risk to the institution.

11.3.4 Unacceptable Risks

People's attitude to risk is not linear. Some risks are unacceptable. Many people are not, for example, prepared to run the risk of such a serious loss that they will have to change their lifestyle – for instance, be forced to sell their home and remove their children from private education. Others will not want to run the risk of losing their job. A substantial gain in expected yield will not persuade them to run risks of such magnitude.

11.4 EXPLOITING SKEWNESS

There remains the case of skewed-right distributions – that is, the probability of above average return is greater than that of below average return (Figure 11.7). Such situations can be exploited. One possible investment strategy is to assume that everything expected has been discounted correctly by others, and to concentrate on the unexpected. In practice, something unexpected always occurs sooner or later. The strategy is to choose investments that will do very well if the unexpected is bullish, and will not perform too badly if the unexpected is bearish. Investments that will do badly if the unexpected is bearish, and will not be very profitable if the unexpected is bullish, are avoided. Such a strategy exploits skewed distributions. It cannot be analysed using variance or standard deviation.

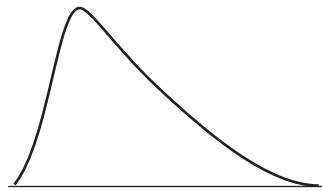


Figure 11.7 Frequency distribution: skewed right

Technical Analysis and Crowds

The Introduction stated that there are four forms of investment analysis, namely, fundamental analysis, monetary analysis, technical analysis and the intuitive approach. This chapter elaborates on the third. Recapitulating on Chapter 3, price movements tend to persist when monetary forces are powerful and ‘following the trend’ (buying when the market is rising and selling when it is falling) becomes profitable. Speculators are remarkably good at detecting ‘the game in town’ making money. They join in. Prices rise or fall further. This encourages others. The herd instinct prevails. A crowd forms. Crowd psychology prevails. The behaviour of a crowd is different from the sum of the behaviour of individuals if they are acting in isolation. Patterns in the charts follow.

12.1 TRENDS AND TRADING RANGES

If it is known that a market has a trend and the trend is gathering momentum, it is very easy to make profits. If prices are rising, the tactic is to buy and hold. If prices are falling, the tactic is to sell and stay out of the market. Knowledge that a trend is losing momentum is a warning that it is time to take profits.

If no trend exists, a market may be trading within a range. If the range is clear at the time, profits can be made by purchasing stock when the market approaches the lower limit of the range and selling stock when the market approaches the upper limit. To avoid losses, which will cancel out the previous profits, it is important to know when the market has broken out of its trading range, and to do so quickly.

The detection of trends and indicators of momentum, and trading ranges and breakouts, is crucial. With the benefit of hindsight, they are obvious; at the time, they are usually far from clear. Technical analysts (chartists) claim that certain patterns in the market repeat themselves and that detection at the time is possible. If so, chartists can confirm monetary analysis indicating that a trend exists because monetary forces are powerful, or that a turning point is approaching because monetary forces are reversing, and so on.

12.2 CROWD BEHAVIOUR

A degree in crowd psychology might provide greater understanding of the behaviour of financial markets than one in economics (Pepper, 1994, p. 27). People do things when they are in a crowd that they would not do if they were by themselves. Crowds are held together by emotions rather than by cold logic. The clearest illustration is when a crowd becomes violent, an extreme case being when someone is lynched.

The behaviour of a crowd being different from the way people act if they are alone has profound implications. Conventional economic analysis is based on individuals acting rationally. It assumes that total market behaviour is no more than the sum of decisions by rational individuals. This is not the case after a crowd forms. The market then behaves as a coherent whole. It develops a life of its own.

The behaviour of crowds magnifies trends in a financial market. Excesses occur. An upward trend gathers momentum, as do downward trends. Cycles become more pronounced. Turning points become more marked.

12.3 INFORMATION

As a generalisation, whereas individuals can scan all potentially relevant data that materialise slowly over time, which requires a lengthy process of continuous analysis, crowds are incapable of such analysis. A crowd only recognises the obvious. Crowds react to recent events that are relatively large. With financial markets, the obvious and important recent event is often the actual behaviour of prices.

An analogy may help here. One of the authors is a keen sailor. The five most important instruments on an ocean racer show (i) the (true) speed of the wind, (ii) the apparent wind speed, (iii) the (true) angle of the wind, (iv) the apparent wind angle, and (v) the boat's speed through the water. (A motor cyclist riding at 50 mph on a calm day has a 50 mph wind on his face; the true wind speed is nil, whereas the apparent (or relative) wind speed is 50 mph.) The force that drives a yacht through the water is the apparent wind speed and angle. The causal sequence is as follows. The true wind makes the boat start moving through the water. As the speed of the boat picks up, the apparent wind alters. When the boat reaches its maximum speed, the apparent wind strength and angle determine that speed. Logical analysis of the causal sequence suggests that the true wind speed and angle should be monitored first, then the

apparent wind speed and angle, and finally the boat's speed. In practice, the most important is the boat's speed. It is the most sensitive to a change in circumstance. If the boat's speed changes, an explanation is sought. A glance at the other instruments indicates whether the explanation is a change in the wind's speed or angle, and corrective action can be taken. The boat's speed is the dominant information; it becomes a fixation. Similarly, in a financial market dominated by a crowd, the behaviour of prices is the dominant information.¹

12.4 TRENDS AND MOMENTUM

Chartists look for evidence from the behaviour of prices of whether or not a trend has momentum and is likely to continue. At its simplest, a graph of an index is examined. Any trend will be clearer if the short-term fluctuations in the graph are removed by applying a moving average to the data. The latest plot on a graph running ahead of the moving average (that is, further along the trend line) is evidence that the trend is intact. Another technique is to draw graphs through the peaks of the short-term fluctuations, and through their troughs, to find out whether the trends in these are similar to that of the moving average.

12.5 APPROACHING A TURNING POINT

A moving average that has caught up and overtaken the current plot is evidence that the trend is losing momentum.

Further, a graph of rates of change of a statistic usually leads a graph of the level of the statistic. Consider a car, for example. Before it stops it must slow down. Its speed reaches a peak before the distance it has travelled reaches a peak. Another example is unemployment. The monthly rise in unemployment usually starts to slow as the peak in unemployment approaches. The change in unemployment reaches a peak before the level of unemployment reaches its peak. In general, if the peaks and troughs of a cycle are rounded, a graph of rates of change will lead a graph of levels. A graph of rates of change of stock prices can, accordingly,

¹ Taken a step further, the analogy with sailing is even closer. A good helmsman does not watch his instruments continuously. He knows from the wind on the back of his neck or his face whether the wind has altered. He merely glances at the instruments to confirm his 'intuition'. He does not watch the boat's speed continuously either. He knows what is happening from the feel of the wheel (or tiller) through the tips of his fingers and the motion of the boat under him. 'Intuition' distinguishes a good helmsman from a competent one.

provide additional evidence that a turning point of the stock market is approaching.

Another type of evidence is turnover – that is, the amount of buying and selling. If a trend appears to be losing momentum, falling turnover is evidence that underlying buying or selling, as the case may be, is drying up, which is confirmation that the trend is likely to end soon.

12.6 TURNING POINTS

Suppose that a market has been falling. Some speculators – that is, the ‘bears’ – will have sold stock in the hope of making profits. If they think that a turning point is about to be reached, some of the bears will start to close their positions. Prices will rise as they repurchase stock – that is, because of ‘bearclosing’. Fundamental analysts are likely to argue that nothing has changed to justify such a rise in prices. A battle will start between the two groups. It will ebb and flow. Prices will rise and fall. The previous low will be tested when the bearclosing dries up. The fundamental news may or may not have changed by then. The result can be that prices remain within a trading range. ‘Holding patterns’ in a graph can be observed. Chartists watch for signs of breakout. ‘Head and shoulders’ is the best-known pattern indicating that one is likely.

Summarising:

- When a crowd has formed, conventional economic analysis, in particular the EMH, is no longer valid.
- The recent behaviour of prices becomes the dominant information. Trends are accentuated.
- Cycles become clearer. Patterns in the charts can indicate whether a trend has momentum and is likely to continue, or whether the momentum is waning and a turning point is approaching.
- Battles between different groups of investors occur that create holding patterns in the charts.
- Certain patterns can indicate that a breakout is likely.

12.7 FURTHER READING

Technical analysis is much more complicated than the above brief description suggests. Patterns in the charts occur, for example, because a market’s response to new information is not continuous; people learn

and then hesitate while they absorb the information, before they are ready to learn further.²

Another example is that patterns can occur because a market is oscillating with feedback relationships.

Readers who are curious and would like to learn more are urged to read Tony Plummer's 2003 book *Forecasting Financial Markets: The Psychology of Successful Investing*.

² People take action as they absorb information. They tend not to act while they hesitate. The pattern in prices follows.

The Intuitive Approach to Asset Prices

The intuitive approach to asset prices is another of the forms of analysis mentioned in the Introduction. This chapter elaborates on the discussion of sentiment and intuition in Chapter 3.¹

13.1 INTUITION THAT IS A REFLECTION OF MONETARY FORCES

13.1.1 Biased Reaction to News

Chapter 3 described the way intuitive investors monitor how a market is reacting to news. Sometimes, a market reacts to good news and ignores bad news, giving the impression of wanting to go up. At other times, it does the opposite and leaves an impression of vulnerability. Assessing a market's bias is, however, not quite as simple as that. Two complications will be described.

13.1.2 Technical Reactions

Greed and fear are important motives. In any market there are two types of holders of bonds and stocks: firm holders – that is, genuine savers who

¹ Some justification for including this section may be needed. When one of the authors joined the stockbrokers W. Greenwell & Co., he became an assistant to Charles Frappell, who was founding the firm's gilt-edged business. Charles had left school at an early age and had gone into the Stock Exchange, where he developed an intuition for markets that was quite remarkable. The author tried to find out how his intuition worked. He concentrated at first on Charles's intuition about individual bonds – that is, which bond was cheap and which was dear – a lot of business being swapping, or switching, from one bond to another. The author succeeded in probing Charles's mind, and programmed a computer to copy him. For the result, see Pepper (1964). The paper revolutionised the statistical techniques used for gilt-edged switching. The next stage of probing Charles's mind was more difficult. The intuition under investigation was about the direction of the market as a whole. Charles would go onto the Floor of the Stock Exchange, wander round, sniff the atmosphere, and announce that the market wanted to go up or down, as the case might be. He had an extraordinary 'market nose'. He did not know how it worked, merely that it did. The author spent many hours with Charles after work, probing his mind. Eventually, he succeeded. Charles's intuition reflected the amount of money about. The author continued to have great respect for 'market noses'. Interestingly, Henry Kaufman (see the appendix in Chapter 14) does so too (see Pepper, 1998, p. 16).

have invested for the long term – and loose holders – that is, speculators who have purchased in the hope of a short-term profit. As a general rule, the proportion of loose holders in a market tends to increase as a rise in the market continues without a setback. This happens because speculators are attracted by the sight of others making money and are tempted to join in. This is where greed comes in.

The fear motive enters the picture when there is an unexpected item of bad news and prices fall. Speculators threatened with a loss usually react very quickly – they sell; after all, they are only short-term investors. Such selling depresses prices further. This may upset confidence, and some long-term investors may be frightened into selling. So, a market with a high proportion of loose holders is more vulnerable to an unexpected item of bad news than one in which the bulk of holders are long-term investors.

Left alone, a market provides its own stabilising mechanism. During a rising market, temporary setbacks, which are sufficiently sharp to frighten investors, shake out the froth of loose holders. The proportion of loose to firm holders falls. Afterwards, the market is more resistant to further bad news, and the chance of a substantial fall in prices is thereby reduced. The temporary setbacks, the ‘technical reactions’, act as stabilisers.

Economies experience secular trends and business cycles. Similarly, stock markets have secular trends, cycles and secondary fluctuations. The last are illustrated in Chart 13.1, which shows the behaviour of the FT-Actuaries All-Share Index between 1997 and 2001, plotted monthly. The falls marked A to E are examples of secondary fluctuations in a bull market. The rises marked X to Z are examples of ones in a bear market.

The secondary fluctuations occur for two main reasons. First, they are caused by uneven unexpected news of fundamental factors, for example about corporate profitability. In a bull market, not all of the unexpected news is good. Bad news sometimes occurs, and the market falls temporarily on it. Similarly, in a bear market, not all of the unexpected news is bad.

The second reason is the technical reactions described in this chapter. Speculation and technical reactions occur in falling, as well as in rising, markets. Short-term traders can sell stock that they hold (go a ‘covered bear’) or sell stock that they do not own (go an ‘uncovered bear’). In the latter case, they can deliver the stock to the buyer if they borrow the stock, or they can avoid delivery by dealing in the futures market. Speculation

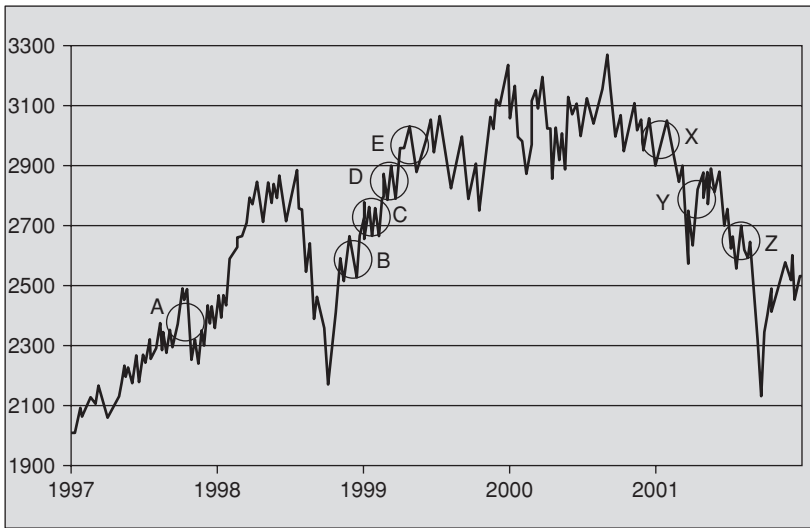


Chart 13.1 Secondary fluctuations – UK FT-Actuaries All-Share Index, 1997–2001

in both bull and bear markets has risen dramatically following the growth of hedge funds.

