

1

Introduction

This book is based on two principles: first, that assets can be objectively valued and, second, that it is extremely important that central bankers should adjust their policies when asset prices get substantially out of line with their underlying values. I seek to show that it was the denial of these two principles that led to the errors by central bankers which are the fundamental cause of our current troubles. The assets which are most liable to be badly mispriced are shares, houses, and private sector debts, including bonds and bank loans. In 2002, Stephen Wright and I wrote a paper explaining why the Federal Reserve should adjust its policy, not only in the light of expected inflation, but also if stock market prices reached excessive levels. But at that time we doubted whether “this view would yet receive support from the majority of economists”.¹ As I write, in March 2009, it is quite hard to find economists who disagree. Opinions tend to be moved more quickly by events than by arguments, and this change is no doubt the result of financial turmoil and the threat of a severe recession. I aim to show, however, that the change is sensible, soundly backed by evidence and capable of being supported by theory.

Financial turmoil and recessions are closely linked. Crashes do not occur randomly, but generally follow the booms which are

¹ *World Economics* Vol. 3 No. 1 Jan–Mar 2002. “Stock Markets and Central Bankers – The Economic Consequences of Alan Greenspan” by Andrew Smithers and Stephen Wright.

associated with asset bubbles. When these are extreme, the subsequent turmoil is most severe. The three most extreme examples of modern times are today, Japan after 1990 and the US in the 1930s. Falling asset prices, among their many undesirable consequences, make it difficult and sometimes impossible for central banks to control their economies simply through changes in short-term interest rates. The current turmoil has its origin in the series of asset bubbles which began with the stock market in the latter part of the 20th century. If the agreed policy of central banks had been to restrain asset bubbles, and they had acted to do so, the current pain could – and probably would – have been avoided. But while the view that we were then putting forward seems to have been justified in retrospect, it will not command, and should not command, the necessary authority to influence future policy decisions unless it has the support of a coherent and testable economic theory, which it is the purpose of this book to provide.

The symptoms of the financial mania, which began in the 1990s, were many. Not only were asset prices driven to absurd levels, but bankers and others believed that these prices had some fundamental validity and, on the basis of this confidence, created complicated additional structures whose assumed values became, in turn, articles of faith and the basis for further leverage. Loans were extended on the assumption that the assets which backed them were reasonably valued and, in the resulting boom in business, it was the bankers who believed in these follies who were most likely to be rewarded with extravagant bonuses. It has been well remarked that the most successful sellers of snake oil believe wholeheartedly in the virtues of their product, and in recent times bankers became the quintessential sellers of snake oil. When asset prices fell, the whole house of cards came tumbling down and there is a tendency to see the fundamental problem in terms of these symptoms of absurd asset prices, complicated financial structures, extravagant bonuses and undisciplined bank lending. But these symptoms were not the fundamental cause of the mania, although the asset prices alone should have given sufficient warning of the looming problems. Human nature doesn't change quickly, and people respond to opportunities and incentives. Bankers and other financiers will always hang themselves, and us with them, if provided with sufficient rope. The excessive rope provided by central bankers was not only a necessary

condition of the current turmoil, it was a sufficient one. We have a world of fiat money – that is, money which can be created at the whim of our central bankers, as distinct from one based on gold, for example, and if their whims are wayward, the results will be disastrous, without any other conditions for disaster being required except the normal human responses and frailties.

The cause of our present troubles was the actions of incompetent central bankers, who provided excessive liquidity on which the asset price bubbles and their associated absurdities were built. When too much liquidity is being created, the results will appear either in consumer or asset prices. Central bankers were alert to the former and, if the symptoms of excess liquidity had appeared in consumer prices, they would no doubt have responded to dampen them down, even at the cost of having a much earlier recession than the one which is deepening as I write. But an earlier recession would have been relatively mild with a limited loss of output and welfare. Unfortunately, it was in asset rather than consumer prices that the excesses were revealed and, equally unfortunately, the Federal Reserve, which in this instance deserves far more opprobrium than other central bankers, announced that this did not matter.