13.1.3 Market-makers

Market-makers make profits in two ways. First, they profit from matching two-way turnover – that is, purchases and sales of the same stock. Their profit comes from the difference between their buying and selling prices – that is, their *turn*. They also try to make profits by deliberate speculation – that is, going a bull or a bear of a stock or stocks. Market-makers make losses if they get caught with unintentional bull or bear positions that they have difficulty unwinding. This is a danger when a rise in price leads to expectations of a further rise and a fall leads to expectations of a further fall.

13.1.4 Bulls and Bears of the Core Market-Makers

Market-makers enjoy economies of scale. Each time they deal they learn more about the market. Knowledge of the level of the market at which large selling will occur is important information if they get caught with

an unintended bear. Knowledge of who is likely to respond to a bid above middle market price is equally important. In the opposite case of being caught with an unintended bull, knowing the level at which large buying will occur and who is likely to respond to the offer of a bargain is important information. The greater their knowledge of the market, the more a market-maker is able to transact large business on fine terms. Because of the economies of scale, a market is often dominated by about three or four large market-makers, who form the core of the market.

A sophisticated market has other market-makers who are not part of the core. These secondary market-makers can nearly always unwind an unwanted position by dealing with the core market-makers. The core market-makers, in contrast, can have particular difficulty unwinding unwanted positions if they all have similar positions.

Suppose, for example, that an investor wishes to sell a substantial amount of stock and approaches a core market-maker. The latter will make a two-way price – that is, he will quote both a purchase and a sale price – without knowing whether the investor is a buyer or a seller. Because the investor is a seller, the market-maker will end up with an unintended bull position. The market-maker will want to find a buyer to balance his book. According to textbooks, the market-maker will lower his price to attract the buyer. However, if he does so by more than his ‘turn’, he will make a loss on the transaction. Alternatively, he may do the opposite. If he thinks that he can get away with it, he may raise his price, rather than lower it, and offer someone stock below his middle price. In other words, he will tempt someone by offering them a bargain. Offering a bargain is one of the oldest sales tricks in the game. It is often successful.

Turning from an individual bond or stock to the market as a whole, suppose that the core market-makers as a group have unintended bear positions and there is unexpected good news. They will tend to do one of two things. They may raise prices by less than is justified by the news, in an attempt to minimise their losses. If they do not think that this tactic will work, they are likely to raise prices more quickly than is justified by the news, in an attempt to make sure that their bear positions do not increase.

Another way in which the core market-makers can try to obtain stock is deliberately to start a technical reaction on any bad news – that is, to mark down prices viciously to frighten investors. Their hope is that this will shake out loose holders, which will enable them to balance their

books. The danger is that the lower prices will encourage buyers. Part of the market-makers' expertise is judging which will happen.

The above does not mean that the core market-makers operate in collusion. The lead can be given by one market-maker, who has a position he wants to unwind, and the others will not resist if they have similar positions, because it will not be in their interest to do so.²

13.1.5 Summary

Summarising, a market's reaction to news can depend on the proportion of loose holders to firm holders, which can depend in turn on whether or not there has been a recent technical reaction. It can also depend on whether the market-makers as a whole are bulls or bears. These complications do not last for long. They merely mean that a market's bias should not be assessed by a single event. It is best to wait until a pattern is clear.

13.2 INTUITION THAT IS NOT A REFLECTION OF MONETARY FORCES

The intuition of experienced investors is not merely a reflection of monetary forces. An example of another factor is monitoring the amount of speculation. Another is observing the type of stock that is lagging or rising fastest in a bull market. A *blue chip stock* is usually the stock of a large corporation that has proved to have been a successful investment in the past, and which is in most investors' portfolios. A *go-go stock* is one that is fashionable, for example a *dot.com stock* in the late 1990s. The former tend to be priced according to fundamental value, whereas the latter are priced on expectations. Put another way, the former tend to be valued according to a multiple of their profits, whereas the latter are valued according to a multiple of their sales. A sign that the rise in a market is not well founded is blue chip stocks lagging badly.

A full discussion of intuition that is not based on monetary forces is beyond the scope of this book.

² The growth of hedge funds since the 1990s has been huge and they, rather than the core market-makers, can get caught with unwanted positions that are difficult to unwind.

13.3 FORCED SELLING

Another example of intuition that is relevant to debt deflation is the *market nose* when there is forced selling. Forced selling perverts the operation of the law of supply and demand. Normally, sales are made because supply and demand has worked out a price attractive to the seller; but when the seller is in distress, the sale is made for precisely the opposite reason – not the attraction of a high price, but the compulsion of a low price, which threatens his or her solvency (Fisher, 1933). The awful ‘smell’ of a market dominated by a forced seller is unforgettable; it becomes stored in one’s memory for ever. As with other smells, it is extremely difficult to describe, but is instantly recognisable if met again. When met unexpectedly, realisation of the existence of forced selling hits one as an emotional shock.

14.1 DIFFERENT LANGUAGES

Situations can be analysed using either monetary or neo-Keynesian analysis. They are two ways of looking at the same thing. The authors have always been in favour of trying to express the conclusions from monetary analysis in neo-Keynesian terms, if only to reach a wider audience. The following is an example.

A feature of a recession is inadequate demand – that is, the amount of expenditure in an economy falling to a point at which it is insufficient to sustain the current level of production. One of the reasons for expenditure falling is people losing confidence. Being reluctant to spend implies saving more. It is often asserted that a recession would end if only confidence would return – that is, if people would save less. This implies that savings are excessive whilst a recession is deepening. The surplus saving is a cause of the cyclical rise in asset prices that usually occurs during a recession. The opposite happens in a boom.

14.2 MACROECONOMIC MODELS

14.2.1 An Hydraulic Model

One of the authors was at Cambridge University reading economics in the mid 1950s, before the advent of large electronic computer models of the UK economy.¹ There was, however, an hydraulic model, consisting of various circuits of pipes flowing into and out of tanks, each with a different coloured liquid (see Newlyn, 1950). From it the author learnt about production, income and expenditure in the economy as a

¹ More precisely, the large macroeconomic computer models of the economy. Macroeconomics is the study of an economic system as a whole. The components of GDP, ignoring adjustments, are: consumer expenditure, general government expenditure, total fixed investment, exports of goods and services, change in stocks, less imports of goods and services. Theory suggests explanatory variables for each of them. Equations are then derived, with the importance of each variable estimated to explain as much as possible. A model of the economy as a whole consists of many interlocking equations. Examples of UK models are those of the Treasury, National Institute of Economic & Social Research and London Business School.

whole. Producers produce goods. Income is earned from such production. Expenditure occurs when income is spent on the goods made by producers. Hence, production leads to income, which leads to expenditure, which leads to further production, and so on. This illustrated that the macroeconomic system is dynamic.

One of the subsidiary circuits of the hydraulic model had a tank with two pipes, one of which was for liquid flowing into the tank and the other was for liquid flowing out. The level of the liquid in the tank rose if the inflow was greater than the outflow. The level fell if the outflow was greater than the inflow. The inflow of liquid was the supply of savings. The outflow was the demand for finance for capital formation, for example, for industrial investment. The level of liquid in the tank at any one time was the current height of the stock market. This was a vivid illustration of the influence of the balance between the supply of saving and the demand for finance on the level of the stock market.

14.2.2 Large Electronic Computer Models

In more detail, suppose that an economy is growing at a steady rate, say 3% per annum; that this is the same as the growth of productive potential; and that income, expenditure and production are all growing in line with each other. Suppose that people suddenly start to save more. At first sight, saving would appear to have risen above investment. However, if people save more, they spend less. Producers of goods will be caught by surprise and inventories of finished goods will rise – that is, investment in inventories will rise. Actual investment may rise to equal actual saving, with unintended investment in inventories being the buffer that allows this to happen. Subsequently, producers are likely to react to the unintended rise in inventories of finished goods by cutting production. The income that people earn from producing goods will, as a consequence, fall. Income can be used in three ways: for expenditure on essentials (for example, on food), for discretionary expenditure and for savings. If incomes fall and essential expenditure is maintained, either discretionary expenditure or savings must fall, or a combination of both. If discretionary spending holds up, savings may fall into line with investment. If discretionary spending falls, production will be cut further and planned industrial investment will be cut, and so on.

The above illustrates that the balance between the supply of saving and the demand for finance cannot be studied without a comprehensive

macroeconomic model of the economy that correctly specifies both saving and investment.² The difficulty is that the supply of savings is one of the weakest aspects of macroeconomic modelling, because it is affected by changes in confidence that are very hard to model.

14.3 DISEQUILIBRIUM

Another difficulty is that the economic system is often out of equilibrium. Most school children studying mathematics find dynamics a more difficult subject than statics. Statics is easiest. Then come dynamic systems that are in equilibrium. After that come dynamic systems that are out of equilibrium, that are moving from one state of equilibrium to another state of equilibrium. Finally come dynamic systems where disequilibrium is the normal state. In the real world of economics, the last is often the case.

Elaborating, if the normal laws of supply and demand apply in a market, a rise in price discourages buyers and encourages sellers, and vice versa if prices fall. If either buyers or sellers respond quickly to a change in price, intended buyers and sellers come quickly into line. Everyone who wishes to buy or sell at the new price will be able to do so. In technical language, the market clears quickly. A new equilibrium will have been reached.

If neither buyers nor sellers respond quickly to a change in price, a market will not clear quickly. If intended buyers exceed intended sellers, some potential buyers may, for example, be told that they must wait until more goods become available. If intended sellers exceed intended buyers, inventories of goods waiting to be sold will rise. It may take some time for the market to clear and for a new equilibrium to be reached.

The new equilibrium may not be reached. It will not be if an underlying factor affecting either supply or demand changes during the adjustment process. Indeed, if underlying factors are changing continuously, equilibrium may never be reached.

The assertion is that disequilibrium is the norm in the market for money; the real world is more complicated than many economic theories assume.

² But see the appendix in this chapter for direct estimates of the supply and demand for credit in the US.

14.4 INTENDED AND ACTUAL TRANSACTIONS

The concept of intended transactions being different from actual ones was introduced above. It is often said that the stock market has risen because there has been more buying than selling. This is nonsense. A transaction cannot take place without there being both a purchase and a sale. Actual purchases cannot be greater than actual sales. The correct statement is that the market has risen because intended purchases at the prevailing price were greater than intended sales. One or more of the intended purchasers 'missed the market'.

The intended purchaser who missed the market would have had funds to pay for the purchase had he or she managed to execute the transaction. These funds are still available. The purchaser may wait in the hope that prices will fall back. If they do not, he or she may buy at a higher price – that is, they may 'chase the market upwards'. The funds not yet invested are a bullish factor for the market.

14.5 ACCOUNTING IDENTITIES

It should be noted that actual sales are *identical* to actual purchases. Sales equalling purchases is not merely an equation, but an *identity* that is always correct. Another example of an identity is liabilities equalling assets, because a balance sheet must balance. Similarly, trading accounts must add up. These identities hold no matter whether a system is static or dynamic. If it is dynamic, they hold whether the system is in equilibrium or out of equilibrium.

Although an accounting identity must always be correct, the outcome may not be in accordance with people's preferences. In due course, they will want to act in accordance with their preferences. Accounting Identity 3 in Chapter 10 was:

Public sector's net cash requirement
 less
 sales of public sector debt to the non-bank private sector
 less
 public sector's borrowing in foreign currency or from abroad
 plus
 banks' sterling lending to the private sector
 less

banks' borrowing in foreign currency and from abroad
 less
 growth of banks' non-deposit liabilities
 equals
 growth of M3.

If the government prints money, two outcomes are often not in accordance with recipients' preferences. First, people's bank deposits may be greater than they normally hold, in which case they are likely to spend the excess on goods and services or on assets. Money has been likened to the hot potato of the children's game. The child left with the hot potato is a classic example of an unintended outcome. Second, a bank may have holdings of treasury bills greater than desired, which, in due course, will be switched into assets giving a better return.

Unintended outcomes are examples of the 'buffers' or 'residuals' that allow an identity to balance. One way of analysing systems that are out of equilibrium is to scrutinise identities and focus on unintended outcomes, buffers and residuals.³ This is the approach used in this book.

APPENDIX: DIRECT ESTIMATES OF SUPPLY AND DEMAND FOR CREDIT IN THE US

In the 1970s, Dr Henry Kaufman, who was at that time Chief Economist of the investment bank Salomon Brothers, adopted another approach. He analysed the components of the supply of saving and the demand for finance in the US economy or, in US terminology, the 'Supply and Demand for Credit'. He predicted each component for the year ahead and aggregated them to detect any imbalance between supply and demand. At the time, one of the present authors would have liked to copy Kaufman's technique for the UK, but could not because of inadequate UK data. Later on, he realised that analysing the money supply was a more direct way of proceeding. In the event, Salomons stopped using the technique

³ A fundamental role of money is to act as a buffer bridging the interval of time between expenditure being incurred and income being received in an uncertain world. The level of money that an individual holds is often different from the ultimately desired balance. It will be larger if income is either higher or has been received sooner than expected, or if expenditure has been delayed or is lower than expected. Conversely, it will be lower if expenditure has occurred sooner than expected or if income has been delayed, etc. The person will subsequently take action to restore his money balance to the desired level. At any point of time, many people will be in the process of adjusting their monetary positions towards their desired balance. Money is a classic buffer.

in the early 1980s and adopted something rather similar to that described in Chapter 21.⁴

Kaufman examined every category of credit, both short term and long term. His main categories were: mortgages, corporate bonds, state and local securities, foreign bonds, US Treasury debt (both bills and bonds), Federal Agency debt, open market paper and loans. For each category he analysed the various types of credit by both issuer and owner (that is holder). For corporate bonds, for example, issues by industry were broken down into: public utilities, communications, railroads, other transportation, manufacturing, mining, financial and real estate and commercial and miscellaneous. The ownership of the corporate bonds was then broken down into: mutual savings banks, life insurance corporations, fire and casualty corporations, private non-insured pension funds, state and local retirement funds, open-end mutual funds, commercial banks, foreigners and residual (individuals and miscellaneous).

Salomon Brothers circulated annual reviews at the start of each year. These gave data for all of the above subdivisions during each of the previous five years, together with estimates for the year that had just ended.