The central concerns of this book are why the Federal Reserve held this view, why it was wrong and how things could and should be managed better in the future. The single most important element in the Federal Reserve's view was the claim that asset prices cannot be valued. This was modified at various times and different arguments were regularly trotted out as changing circumstances made each previous claim less credible. But the ability to value assets is the central issue and claims that it can be done run against the long-held view that, while the real economy operates in a less than fully efficient way, financial markets are different. This view is no longer widely held in its starkest form but, in practice, many of the arguments that are produced about financial markets involve the same underlying assumptions, even though those who are making them seldom recognize the implicit, rather than explicit, assumptions that they are making. It is therefore necessary to show that assets can be valued and that financial markets are not perfectly efficient. But this is not enough. It is also necessary to expose arguments which rely implicitly on these assumptions. Otherwise the same follies will return by the back door. For example, as I will show,

almost all arguments that involve the Equity Risk Premium and its so-called “Puzzle” include in practice an implied assumption that financial markets are perfectly efficient.

The ability to value asset prices is obviously important for investors, fund managers, actuaries, pension consultants and those concerned with the regulation of financial institutions, as well as for central bankers. This book is therefore addressed to all these audiences.

Shares are not the only assets with which central bankers need to be concerned. House, bond and loan prices are also extremely important. Even assuming that agreement can be reached on the importance of asset prices and how they should be valued, it is necessary to consider the actions that central banks, investors and consultants should take or recommend in the event that assets become markedly misvalued.

While many people have poured justifiable scorn on the idea that financial markets are perfectly efficient, it is necessary not just to debunk the theory but to put an alternative in its place. I call this alternative the Imperfectly Efficient Market Hypothesis. One aspect of this book is therefore to show that the Efficient Market Hypothesis is not testable but that the Imperfectly Efficient Hypothesis is and proves robust under testing. This involves the ability to value markets and here I am helped by the useful circumstantial evidence provided by having claimed in 2000 that shares were extremely overvalued and by their subsequent fall. In March 2000, Stephen Wright and I published *Valuing Wall Street* in which we explained that the stock markets were far from being perfectly efficient, and that it was possible to value them. We also expected the results of the overvaluation of the market to be dire. The last sentence of the book was “We therefore doubt whether it will be possible to act promptly and strongly enough to stop a major recession developing in the USA in the new millennium”.

As we showed, the US stock market could be valued by using the q ratio. At the same time Professor Robert Shiller published a book claiming that markets could be valued by using the cyclically adjusted PE ratio (“CAPE”).² Both books showed that the US stock

² *Valuing Wall Street – Protecting Wealth in Turbulent Markets* by Andrew Smithers and Stephen Wright was published by McGraw-Hill and *Irrational Exuberance* by Robert J. Shiller was published by Princeton University Press, both in March 2000.

market was extremely over-priced and were published at the peak of the bubble. The precise timing, which was (at least in our case), a matter of luck, thus proved to be extremely fortunate since the market, as measured by the S&P 500 index, had by early 2009 halved from its 2000 peak in nominal terms and fallen even more in real ones. These two separate approaches to value produce very similar results and this has great advantages. Not only must two valid answers to the same question agree, but CAPE is unaffected by the issue of valuing intangibles. This has been used as an objection to q , which in turn is unaffected by claims raised as an objection to CAPE that the long-term returns on equity and thus the equilibrium PE are not stable. The way in which the two metrics of q and CAPE agree is evidence against both these objections, though I will also show in other ways that neither are valid.

I shall show that it follows that the stock market can be valued and that this is essential if central bankers are to take note of asset prices. They must know the warning signs. But there are other vital elements that must be explained. One is why asset prices matter for the economy and central bankers, as well as for investors. To do this I demonstrate that interest rates affect asset prices and, as asset prices affect the economy, this is a major transmission mechanism whereby central banks influence demand in the real economy. I show, however, that the impact of interest rates on asset prices is ephemeral. The result is that this transmission mechanism breaks down if share prices rise too high. Ideally, therefore, central banks need to be able to use interest rates to control demand in some way which does not involve the impact of interest rates on asset prices. This reinforces the logically straightforward case that if central banks are asked to have two targets, in this instance both consumer and asset prices, they need more than one policy weapon to deal with them. We must hope that the provision of such an additional weapon will be agreed and will improve central bankers' ability to manage the economy by not allowing asset prices to be seriously misvalued.³ But whether or not such an additional policy

³ It is only aggregate prices that matter in this context, not individual share prices. There is indeed strong evidence that the pricing of shares, relative to one another, is performed with considerable efficiency; it is only in the aggregate that serious inefficiencies can be shown to occur.

instrument can be agreed and will prove useful, we must be prepared to consider the possibility that periodic mild recessions are a necessary price for avoiding major ones and, if this is correct, to accept the consequences.