Kaufman also analysed the need for funds by each type of issuer, and the funds available to the issuer from sources other than credit. A corporation, for example, needs funds for expenditure on plant and equipment. Retained profits are an example of an alternative source of funds. From analysis of this, he made predictions of the quantity of credit which would be needed by each issuer in the year which had just started. He also analysed how the owners of credit employed the funds available to them, and made predictions about how new funds would be allocated during the coming year.

Finally, Kaufman aggregated the results. He compared the totals of issues – that is, the total demand for credit – with the total of ownership – that is, the total supply of credit – and compared the results. If supply was

⁴ See Kaufman (1986, p. 152) 'Not many years ago, Salomon Brothers' interest rate forecasts were based in large measure on an analysis of domestic credit flows, a technique that was widely known as the supply-and-demand-for-credit method of interest rate forecasting. This is no longer the case. In fact, it would now be almost as accurate to say that a judgment about the trend of interest rates based on other considerations determines the configuration of Salomon Brothers' credit flow projections.' Salomons, in fact, changed to a technique rather similar to the sectoral flow of funds used in the UK, as Kaufman (1986, p. 157) notes: 'Over the past several years, we at Salomon Brothers have redirected our attention to a more fundamental level of the accounts: we now focus on anticipated changes in the sum of (1) the federal deficit, (2) household net financial saving, and (3) the deficit of non-financial corporations.'

predicted to be greater than demand, he forecast that the bond market would rise (at the time he was interested mainly in bonds). If supply was predicted to be less than demand, he forecast that the bond market would fall. Many of his forecasts were correct and he developed a widespread following.⁵

⁵ The 1973 edition of Kaufman's *Supply and Demand for Credit* is reproduced in Pepper (1994, Ch 8).

Part IV

Evidence and Practical Examples

HEALTH WARNING

It is wise to be very sceptical about relationships between data. With the use of computers, many permutations and combinations can be investigated. With persistence, something will be found that apparently explains almost anything in the past. All too often, a reported relationship starts at the beginning of the period being investigated and breaks down at the end of the period.

Credibility is increased if a relationship detected in past data continues into the future. Confidence that it is valid grows, but it is still wise to be wary. The authors know from practical experience that relationships have a habit of breaking down just when one has sufficient confidence to base action on them. One explanation of this is EMH – that is, the relationship has become quite widely known and is being discounted by the market.

Evidence that is more impressive than analysis of historical data is a record of successful forecasts. Such a record is powerful confirmation that a relationship is indeed valid.¹

Part IV gives evidence of the validity of the monetary theory of asset prices, and practical examples. It starts with UK markets prior to 1972, then the US equity market between 1960 and 2002, followed by forecasts of the 1987 crash and the top of the US market in the spring of 2000.

¹ Academics are warned to be sceptical about new statistical techniques that have become fashionable. Cointegration is an example. Innumerable papers have been written applying the technique to data not previously analysed in this way. The researcher often had little knowledge of the data. As a theoretical exercise, the paper might have been acceptable, but the practical conclusions were often invalid.

It then gives some evidence about debt deflation in the US in the 1930s and in Japan in the 1990s and early 2000s.²

² Additional evidence about the validity of the Liquidity Theory of Asset Prices is contained in Pepper (1994). In Chapter 1, variations in the equity index were compared with those in earnings, dividends and the gilt-edged index over a period of 20 years. The first conclusion was that dividends explained more of the fluctuations in the equity index than earnings. The second was that over periods up to two years, the explanatory power of the gilt-edged market was greater than that of dividends. For eighteen-month movements, for example, gilts explained 36%, whereas dividends explained only 8%, leaving 56% unexplained. The perceived reason was that monetary forces were influencing both the gilt-edged and equity markets. For movements in equities lasting five years, dividends explained 39%, gilts 28%, leaving 33% unexplained. The conclusion was that monetary forces have a more powerful influence on equity prices than real factors over periods up to two years, but that the reverse applies in the longer term. The longer-term conclusion was not surprising because monetary forces probably reverse during periods as long as five years, and therefore cancel out. Chapter 14 covered the Wall Street Crash in 1929 and the 1930s in the US; the conclusion was that the evidence provided additional support for LTAP. Chapter 17 about capital flows and exchange rates is also worth reading.

The UK Markets Prior to 1972

The first evidence to be submitted is analysis of past data, about which a ‘health warning’ has just been given. It was carried out, however, in the late 1960s, when trying to find statistical relationships involved much more work than later became the case. Computing power was not available at the time. Statistics had to be calculated manually and graphs had to be drawn by hand. There was, therefore, less chance of finding bogus relationships.

This chapter concentrates on the UK, where domestic factors tended to dominate the behaviour of the bond and stock markets until the late 1970s. Many countries had exchange controls, and their nationals were either prohibited or strongly discouraged from buying foreign securities. Foreign investment into the UK was accordingly limited. Further, the foreigners who did invest in the UK were usually advised by experts in the City, which meant that foreign investment tended to amplify, rather than offset, the trends established by domestic investors.¹ Because of this, analysis of domestic factors was usually adequate to explain the behaviour of UK markets.

In the late 1960s, one of the authors was the head of a research project undertaken by his firm W. Greenwell & Co. into the use of new UK financial statistics.² The results were published in a prize-winning paper by Robert Thomas and the author that was submitted to the Institute of Actuaries in March 1973 (Pepper and Thomas, 1973), this was reproduced in Pepper (1994, Ch 11) and is also available on the Internet (<http://www.mjoliver.com/greenwell.html>). The actuarial paper’s results were presented graphically. Two important graphs and the commentary on them are reproduced in this chapter.³

¹ The advisers of the ‘gnomes of Zurich’ were in London.

² Described in the appendix of Pepper and Wood (1976).

³ Prior to 1970, the actuarial profession was the only professional body whose examination syllabus included investment. Unlike the actuarial syllabus in the US, which covered only the liabilities of life assurance corporations and pension funds, the UK syllabus covered both liabilities and assets of these institutions. Many of their investment managers were actuaries, so there was a wealth of practical experience. The examinations of the Stock Exchange started in 1970. Those of the Society of Investment Analysts in the UK started in 1977.

15.1 UK MONEY SUPPLY AND A COMBINED CAPITAL MARKET PRICE INDEX, 1950–72

LTAP is about asset prices in general, and not merely about equities. A very crude index was constructed to reflect the combined behaviour of the UK equity and gilt-edged markets. The first step was to plot the logarithms of price indices of the markets. The second step was to adjust the scales of the indices so that the rise in the equity market over the period was the same as the fall in the gilt-edged market. The final step was to add the two indices together – that is, equities and gilt-edged stocks were given equal weights. The result was a combined capital market price index without a trend and with clear cyclical fluctuations.

The combined capital market index was then compared with annual changes in the money supply in real terms – that is, after adjusting for inflation. Details of all the data, indices, definitions and explanations for choices are contained in the actuarial paper. Rather unusually though, the data for the annual growth of the money supply were plotted in the middle of the year to which they applied, and not the end of the year (for example, the growth of the money supply between 31 December 1970 and 31 December 1971 was plotted on 30 June 1971). Figure 15.1 shows the result.

The commentary in the actuarial paper was:

The two charts in the graph tend to oscillate together. Further, a close examination suggests that the changes in the rate of growth of the money supply preceded movements in the combined capital market price index. In the authors' opinion, this graph is exciting evidence of the importance of changes in the money supply for all investors.

15.2 UK MONEY SUPPLY AND THE EQUITY MARKET, 1927–72

Chapter 5 argued that the relationship between rates of change of the money supply and equities should be clearer than that for gilt-edged stock, because the direct effect of money spent on assets and the indirect effect of money spent on goods and services affect the equity market in the same direction, whereas the effects are in opposite directions for the gilt-edged market. Figure 15.2 on page 106 shows the results of the investigation into the relationship between monetary growth and equity prices.

An abbreviated version of the commentary in the actuarial paper is given below (further evidence is advanced in the original paper).

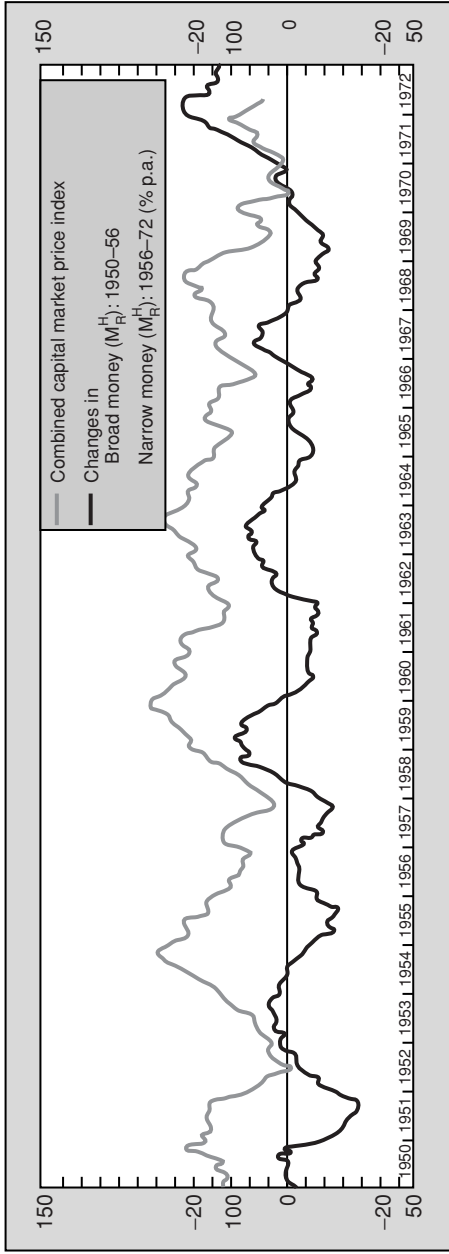


Figure 15.1 UK money supply and a combined capital market price index, 1950–1972. Reproduced from Pepper and Thomas (1973) with permission from The Institute of Actuaries.

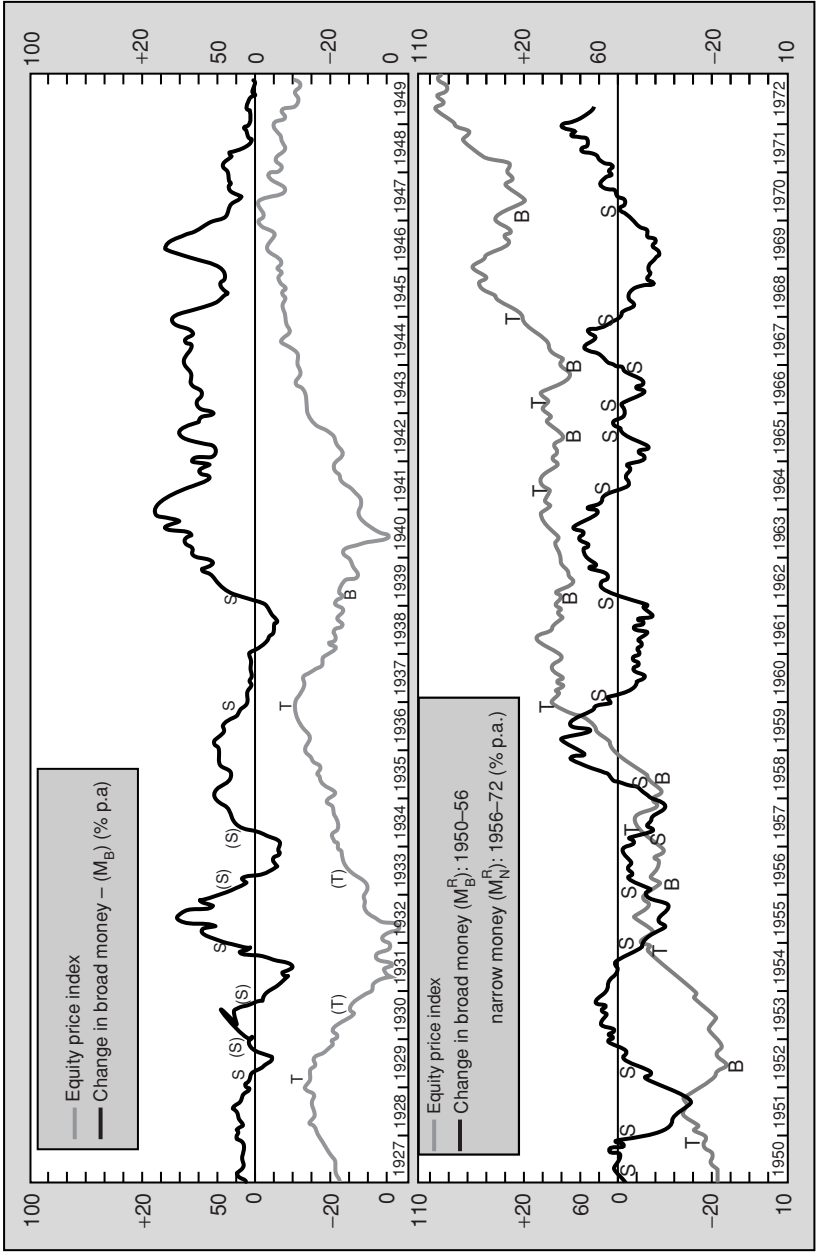


Figure 15.2 UK money supply and the UK equity market, 1927–1972. Reproduced from Pepper and Thomas (1973) with permission from The Institute of Actuaries.

Money and the Equity Market

The grey chart [of Figure 15.2] shows the equity index, while the rate of change of the money supply is in black . . . Black 'S's have been placed on the money supply chart when the chart is thought to have fallen or risen by a significant amount. The exact placing of the signals is a matter for judgement. The most important factor is a change in the black chart, but the level is also relevant. For example, a fall from a low level is significant more quickly than a fall from a high level. If the positioning of the signals is criticised because of the dependence on judgement, a mechanical method could be devised. The simplest such method would be to position the signals whenever the chart crosses the zero line and this, in fact, gives significance signals in most cases only marginally different from the 'S's on the black chart. A 'B' (for bottom) has been positioned on the equity index whenever an 'S' occurs on a rising black chart. A 'T' (for top) has been positioned on the equity index whenever an 'S' occurs on a falling black chart.

1927–1939

The first 'T' in 1929 is very close to the top of the equity index. The 'B' in late 1929 occurs during a classic conflict between monetary and economic forces . . . [The economy was in depression.]

The 'B' in early 1932 coincides approximately with the bottom of the equity index . . . The 'T' in 1933 occurs during another clash between monetary and economic forces . . .

The 'T' in 1936/7 occurs at the peak of the equity market. The 'B' in 1939 occurs too soon, because the recovery of the equity market was delayed by the lack of confidence at the outbreak of the 1939–45 war.

1939–1949

The height of the black chart finances the rise in the equity market during the war. The peak of the equity market in 1947 occurs after a sharp fall in the black chart, but wartime controls and rationing were still distorting market forces.

1950–1972

Before 1955, there is a good correspondence between the signals and the turning points of the equity index. Between 1955 and 1967/8, the equity index has such a strong upward secular trend that it is doubtful whether the equity market fell for sufficiently long periods to make a profit from sales.

The 'T' in 1967/8 occurs one year too soon. This is due to two factors . . . the change in the money supply over a year is taken as a proxy for the rate of change at a point of time. In fact, during the period in question, the fall did not start until January 1968. The significance signal should probably be positioned in May 1968. The remainder of the bull market could be described as a rogue post-devaluation phenomenon.

The final 'B' in 1970 coincides with the bottom of the equity index.

Summary

In general, the empirical evidence suggests that there is a strong tendency for the turning points of the equity market to coincide with significant changes in the rate of growth of the money supply in real terms. Ordinary share prices tend to have a peak turning point when the rate of growth of the money supply has fallen significantly. The most important factor is a change in the rate of growth of the money supply, but the level is also relevant. A fall from a low rate of monetary growth is significant more quickly than a fall from a high rate of growth. Conversely, ordinary share prices tend to have a trough turning point when the rate of growth of the money supply has risen by a significant amount, with a rise from a high level being significant more quickly than a rise from a low level.

There are three reasons why Figures 15.1 and 15.2 have not been brought up to date. First, in the 1970s, the money supply in the UK became badly distorted, as explained in Appendix 19B. Second, monitoring the money supply became fashionable, and this changed relationships, as the actuarial paper had warned. Third, in the late 1970s, markets became global, and the UK market no longer reflected merely domestic factors, as explained in the next chapter.

16

The US Equity Market

1960–2002

In the late 1970s and early 1980s, many countries, including the UK, abolished exchange controls. As a result of this and the revolution in information technology, capital markets became global. Foreign investment became sufficiently large to override domestic forces. Analysing the domestic factors affecting the UK was no longer sufficient: analysis had to be global. The US economy was, however, sufficiently large for domestic forces to continue to dominate its equity market.¹

This chapter accordingly contains historical analysis of the US equity market from 1960 to 2002. The treatment is more sophisticated than that for the earlier work for the UK. This book has not argued that the Liquidity Theory of Asset Prices is the sole explanation for the behaviour of an equity market. Of course, fundamentals are important. The argument is that the Liquidity Theory is an important explanation for an equity market departing from valuation according to fundamentals.

In Charts 16.1 to 16.4 the P/E ratio (price–earnings ratio) is used as the measure of fundamental valuation. The charts compare the annual rates of change of the US money supply in real terms with the Standard and Poor’s 500 P/E ratio.²

Note: In all the charts in this book comparing monetary growth with another statistic, the graph for monetary growth is black.

¹ Even the US was not sufficiently large for its bond market to be analysed domestically. In the early 1980s, for example, Dr Henry Kaufman (see Chapter 14), forecast that the domestic demand for credit in the US would exceed the domestic supply by a record amount, and that the US bond market would fall. In the event, his credit predictions were correct, but his forecast of the bond market was wrong. The supply of credit from abroad rose sufficiently to more than cover the domestic shortfall. As a result, the US bond market rose rather than fell.

² M2 between 1960 and 1982 and MZM between 1980 and 2002. MZM is M2 plus institution-only money market funds less small time deposits.

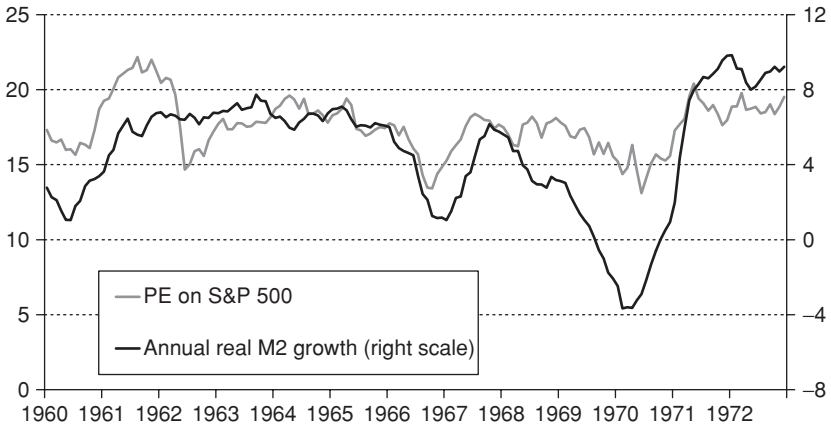


Chart 16.1 S&P 500 P/E ratio and real M2 growth, 1960–1972

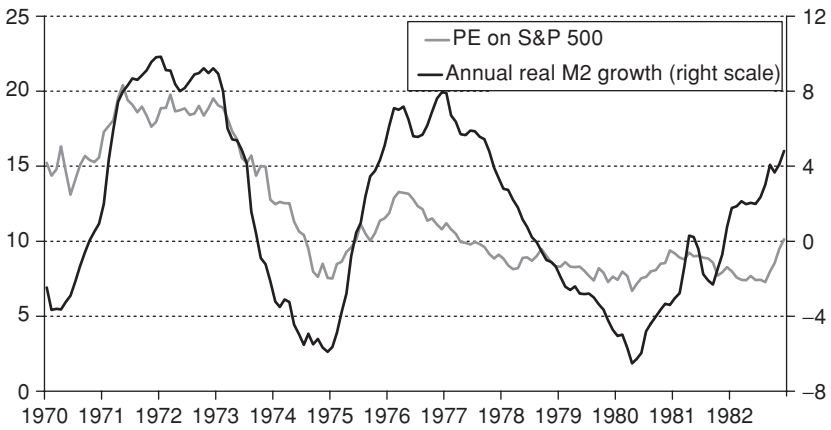


Chart 16.2 S&P 500 P/E ratio and real M2 growth, 1970–1982

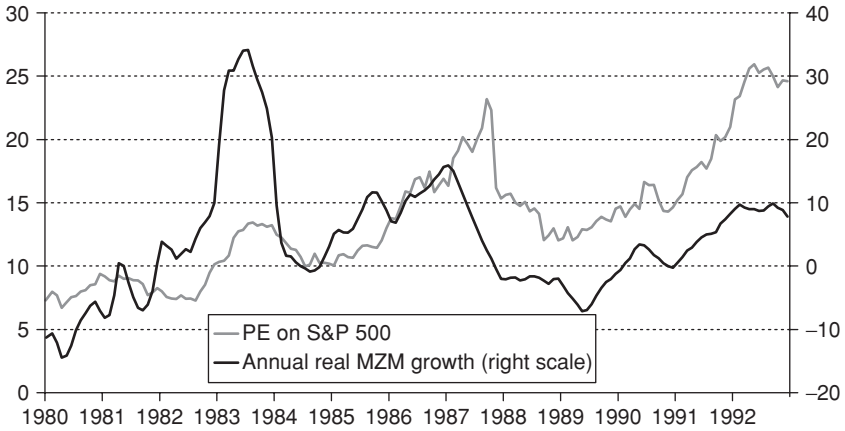


Chart 16.3 S&P 500 P/E ratio and real MZM growth, 1980–1992

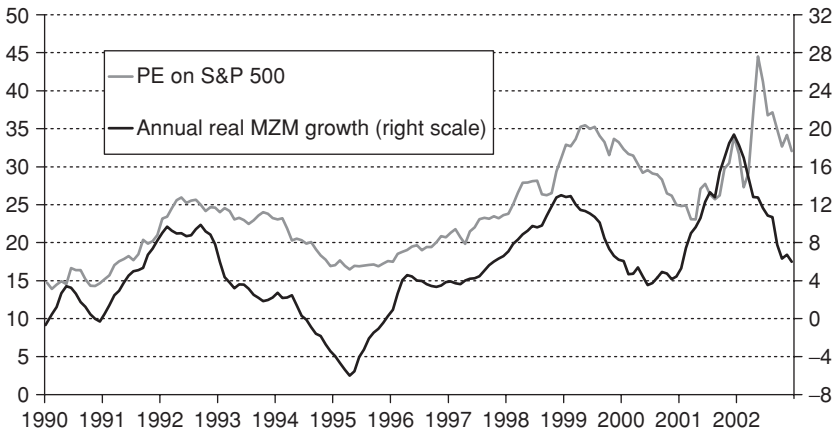


Chart 16.4 S&P 500 P/E ratio and real MZM growth, 1990–2002

Unlike the charts for the UK, monetary growth is plotted at the end of the period to which the data apply – that is, the growth between 31 December 1970 and 31 December 1971 is plotted at the end of December 1971.

An examination of the charts shows that the two series illustrated tend to fluctuate together. This is further evidence of the importance of monetary forces for investors.

17.1 HEALTH WARNING

When making a forecast it is very important to check that neither the statistic being used to illustrate fundamental valuation nor the particular monetary aggregate used to illustrate monetary forces is distorted.

The P/E ratio was used in Chapter 16 to illustrate fundamental valuation. The associated earnings index should be checked against other measures of earnings. In the early 2000s, for example, it was distorted to some extent by creative accounting and subsequent adjustment. The P/E ratio should also be checked against other measures of fundamental valuation, such as the dividend yield and value of the stock market compared with corporate net worth (Tobin's q , which has been publicised by Smithers and Wright, 2000). The other measures may also need adjustment. The dividend yield, for example, may need adjusting for corporations buying back their own stock, which affects the proportion of the corporation that a remaining shareholder owns, in a similar way to dividends being reinvested automatically.

The same process of check applies to a monetary aggregate. This is discussed in detail in Chapter 19, in which the various aggregates and the distortions that can occur to them are described. Any of the aggregates can, at times, behave in a way that is not representative. In 1983, for example, MZM was more buoyant than the other monetary aggregates in the US.

17.2 PREDICTION OF THE OCTOBER 1987 CRASH

As the charts in the previous chapter show, by January 1987, the S&P 500 P/E ratio had risen to 16.3, and it was clear that the US equity market was becoming overvalued in fundamental terms. The growth of MZM in real terms was no less than 15.8%. The combination of these two factors was strong evidence that a financial bubble existed. The chronically dangerous phase described in Section 7.2.1 had started. Table 17.1 shows what happened next. By August, monetary growth in

Table 17.1 The October 1987 crash

Year to	Growth of MZM in real terms (%)	P/E ratio
January 1987	15.8	16.3
February	15.0	18.5
March	13.1	19.1
April	11.2	20.2
May	9.4	19.7
June	7.6	19.0
July	5.7	20.1
August	3.9	20.9
September	2.4	23.2
October	1.1	22.3
November	-0.5	16.2

real terms had fallen to 3.9 %. The supply of fuel inflating the bubble had been turned off. The acutely dangerous phase had been reached. The Greenwell *Monetary Bulletin* in September 1987 accordingly warned of a coming crash. The market duly crashed in October.

17.3 PREDICTION OF THE TOP OF THE US EQUITY MARKET IN APRIL/MAY 2000

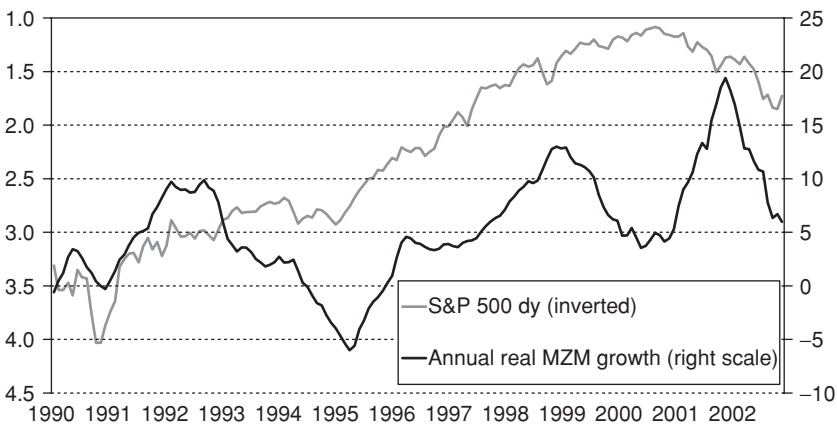
In the winter of 1998/99, it became clear that another financial bubble was building up. In February 1999, the S&P 500 P/E ratio reached 32.9, and the annual rate of growth of MZM in real terms had risen to 13.0 %. The bubble was in its chronically dangerous phase. Unfortunately, as per the ‘health warning’, there were suspicions at the time that the data being published for the P/E ratio were a poor measure of valuation, because the earnings index had become erratic as a result of creative accounting and subsequent adjustments. The inverted dividend yield is an alternative measure of fundamental valuation. Chart 17.1 shows it rather than the P/E ratio shown on Chart 16.4. Data for S&P’s P/E ratio, dividend yield and price index are shown in Table 17.2.

It will be seen that monetary growth remained buoyant until August 1999. Up to then, the bubble was in the chronically dangerous phase. In April 2000, it was apparent that monetary growth had subsided, and the danger had become acute. On the 29th of that month, Mr Charles Dumas of Lombard Street Research wrote in his *Daily Note* that the economy’s financing needs were rising just as monetary growth slowed, and ‘expect

Table 17.2 Peak of US equity market – April/May 2000

Year to	Growth of MZM in real terms (%)	P/E ratio	S&P 500 dividend yield	S&P 500 price index
February 1999	13.0	32.9	1.30	1246
March	12.0	32.7	1.33	1253
April	11.2	34.3	1.30	1308
May	11.3	35.6	1.23	1340
June	11.0	34.8	1.26	1316
July	10.7	35.3	1.23	1355
August	10.1	35.3	1.23	1345
September	8.4	34.1	1.24	1342
October	7.4	31.8	1.28	1307
November	6.8	32.0	1.27	1321
December	6.3	33.2	1.19	1409
January 2000	6.0	32.7	1.17	1442
February	4.5	30.4	1.20	1399
March	4.5	29.7	1.21	1409
April	5.1	31.1	1.18	1472
⋮				
May	4.3	29.0	1.15	1430
September	5.0	29.8	1.08	1485
October	4.9	26.1	1.26	1401

a fresh market slump this autumn or earlier'. In May 2000, one of the present authors, who had by then retired, independently reached the same conclusion, and acted decisively on it by switching a substantial

**Chart 17.1** S&P 500 dividend yield and real MZM growth, 1990–2002

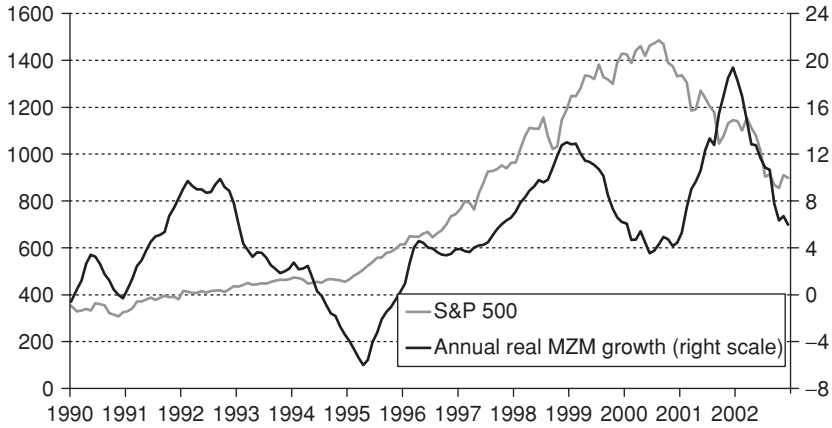


Chart 17.2 S&P 500 index and real MZM growth, 1990–2002

proportion of his pension fund out of equities into money market and fixed-interest funds. The peak of the market was in fact in September, when the major bear market commenced, as shown in Chart 17.2.

17.4 POSTSCRIPT

The next chart, Chart 17.3, shows the Standard and Poor's 500 P/E ratio and real MZM growth from 1994 to June 2005, the latter date being the

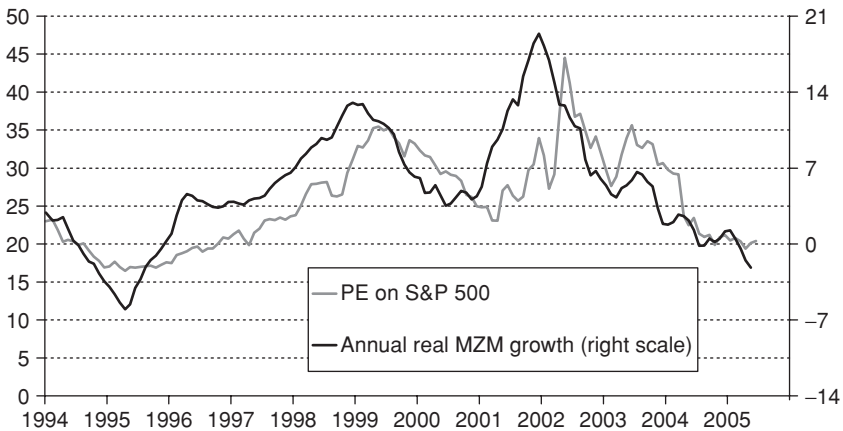


Chart 17.3 S&P 500 P/E ratio and real MZM growth, 1994–June 2005

time of dispatch of this book to the printers. It is an updated version of Chart 16.4 and it will be seen that the relationship between the two series, which was described in Chapter 16, continued after 2002, but too much should not be made of it, given the earlier remarks about the volatility of S&P earnings.

Debt Deflation, Practical Experience

There have been two practical examples of debt deflation in the last 100 years: in the US in the 1930s and in Japan in the 1990s and early 2000s.

18.1 THE US IN THE 1930s

Chart 18.1 overleaf shows the Dow–Jones index and the annual rate of change of broad money in the US between 1925 and the start of the Second World War in 1939. It will be seen that the troughs of the two graphs almost coincide. The lowest point of the Dow–Jones index was 43 in June 1932, and the annual decline in the money supply reached a maximum of 19 % in the year to July 1932. At the time, however, it would not have been known that the rate of decline of the money supply had reached a turning point, and therefore the behaviour of the money supply could not have been used to time the bottom of the equity market. It will also be seen that monetary growth turned positive in March 1934, which could have been taken as a signal that it was safe to purchase equities when the Dow–Jones index was just over 100. The index subsequently rose to 187 in February 1937.

18.2 JAPAN IN THE 1990s AND EARLY 2000s

Chart 18.2 shows the Nikkei index and annual growth of broad money in Japan between 1987 and 2003. It will be seen that the graph of monetary growth has yet to reach a major trough turning point. The chart indicates that it was too soon to purchase Japanese equities.

There was, however, a weak buying signal in July 1999. The annual growth of broad money had reached a low of 2.1 % in June 1998. By July 1999, it had risen to 4.2 % and this rise might have been thought sufficiently significant to indicate that Japanese equities should be purchased. The Nikkei index did, in fact, rise from 1348 in October 1998 to 1983 in March 2000 – that is, by 47 %. Monetary growth subsequently

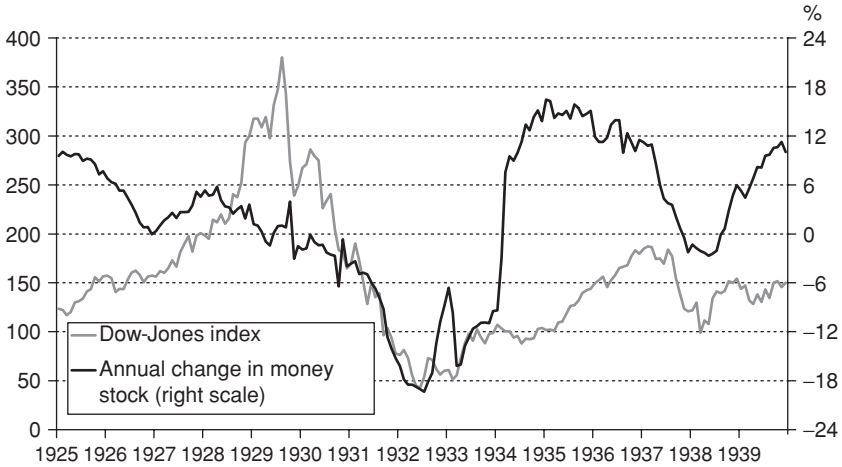


Chart 18.1 Dow-Jones and monetary growth, 1925–1939

fell to 2.8 % in March 2000, which might have been thought sufficiently significant to indicate that profits should be taken and the stock sold.

The above paragraph illustrates how monetary signals can be clear when the future behaviour of the money supply is known – that is, with the benefit of hindsight – but at the time, the possibility that the latest trend will suddenly reverse should be borne in mind. If it does reverse, a loss can ensue. Part V discusses the best way of monitoring current monetary growth.

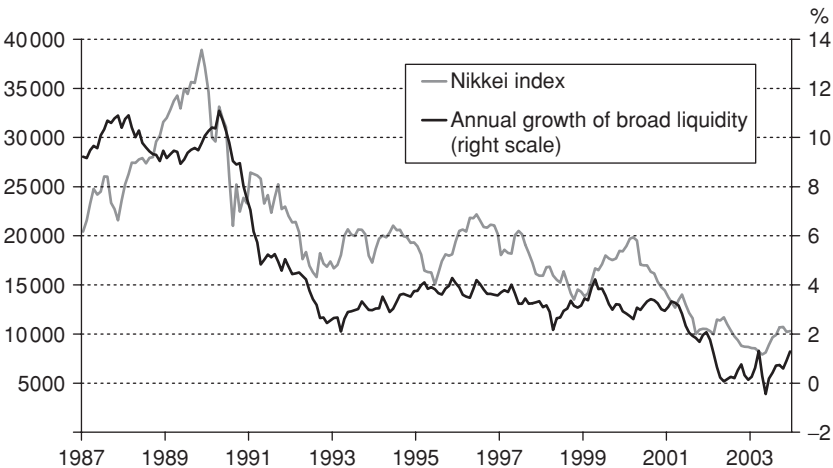


Chart 18.2 Nikkei and broad money growth, 1987–2003

Part V

Monitoring Data

The best way of monitoring data is described in this part. It starts with current data for the monetary aggregates, followed by data for the supply of money and, finally, the various sectors of the economy.

Monitoring Current Data for the Monetary Aggregates

19.1 ERRATIC DATA

Monetary data are inherently erratic. It should be stressed that variations in monetary growth that last for less than about six months are insignificant. Because of the erratic nature of the data, it is best to focus on movements lasting about a year – that is, on twelve-month moving averages of monetary growth, as in Chapter 15. The focus of attention on twelve-month averages does not mean, however, that the behaviour of the money supply during the latest months is irrelevant. Monitoring data for recent months, for example, the six-month and the three-month moving averages, can provide a guide to the likely behaviour of a twelve-month average during the coming month or so. It is also worth noting that monthly changes in a twelve-month average are affected just as much by events in the month dropping out of the calculation – that is, in the month a year ago – as by events in the current month. Detection of special factors affecting a single month's data can also assist in the identification of a trend.

Figure 19.1 overleaf illustrates the use of three-month, six-month and one-year moving averages. It is a copy of a page in Greenwell's *Monetary Bulletin*, No. 24, May 1974. It shows those for M3, all plotted in the middle of the period to which they applied. It will be seen that the dotted graph for the three-month average and the dashed one for the six-month average were both falling. This suggested that the solid graph for the twelve-month average would follow, and that the fall in it would be significant. The graphs confirmed the forecast of deepening recession made at the time.

19.2 WHICH AGGREGATE?

There are many different definitions of the money supply. Notes and coin in circulation with the public constitute the narrowest definition

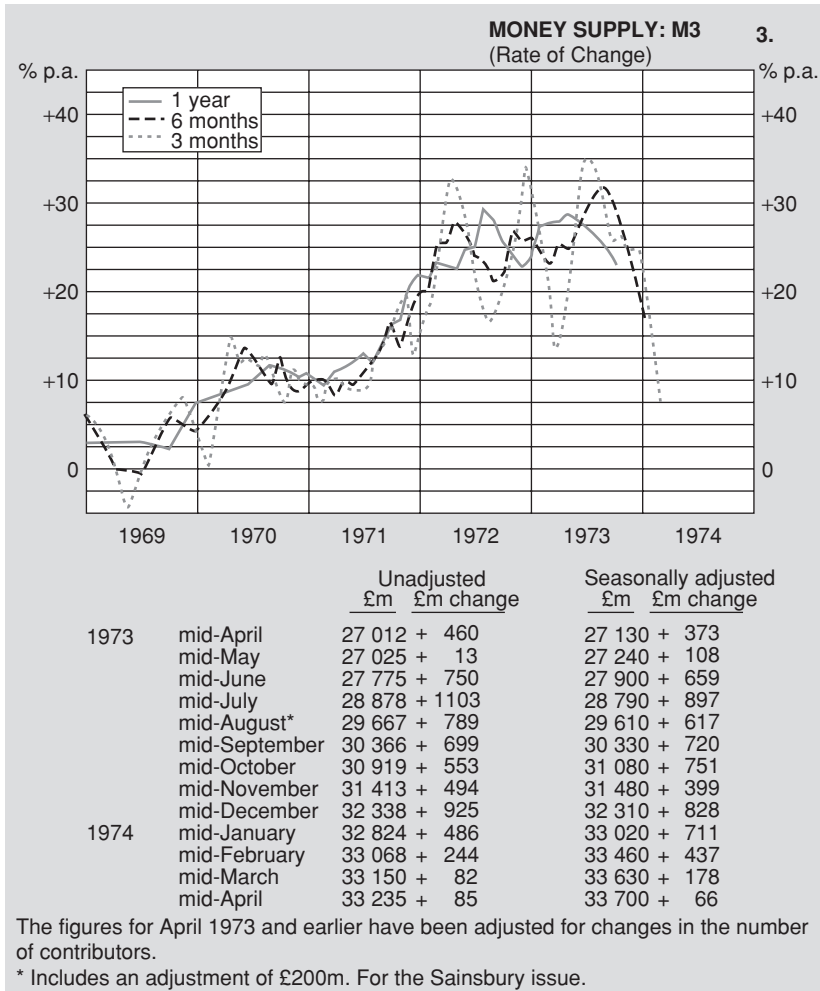


Figure 19.1 Moving averages of data. Reproduced from *Monetary Bulletin*, 24, May 1974.

in the UK. The next broadest aggregate is M1, which includes demand deposits (current accounts) with banks. M2 comes next, which includes small time deposits (deposit accounts). M3 includes large time deposits and certificates of deposit. M4 includes the deposits of building societies (roughly similar to savings and loans institutions in the US), the nature of which has become similar to the deposits of banks in recent

years. A complication is that new instruments have been created as a result of financial innovation, and an aggregate may need adjusting to allow for this. An example is MZM in the US, used in Chapter 16, which is M2 plus institution-only money market funds less small time deposits.

19.3 A TARGET AGGREGATE

Too much attention should not be paid to an aggregate being targeted by the authorities, because it is quite likely to be distorted. An attempt to control the money supply is one thing; publishing a target is another. The main reason for the latter is to influence expectations. This is so whether or not the authorities genuinely intend to control the money supply. Either way, the reason for publishing the target is to help manage expectations, and for political purposes. Having published a target, the authorities try to hit it, by fair means or foul. Appendix 19A justifies these remarks for the UK.

The above warning about disregarding published data for a target is a particular example of a general rule: 'Ignore what central bankers say; watch what the central bank does.'

19.4 AN EXPERT APPROACH

The narrow aggregates have different characteristics from the broader ones. The narrow ones are dominated by the transactions demand to hold money. Further, they are not like the hot potato of the children's game that cannot be got rid of, because many people can adjust their sight deposits by transferring funds out of, or into, their time deposits. The narrow aggregates are determined very largely by the demand for them. In contrast, broad money, which includes both sight and time deposits, is determined by supply, and includes savings deposits, as well as those held for transactions. The broader, rather than the narrow, aggregates are the ones most relevant to the behaviour of asset prices.

The approach developed by W. Greenwell & Co. was to monitor *all* the monetary aggregates. This is illustrated in Figure 19.2, which shows a page out of *Monetary Bulletin*, no. 117, April 1981. By then, the treatment in the *Monetary Bulletin* was more sophisticated than earlier. The growth of the aggregates was shown in real, rather than nominal, terms, and all the aggregates were shown on one page. It will be seen

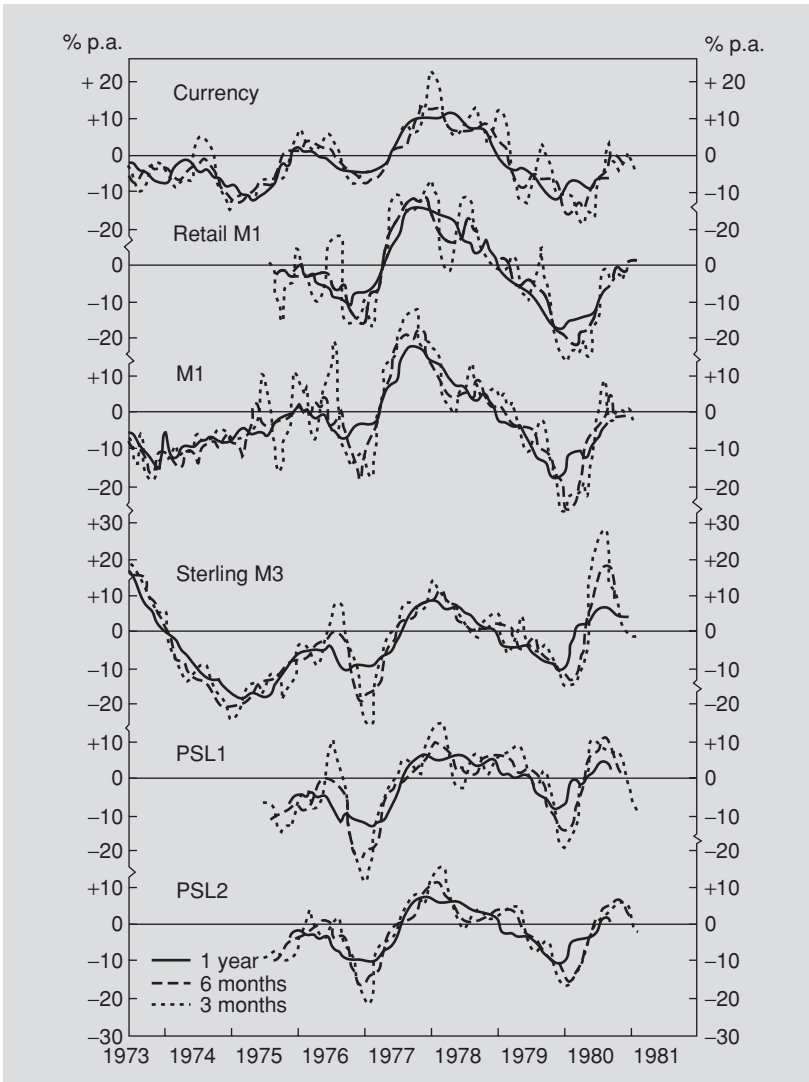


Figure 19.2 Different monetary aggregates. Reproduced from *Monetary Bulletin*, 117, April 1981.

that the growth of M3 (known at the time as sterling M3) in 1980 was greater than that of the other monetary aggregates (PSL1 and PSL2 were roughly M4 and M5 respectively). This warned that M3 was distorted (the distortions are explained in Appendices 19A and 19B).

In general, when the behaviour of the aggregates is being compared, allowance should first be made for the different natures of broad and narrow money. If any of the aggregates is behaving in a peculiar way, the reason should be ascertained. The explanation will often involve a change in one interest rate relative to another. The transactions responsible for the change in rates should be investigated, as should those in response to the change. Such an analysis discloses which aggregates are distorted and which are not. In the *Monetary Bulletins*, three cases were identified if an aggregate was distorted:

1. Sometimes a distortion could be quantified reasonably accurately, in which case, an adjusted series could be calculated that could be used with reasonable confidence.
2. Sometimes a distortion could not be quantified, but its direction was known, and valuable information could still be obtained from the behaviour of the aggregate. If the distortion was upwards, sluggish growth of the aggregate was most significant. If the distortion was downwards, buoyant growth was significant.
3. At other times even the direction of a distortion was in doubt. It was, nevertheless, valuable to know that the particular aggregate should be disregarded.

If allowance was made for all of this, experience showed that the message from the behaviour of the aggregates was usually reasonably clear. On a few occasions, all the aggregates were unreliable, in which case, it was at least known that the monetary barometer was jammed temporarily. Appendix 19B lists some of the distortions that occurred in the UK.

One of the most important benefits that can be obtained from analysis of all the monetary aggregates is that a great deal is learnt about what is currently happening within the financial system.

It should be stressed again that continuous research and up-to-date knowledge about what is currently happening within the financial system are essential. Financial innovation must be monitored and allowance made for it when interpreting the behaviour of the monetary aggregates.

19.5 TIMING OF THE AVAILABILITY OF DATA

There should be no doubt by now that monetary forces have a significant influence on equity prices, and that the combination of the Efficient Markets Hypothesis and the Liquidity Theory of Asset Prices explains

much more of the *past* behaviour of financial markets than EMH alone. The question is whether monetary data are available in sufficient time to explain the *current* behaviour of the market or, further, to predict *future* equity prices.

19.5.1 Timing of Publication

In Chapter 15, the historical analysis for the UK, the twelve-month moving averages of the growth of the money supply were plotted in the middle of the periods to which they applied, for example, the average for the twelve months to December 1970 was plotted in June 1970. The data plotted in June 1970 were not available until January 1971, allowing for a month's delay before the data were published. For forecasting, the monetary graph should be advanced seven months – that is, it should be moved seven months to the right. Action based on the monetary signals would then only be profitable for major bull and bear markets.

In Chapter 16, the historical analysis for the US, the twelve-month moving averages were plotted at the end of the period. The data plotted in June 1970 were available in July 1970, allowing for a month's delay before publication. For forecasting, the money supply graph should be advanced one month. Sometimes, this graph leads that for the S&P P/E ratio, but at other times, it lags.

19.5.2 Whiplashes

There is a further problem. There is the possibility that the latest trend in the money supply graph will suddenly reverse – that is, there will be a whiplash. It may take about six months before the situation becomes sufficiently clear to take action.

Practical experience has shown that, after paying attention to the details described in this chapter, monitoring the monetary aggregates helps to explain the current behaviour of an equity market but, alone, is inadequate to produce *reliable* forecasts of the stock market. Something else is needed.

19.6 UNDERSTANDING THE CURRENT BEHAVIOUR OF THE MARKET

Before moving on to the 'something else', it is worth elaborating on the value of understanding the current behaviour of a market better than

others. Profits can be made out of it. An investor with such understanding is one step ahead of the market. A good example is when fundamental and monetary forces are in the same direction. The lesson is not to miss the market, that is, to buy, or sell, as the case may be, more or less irrespective of fundamental valuation. Another example is the use of monetary analysis when a financial bubble is being inflated. Being sure about the existence of a bubble is understanding what is currently happening. Monetary growth clearly remaining excessive is only a signal that it is too early to sell. Monitoring the monetary aggregates cannot alone reliably predict when the bubble will burst. An urgent signal to sell, because monetary growth has definitely turned downward, may come too late – that is, after the market has crashed.

Generalising, forecasting can be dangerous. The risk is not merely that the forecast may be wrong; even if it is correct, being two steps ahead of a market can be risky, because timing is crucial. Merely understanding the current behaviour of a market better than others is safer. It is wise to be humble and not try to be too clever.

APPENDIX 19A: MONETARY TARGETS IN THE UK

In his memoirs, Denis Healey, who was the UK's Chancellor of the Exchequer (Finance Minister) when a monetary target was first announced, stated that the targets were published largely to placate the financial markets, and he never accepted Friedman's theories (Healey, 1989, pp. 343, 491). In his own terminology, Healey was a 'disbelieving monetarist'. At the time, Sir Douglas Wass was the Permanent Secretary of the Treasury (that is, the civil servant who is head of the Treasury). According to an ex-Treasury minister, Wass was one of 'the cynical monetarists who believed it was all a lot of mumbo-jumbo designed to impress the markets, who for some strange reason thought it mattered' (see Pepper and Oliver, 2001, p. 32; Wass, 1978). At the time, banks in the UK were subjected to a Supplementary Special Deposit Scheme, under which they were penalised if their 'interest-bearing eligible liabilities' grew by more than a certain amount. The scheme was easy to circumvent because CDs, which were within the definition of the aggregate being targeted, M3, could be swapped for guaranteed commercial bills, which were outside the definition.¹ The main effect of the scheme was to distort the data

¹ Commercial bills guaranteed by both a discount house and a bank, and thus eligible for discount at the Bank of England.

for M3 downward. The scheme's nickname was 'the corset', which was most appropriate because a corset is a device for producing deceptive figures! The scheme continued during the first year of the subsequent Conservative government, when Sir Geoffrey Howe was Chancellor. After the end of exchange controls in October 1979, circumventing the corset became even easier, because sterling deposits and loans with UK banks could be reclassified as eurosterling deposits and loans, which were excluded from the definition of M3. The corset was eventually abolished in June 1980. The data for M3 subsequently exploded as the distortions unwound (which brought the whole policy of targeting the money supply into disrepute).

APPENDIX 19B: DISTORTIONS TO MONETARY DATA IN THE UK

Prior to 1957, the members of the bankers' clearing house dominated banks in the UK. There were four large London clearing banks: Barclays, Lloyds, Midland and National Westminster. Monthly data for their net deposits were a good proxy for broad money. The following are examples of subsequent distortions to monetary data:

- *Between 1957 and 1971.* In 1957, the non-clearing banks – for example merchant banks such as Barings, Hambros, Rothschilds, Schrodgers and Warburgs, and overseas banks such as First National City Bank – started to grow rapidly. Although the *level* of the deposits of the London clearing banks remained much greater than those of the non-clearing banks, the growth of the deposits of the non-clearing banks became significant. Data for the deposits of the non-clearing banks were published only quarterly, and the monthly pattern within a quarter was not the same as that of the clearing banks. The result was that between 1957 and 1971, when full monthly data for the money supply were first published, the monthly growth of the net deposits of the London clearing banks was not a good proxy for the growth of the deposits of all banks. No good monthly proxy for broad money existed during this period. (The current accounts of the LCBs were a good proxy for narrow money.)
- *Mid-1970s.* In 1971, a new system of monetary control, known as Competition and Credit Control, was introduced in the UK.²

² Named after the Bank of England's consultative document.

Subsequently, the Prime Minister, Edward Heath, refused to allow the Bank of England to raise the Bank Rate when money-market rates rose. Banks' base rates did not rise either, because they were tied to the Bank Rate. This meant that people could borrow from one bank on base rate terms and invest the money to make a profit in certificates of deposit issued by another bank.³ In the mid-1970s, these 'round-tripping' arbitrage transactions, and their subsequent unwinding, distorted all the broader monetary aggregates, especially M3, as well as bank lending.

- *Late 1970s and in 1980.* The 'commercial bill leak' to circumvent the 'corset' (see Appendix 19A) distorted M3 and bank lending.
- *1979 and 1980.* After exchange controls were suspended in 1979, reclassification of deposits and loans as eurosterling ones to circumvent the 'corset' (see Appendix 19A) affected sterling M3, M4, M5 and bank lending.
- *Second half of 1980.* After the corset was scrapped in June 1980, the previous distortions unwound, and the broader monetary aggregates and bank lending exploded.
- *In the early 1980s.* The introduction of high-interest chequing accounts following the end of the clearing bank cartel affected M1 and non-interest-bearing M1.
- *Between April 1981 and December 1981.* A strike by civil servants affected the data for M3, M4, M5 and bank lending.
- *In the 1980s.* Competition between banks and building societies, following deregulation, affected M3 and bank lending.

APPENDIX 19C: VELOCITY OF CIRCULATION

Precise Terminology

The term 'money supply' is in fact loose terminology. Being more precise, the amount of money in the economy at a point of time is the 'stock of money' or 'money stock'.

The money stock can be greater or less than the current demand for money. Further, the current rate of growth of the money stock can be greater or less than the current rate of growth of the demand for money as the economy grows and because of inflation.

³ At the time, banks did not object, because they were making substantial profits from current accounts on which they did not, until 1980, pay interest.

The supply of money is clearly excessive if both the current money stock is excessive and the rate of growth of the stock is greater than the current rate of growth of demand for money. The surplus is then increasing. Conversely, the supply of money is clearly inadequate if both the current stock is less than demand and the rate of growth of the stock is less than the current rate of growth of demand. The deficiency is then becoming worse.

Available Data

Data are available for the current level of the money stock and its rate of growth. The ideal would be also to have data for the current level of the demand for money and its rate of growth, in which case, the one could be subtracted from the other to give an accurate measure of excess or deficiency, and whether it was growing or declining. Unfortunately, such data are not available. The most accurate substitute would be to calculate the demand for money from an econometric equation, its variables being chosen to give the best fit with the money stock in the past. The equation would have various variables, for example, inflation, real economic growth, wealth, interest rates and so on.⁴ The next most accurate substitute is to allow merely for inflation and real growth. Then comes allowance for inflation only. Finally, a constant rate of growth of demand for money can be assumed.

Use has already been made of the last three substitutes. Starting with the last, the upper graph of Figure 15.2 showed the rate of growth of the money supply in nominal terms – that is, allowance was made for neither inflation nor real economic growth. At other times, the focus in this book has been on real monetary growth – that is, allowance has been made for inflation but not for real growth. An exception was the histogram shown in Figure 2.1 that showed monetary growth less the growth of GDP in nominal terms – that is, allowance was made for both inflation and real growth.

Monthly Data

An important advantage of using monetary growth in real terms is that monthly data are available, for both the money stock and inflation,

⁴ Surpluses and deficits do not last for ever and should cancel out over time. In the long run, the behaviour of the money stock should reflect what has happened to the demand for money. The econometric equation derived from the money stock should, therefore, represent what is happening to the demand for money.

whereas they are not for GDP and some of the other variables in an econometric equation. Historical research indicates that the various leads and lags are much clearer when monthly, rather than quarterly, data are used. For historical analysis, a monthly series for GDP can be obtained from interpolation between quarterly data but, for current work, the next quarter's data for GDP have to be forecast. The gain in precision is not usually worth the complication, in view of the long and variable time lags between changes in monetary growth and the response of the economy. Simplicity also has merit. This is why the focus of attention in this book is mainly on real monetary growth.

Levels Versus Rates of Growth

A standard procedure in analysis of time series (that is, how something has changed over time) is first to identify a trend and then examine deviations around the trend. Graphs of the *level* of the statistic are examined to identify a trend. Graphs of the *rate of change* of the statistic are examined to highlight deviations from trend.⁵ Because asset prices are affected primarily by deviations of the money stock from trend, the focus of attention in this book has been on rates of change of the money stock – that is, on monetary growth – rather than on the level of the money stock.

It should, however, be stressed that the level is important as well as the rate of change. If monetary growth has previously been very buoyant, the current stock of money will be excessive, and it will take time for the excess to be mopped up and for a downturn in monetary growth to become significant. If, on the other hand, monetary growth has previously been moderate, any excess will be small, and a downturn in monetary growth will become significant more quickly. In the opposite case, the significance of an upturn in monetary growth depends on the tightness of the previous squeeze.

Velocity of Circulation

Many academic economists focus their attention on the velocity of circulation of money, rather than on growth of the money supply. Velocity is GDP divided by the money stock. The theoretical pros and cons of

⁵ If the rate of change graph has a trend, the series is 'differenced' a second time.

focussing on velocity are outside the scope of this book.⁶ What follows is strictly practical.

The first feature to note about velocity of circulation is that it allows for both real economic growth and inflation, as it is a ratio of GDP to the money stock. Second, velocity is a *level* and not a *rate of change*. Third, the trend in velocity is nothing like as strong as that in the money stock, because of the removal of the influence of real economic growth and inflation, which are the two most important factors responsible for the trend in the money stock. Velocity is, however, not constant. It is influenced by various factors. As people become more affluent, for example, they tend to hold more money. Working the other way, financial innovation, such as credit cards, means that people need to hold less money.

The fourth factor to note is that if the money stock is growing faster than GDP, velocity falls, whereas asset prices tend to rise because of the excess money. Conversely, if velocity rises, asset prices tend to fall. Graphs of velocity and asset prices tend, therefore, to move in opposite directions. If the inverse of velocity is graphed, the two graphs tend to move in the same direction and the eye picks up the relationship more easily. For presentations, it is better, therefore, to invert the velocity graph – that is, to focus on the reciprocal of velocity.⁷

Practical Example of Using Velocity

Charts 19.1–19.4 overleaf for inverted velocity should be compared with Charts 16.1–16.4 for the growth of the money supply in real terms.

⁶ The earlier work on the quantity theory by David Hume was extended first by Simon Newcomb and then Irving Fisher. The theory is the infamous ‘equation of exchange’, $MV = PT$. In this equation, M is money, V is velocity, P the price level and T the level of transactions. For the quantity theory to hold, it has to fulfil three requirements. First, that V and T are fixed with respect to the money supply. Second, that the supply of money is exogenous. Third, the direction of causation runs from left (MV) to right (PT). In his classic book, *The Purchasing Power of Money*, published in 1911, Irving Fisher explained how if M increases and T/V are fixed, then $M/P > T/V$, i.e. the money supply is greater than the money demand. People get rid of their excess supplies of money by demanding more of every good, thus the prices of all goods rise, i.e. P rises, until this extra demand is siphoned off. In time, the real value of money supply is brought back down to the level of real money demand (T/V) and we get equilibrium once again. Fisher provided a theoretical explanation for the left-side causation: increases in the money supply will be met by an exactly proportionate increase in prices. Fisher identified this as the Quantity Theory of Money (Fisher, 1911, p. 29). For a more detailed discussion on Fisher’s contribution and of subsequent developments in the quantity theory, please see: <http://cepa.newschool.edu/het/essays/money/quantity.htm>

⁷ The reciprocal of the velocity of money is Marshallian k .

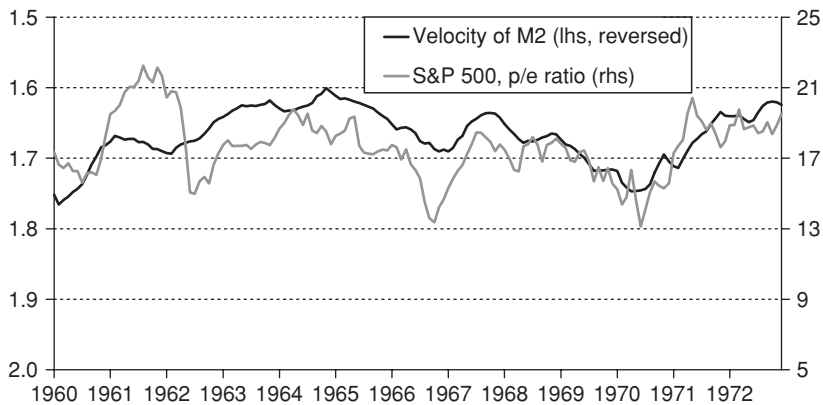


Chart 19.1 Velocity of circulation and S&P 500 P/E ratio, 1960–1972

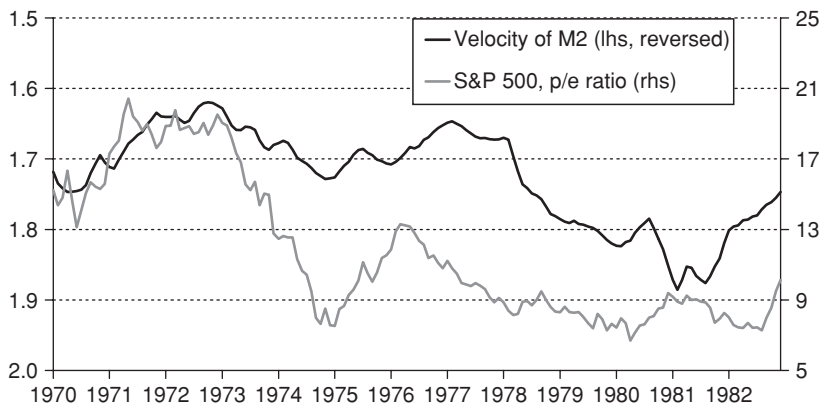


Chart 19.2 Velocity of circulation and S&P 500 P/E ratio, 1970–1982

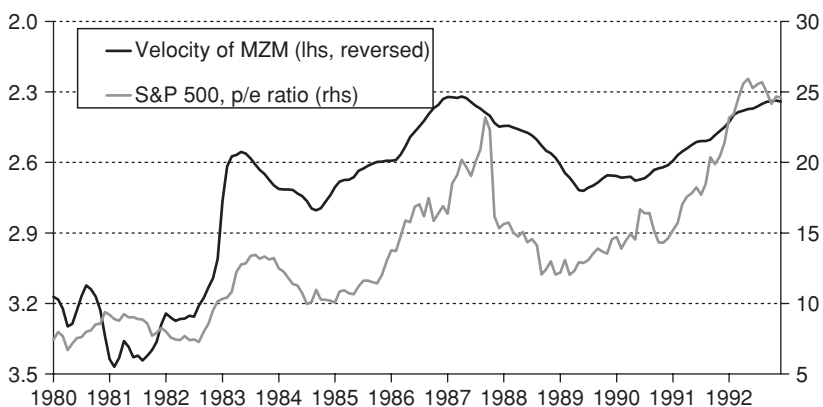


Chart 19.3 Velocity of circulation and S&P 500 P/E ratio, 1980–1992

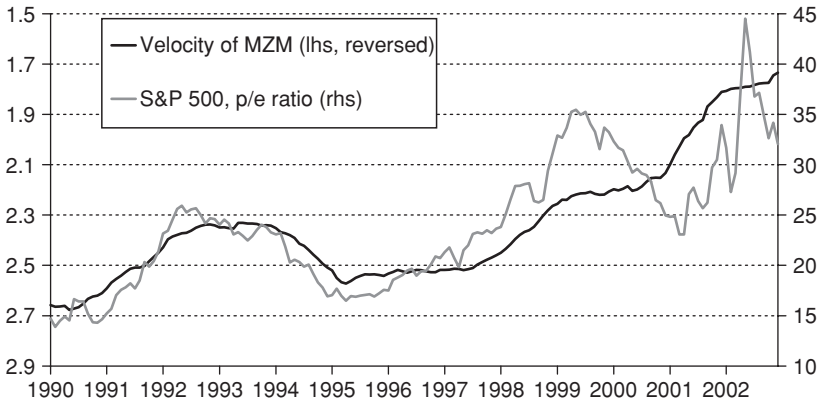


Chart 19.4 Velocity of circulation and S&P 500 P/E ratio, 1990–2002

Secondary trend lines have been drawn on Chart 19.5 to draw attention to deviations from the main trend. Their points of intersection can be taken as signals. The timing of these may be compared with that of signals from the behaviour of real monetary growth, but another warning about spurious precision is appropriate. All monetary economists stress that the time lag between changes in monetary growth and the response of the economy is long and variable. Although the response of asset prices is quicker, the variable time lag is a feature of monetary analysis that is always present.

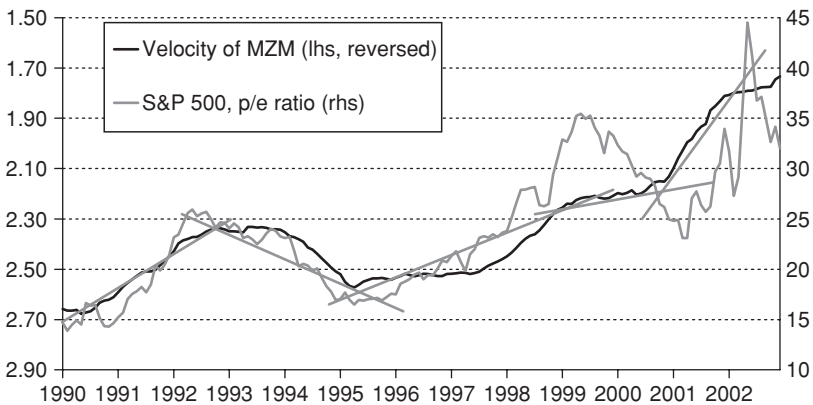


Chart 19.5 Trend lines, velocity of circulation and S&P 500 P/E ratio, 1990–2002

Summing up, it has been argued that the level of the money stock, as well as its rate of change, is important. Charts of velocity of circulation and of monetary growth in real terms are, in the main, alternative ways of presenting monetary data. The former emphasise the stock of money, whereas the latter emphasise the rate of change of money. A study of both types of presentation adds to overall perspective.

Monitoring Data for the Supply of Money

As explained in Chapter 2, money can be created in two ways. Governments ‘print’ money when they borrow from banks, and bankers create ‘fountain-pen money’ when they make loans.

20.1 PRINTING-PRESS MONEY

Recapitulating on Chapter 9, a government needs finance to cover its budget deficit, which is the difference between its revenue and expenditure. State and local government (local authorities) also print money when they borrow from banks. In combination, finance is needed to cover the borrowing requirement of the public sector, which is variously known as the public sector borrowing requirement (PSBR), public sector net cash requirement (PSNCR), and so on.

The public sector’s main source of long-term finance is borrowing from the non-bank private sector – that is, from corporations and people. Sales of government bonds (gilt-edged stock) are the most important medium.

A government also needs funds to finance any increase in the country’s foreign exchange reserves. In the opposite case, it raises finance when the foreign exchange reserves decline. A government, for example, can finance a budget deficit by selling some of the country’s gold reserves. An offsetting factor is foreign purchases or sales of public sector debt.

Three items have been mentioned:

1. The public sector’s net cash requirement.
2. Sales of public sector debt to the non-bank private sector.
3. The increase in foreign exchange reserves less public sector borrowing from abroad.

These are the ‘counterparts’ of printing-press money.

20.2 FOUNTAIN-PEN MONEY

Recapitulating on Chapter 10, banks' assets rise when they make loans, and their liabilities increase in line. Most of the liabilities are deposits of the non-bank private sector, but some will be deposits of foreigners and others will be non-deposit liabilities, such as banks' capital including retained earnings.

Three items have been mentioned:

1. Bank lending to the private sector.
2. Banks' net borrowing from abroad.
3. The increase in banks' non-deposit liabilities.

These are the 'counterparts' of fountain-pen money.

20.3 THE COUNTERPARTS OF BROAD MONEY

Together these six items comprise the counterparts of broad money. They were summarised in Accounting Identity 3 in Chapter 10:

Accounting Identity 3

Public sector's net cash requirement
 less
 sales of public sector debt to the non-bank private sector
 less
 public sector's borrowing in foreign currency or from abroad
 plus
 banks' sterling lending to the private sector
 less
 banks' borrowing in foreign currency and from abroad
 less
 growth of banks' non-deposit liabilities
 equals
 growth of M3.

A similar identity, replacing banks with banks and building societies, can be constructed for M4. Monthly data for all the counterparts are available in the UK and should be monitored.

20.4 FORECASTS

Attempts can be made to forecast all of the counterparts of broad money, as well as broad money itself. It is a difficult task. Bank lending to the private sector, for example, is notoriously hard to predict. Forecasts of the public sector net cash requirement are almost as difficult. Monetary economists are not the only economists trying to make them. Whoever is doing so, the predictions are often inaccurate because the borrowing requirement is the difference between two large items, which means that a small percentage error in either revenue or expenditure leads to a much larger percentage error in the borrowing requirement. The fact that the forecasts are difficult to make is, however, no excuse for not realising the significance of something major when it starts to happen. The main value of the forecasts is having something against which to compare current data as the data are published.

20.5 MANAGEMENT INFORMATION

It may be helpful to draw a comparison with the management accounts that most corporations produce monthly. The column headings and rows of a trading account are usually as shown in Table 20.1.

A budget is prepared before the start of the corporation's financial year. Each month, the accumulated actual data are compared with budget and with data for the previous year. The accounts are scrutinised to pick out items that have deviated. Attention is focused on large deviations and

Table 20.1 Column headings and rows of a trading account

Profit and loss account	Actual Year to date	Year to date	Budget % variance	Year to date	Previous % variance
Income					
.....					
Total income					
Expenditure					
.....					
Total expenditure					
Operating profit					
Tax					
Dividends					
Retained profits					

the explanations for them. There may, or may not, be a case for updating the budget. Scrutinising accounts in this way is a valuable method of assessing the current performance of a corporation. In a similar way, forecasting the counterparts of broad money, and comparing current data with the forecasts, gives a valuable insight into what is currently happening within the financial system and, hence, to markets and the economy.

20.6 DISCERNIBLE TRENDS

Although the monthly data for every one of the counterparts tend to be erratic, some counterparts' data are less erratic than others and can have a discernible trend that is unlikely to reverse suddenly. For other counterparts, a large fluctuation is often reversed next month or shortly afterwards. Examples of the former counterparts are the public sector net cash requirement and bank lending to the private sector. Examples of the latter are non-deposit liabilities of banks and external transactions. Knowing which counterpart is responsible for the latest behaviour of the money supply can give an indication about whether the behaviour is likely to continue or not.

20.7 THE PUBLIC SECTOR'S BORROWING IN FOREIGN CURRENCY AND FROM ABROAD

Little has been said so far about external transactions, that is, the public sector's and banks' borrowing in foreign currency or from abroad. In combination, the data can be large and very erratic. In particular, currency crises and intervention by central banks in the foreign exchange market can have a major impact on a country's money supply. Even if there is a confident forecast that a currency will be weak or strong, as the case may be, it is usually impossible to predict in advance when a run on a currency will occur, and the amount of central bank intervention. The result can be a sudden reversal of a monetary trend that catches out a monetary analyst.

Elaborating on Section 20.1, a government can finance its budget deficit by selling the country's gold reserves in exchange for its currency. Similarly, a budget deficit can be financed by selling some of the country's foreign exchange reserves. In both cases, the government's need to borrow from banks is reduced and the money supply grows by less than would otherwise be the case. When there is a run on a currency,

the country's monetary supply is reduced by intervention by the authorities (for example, its central bank) to support the currency, and the foreign exchange reserves decline. In effect, the official intervention allows money to flow out of the country. Conversely, monetary growth is boosted by official intervention designed to stop a currency from rising.

In the US, the authorities have, at times, followed a policy of benign neglect as far as the level of the dollar is concerned – that is, they have not intervened in the foreign exchange market – but foreign central banks have done so to stop their currencies from rising (to prevent their exports from becoming uncompetitive). A good example of this was the Louvre Accord to support the dollar in the spring of 1987. Another was substantial intervention by China and India in 2003/4 to stop their currencies from rising relative to the dollar. Such intervention by a foreign central bank has a similar effect on the US money supply as intervention by the US authorities. The foreign central bank acquires dollars as a result of its intervention and, because it will want to earn interest on them, it will most probably purchase US treasury bills. As a result, the US government borrows more from overseas, needs to borrow less from banks, and monetary growth is curtailed. The intervention has the opposite effect on the money supply of the country trying to prevent its currency from rising; for example, it boosted the money supply of China and India in 2003/4.¹

¹ The authorities can try to 'sterilise' the inflow by increasing sales of public sector debt to the non-bank private sector. If so, bond yields will tend to rise and this may encourage foreigners to purchase government bonds. The sterilisation may, accordingly, become self defeating. Similarly, an attempt to curb monetary growth by raising short-term interest rates may attract a greater inflow of money from abroad and be self defeating. In short, control of the exchange rate is incompatible with control of the money supply. The Japanese also intervened to stop the yen from rising. The resulting increase in the Japanese money supply helped to cure debt deflation.

The Different Sectors of the Economy

The UK economy can be divided into three main sectors, namely, public, private and overseas sectors. The private sector can be divided further into four subsectors, namely, banks, non-bank financial institutions, industrial and commercial companies, and households.

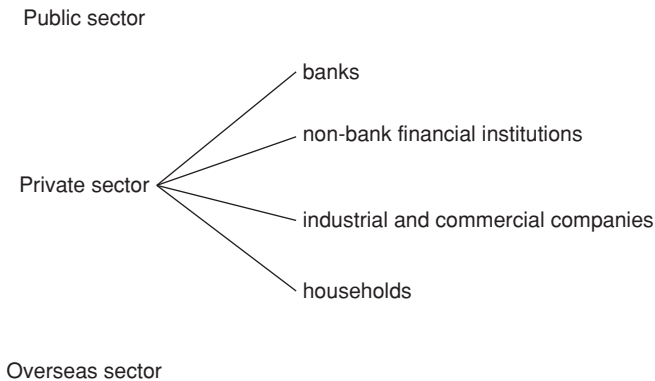


Figure 21.1 Sectors and subsectors in the UK economy

The great bulk of the money supply is the bank deposits owned by non-bank financial institutions, industrial and commercial companies, and households (inter-bank deposits are excluded from the definition of the money supply). Data are available for the deposits and loans of these subsectors, quarterly from 1963 and monthly since 1997.

A theme running through this book is that the current amount of money in the economy is often either less, or greater, than the current demand for money. Professor Tim Congdon has studied the behaviour of each sector (Congdon, 2004a, 2004b, 2005). He has found that the disequilibria of households are relatively minor. The disequilibria of non-bank financial institutions and of industrial and commercial companies are much more important. He finds, unsurprisingly, that the disequilibria

of non-bank financial institutions are important for asset prices, whereas those of industrial and commercial companies are important for economic activity.

Elaborating for non-bank financial institutions, Congdon focuses on their liquidity ratio, defined to be the ratio of their liquid assets to total assets. A ratio that is higher than the historical average is bullish for asset prices, perhaps after a lag, whereas a ratio that is lower is bearish. For industrial and commercial companies, he focuses on the ratio of their money balances to their bank borrowing. If these companies are being squeezed financially, they lay off labour, attempt to reduce stocks and cut back on investment, all of which reduce economic activity, and so on.

Summarising this chapter and the previous one, analysis of the counterparts of broad money and a study of the finances of the various sectors of the economy can add substantially to the information obtained from merely monitoring current data for the money supply.

Conclusions

- A combination of the Efficient Markets Hypothesis and the Liquidity Theory of Asset Prices explains much more of the past behaviour of financial markets than EMH alone. There should be no dispute about this.
- In many circumstances, LTAP helps to explain the current behaviour of a financial market.

CONCLUSION FOR INDUSTRIALISTS

- LTAP is important for industrialists because it can provide a clear warning of a financial bubble in asset prices. Several large companies would not have had the difficulties that arose in the early 2000s if they had understood LTAP.

CONCLUSION FOR POLICYMAKERS

- LTAP can also be important for policymakers, because it may well alter the appropriate response when the behaviour of a financial market is giving cause for concern.

CONCLUSIONS FOR INVESTORS

- An investor who focuses solely on monetary analysis is likely to lose money. Monetary analysis must be used in combination with fundamental analysis.

- Monetary analysis is about the behaviour of asset prices in general, and is rarely relevant to the price of one share relative to another – that is, for selecting which share to purchase or sell.
- ***An investor who is knowledgeable about LTAP understands the current behaviour of a market better than others, which can give him or her a competitive advantage.***
- For every winner in the stock market there is a loser. Competing against other professional investors can be very tough. It is easier to win the zero-sum game if the counterparty to a transaction is an investor who either needs to raise cash or has money to invest, rather than a professional trying to improve the return on his or her portfolio.
- In most circumstances, the information about the behaviour of the monetary aggregates that is needed to produce a reliable forecast of a market is not available in time to make such a forecast. There is a danger that the latest observed trend in the monetary aggregates will suddenly reverse, in which case, the forecast will be wrong. Supplementary information is needed.
- Allowance must be made for distortions to the monetary aggregates, for changes due to financial deregulation, and so on. They can usually be detected by scrutinising the behaviour of all the monetary aggregates. If any of them is behaving in a peculiar way, the reasons for the behaviour should be ascertained. Continuous research and up-to-date knowledge about what is currently happening within the financial system are essential.
- The behaviour of a monetary aggregate is usually erratic. Fluctuations which last for less than about six months are irrelevant. It is best to focus attention on annual changes.
- Six-month and three-month moving averages of data can give an indication of the likely movement in an annual moving average, as can special factors affecting the current month and the month a year ago dropping out of the average.
- The counterparts of monetary growth should be monitored monthly against predictions.
- The financial accounts of the sectors of the economy should also be monitored monthly.
- A chartist and an experienced intuitive investor may provide confirmation of the monetary analysis.
- ***If the above process is carried out rigorously, it is at times possible to make a confident forecast of a market.***

Glossary

Accounting identity

Components of an account that must balance.

Accounts

balance sheet: A company's balance sheet shows its assets and liabilities on a particular date, normally at the end of its financial year.

cash-flow statement: A company's cash-flow statement reconciles the changes in its balance sheet, normally between the start and end of its financial year.

trading and profit and loss account: A company's trading and profit and loss account records its income and expenditure, and its profit or loss, during its financial year.

Aggregate

The sum of.

Balance sheet

see Accounts.

The Bank

The Bank of England.

Bear market

A falling market.

Bear position

Sale of stock with the intention to repurchase for a profit.

Bearish

Unfavourable for security prices.

Bearish person

Someone who thinks prices will fall.

Building societies (UK)

Savings and loan organisations (US).

Bull market

A rising market.

Bullish

Favourable for security prices.

Bullish person

Someone who thinks that prices will rise.

CDs

Certificates of deposit.

The City

The City of London, the UK's financial centre.

Clearing, cheques

The process in which banks settle claims against each other.

Covered stock

Previously owned.

Debase coinage

Reduce the gold and increase the base-metal content.

Discounted

Allowed for in the price.

Electronic computer model

see Macroeconomic model.

EMH (Efficient Markets Hypothesis)

usual version: investors cannot consistently outperform a market making use of existing available information.

more accurate version: investors cannot consistently outperform a market making use of existing available information without taking unacceptably high risk of loss, bearing in mind the way risk of loss can vary with the circumstances of an investor and the behaviour of a market.

Exchequer

The UK central government's account with the Bank.

Expectations (of a market)

adaptive: modified in the light of the recent behaviour of the market.

extrapolative: that the recent trend in the market will continue (in the short run).

myopic: short-sighted, implying misguided.

Expected yield

The yield that is expected on average (the arithmetic mean of all possible yields times their probabilities).

Extrapolative expectations

Expectations that assume the current trend in prices continues.

Fine terms

A narrow spread between purchase and sale prices.

Herd, departing from

Departing from what the majority are doing.

Holders of stock

firm holders: long-term investors who are likely to hold the stock for a long time.

loose holders: speculators and other short-term investors who will not hold a stock for long.

Hyperinflation

Inflation that is very high and completely out of control, which destroys the value of a currency.

Intuition

Immediate apprehension by mind without reasoning.

Life insurance policies

unit-linked: value tied to that of a mutual fund (unit trust).

without profit: all proceeds guaranteed when the policy is taken out.

with profit: participates in the profits, which are not guaranteed.

Liquid market

A market in which transactions in large amounts can be effected at low cost.

LTAP (Liquidity Theory of Asset Prices)

The influence of money, credit and flows of funds on asset prices.

Macroeconomics

The study of an economic system as a whole; for example, production, income and expenditure, with income earned from production, leading to expenditure, which leads to more production, and so on.

Macroeconomic model

A model of the economic system as a whole. The components of GDP, ignoring adjustments, are: consumer expenditure, general government expenditure, total fixed investment, exports of goods and services, change in stocks, less imports of goods and services. Theory suggests explanatory variables for each of them. Equations are then derived, with the importance of each variable estimated to explain as much as possible. A model of the economy as a whole consists of many interlocking equations. Examples of UK models are those of the Treasury, National Institute of Economic & Social Research and London Business School.

Mode

The most likely outcome.

Modern Portfolio Theory

Investors maximise the expected yield with the minimum of risk.

Money market

Market in short-term securities, such as treasury and commercial bills.

Money supply (UK definitions)

M1: notes and coin in circulation with the public plus demand deposits with banks.

M2: M1 plus small time deposits.

M3: M2 plus large time deposits and CDs.

M4: M3 plus building society deposits.

MZM (US definition): M2 plus institution-only money market funds less small time deposits.

Policy, fiscal

Policy regarding taxation and government expenditure.

Policy, funding

How a government's domestic deficit is financed.

Policy, sterilisation

How intervention in the foreign exchange market is financed.

PSBR

Public sector borrowing requirement (old name for PSNCR).

PSNCR

Public sector net cash requirement.

Redemption of a stock

Repayment of the stock.

Risk (general usage)

The possibility of an outcome worse than average (downside uncertainty in academic jargon).

Sector, corporate

Nonfinancial corporations, non-bank financial corporations and banks.

Sector, private

Corporate, household and personal sectors.

Sector, public

Central government, local authorities and public corporations.

Sectors, of the economy

Public, private and overseas sectors.

Skewed

Favourable and unfavourable outcomes are not symmetrical.

Standard deviation

A measure of dispersion around the mean.

Stock

blue chip: stock of a large corporation that has proved to have been a successful investment and which is in most investors' portfolios.

go-go: fashionable stock in a bull market.

Term, of a bond

The length of time before repayment of capital.

Term structure, of interest rates

The way yields vary as the term of a bond lengthens.

Trading and profit and loss accounts

see Accounts.

Trend, following

Buying when the market is rising and selling when it is falling.

Trend, going against

Selling after the market has risen and buying after a fall.

Turn

Difference between market-maker's sale and purchase prices.

Uncovered stock

Not owned, for example, borrowed.

Variance

A measure of dispersion around the mean.

Velocity of circulation of money

GDP divided by the stock of money.

Volatility

Fluctuations around the average.

Yield curve

Graph of bonds' yields plotted against their terms.

Yield curve, inverted

A downward-sloping curve.

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