If the market is not perfectly efficient, it is necessary to show why this doesn't provide an easy way to make money. Demonstrating that imperfectly efficient markets are not a "free lunch", due to the practical limits of arbitrage, is thus an important element in this book. Associated with this is the question of leverage. The gap between the return on equities and the return on bonds or cash on deposit has been large, and this has led people to question how this gap is not reduced by the simple expedient of investors borrowing and leveraging their equity portfolios. I show that these arguments contain an implicit, rather than explicit, assumption about the way in which such leverage works which involves ignoring the fact that market returns are less volatile over the longer term than they would be if share prices behaved in a more random way.

Partly no doubt because of its fortunate timing, *Valuing Wall Street* has resulted in many letters of thanks from readers who took our advice and saved themselves from major losses as a result. But there were a number of issues regarding value which we did not discuss or only touched on briefly and which I seek to cover more fully here. For example, I treat in greater detail the alternative approach to value, to which I refer as CAPE, taken by Robert Shiller. This produces very similar answers to those that resulted from our use of q and this element of agreement is itself important. Another is the issue of intangibles. Since 2000, Stephen and I have been teaching a regular course to fund managers, MBA students and others, on how to value stock markets, and questions about intangibles are the ones raised most frequently. In addition, when teaching this course I have encountered a whole string of doubts, problems and interesting questions, which I have also sought to address. As well as dealing with issues not previously or fully covered in *Valuing Wall Street*, this book is concerned with the interaction of the central banking policy with share prices, with their interaction with the economy and with the responses to misvalued asset prices which should sensibly be taken by investors and consultants.

The issues discussed are therefore important at both the personal, national and, indeed, international levels. Investing in

overvalued assets often brings loss, pain and misery and it would clearly be better if these results can be avoided, or at least modified. But violent fluctuations in asset prices also produce more general misfortune, through their impact on the real economy. Asset prices are one of the key transmission mechanisms through which changes in interest rates by central banks influence the real economy. But the more overvalued they are, the weaker this influence becomes. As I write, the Federal Reserve seems, under the impact of falling asset prices, to have lost control of the US economy at least temporarily, and become unable to prevent a recession through its control of interest rates. Fortunately, I expect them to be able to regain it with the help of fiscal stimulus and a large-scale refinancing of the banks. Nonetheless, it would have been better, even if my optimism proves justified, if the Fed had remained in better control, if the economy had been less volatile and if massive additions to the US public sector debt had not been required.

Working on stock market valuation seems never to have been fashionable among economists. One unfortunate side effect has been that otherwise well-informed economists and central bankers often appear to have been ill acquainted with the subject and this has led them to make erroneous and ill considered pronouncements about the difficulty or even impossibility of valuing stock markets. Had the matter been the subject of wide and serious debate, it is likely that they would have studied the subject more thoroughly before pronouncing upon it. This lack of debate was a significant cause of the indifference, or worse, that the Federal Reserve showed towards the stock market bubble as it rose to its peak in 2000. The Federal Reserve was, nonetheless, mildly sensitive to criticism and responded by a series of claims that varied over time. The first was that assets could not be valued and their prices should therefore be ignored.⁴ Furthermore, that any adverse consequences resulting from the collapse of asset bubbles could readily be prevented by monetary policy – if necessary, by sprinkling money from helicopters. When it was pointed out that monetary policy had not been ignoring asset prices, but had been responding to falls but not rises, the argument shifted

⁴See, for example, *Monetary Policy and Asset Price Volatility* by B. Bernanke and M. Gertler, published in the *Federal Reserve Bank of Kansas City Economic Review* 1999 4th Quarter pp. 17–51.

and the excuse was made that the Fed need only respond to asset price falls since these were much more violent than the rises.⁵ It seems to me to be a valid observation and criticism that the way the debate developed showed that the Federal Reserve's determination to ignore asset prices had driven their arguments rather than, as things should have been, that the strength of the case determined their policy.

The financial turmoil that burst in 2008 appears to have had its origin in the stock market bubble which broke in 2000, and the Federal Reserve policy to offset the impact of this on the real economy fuelled the excesses of the subsequent asset bubbles. These, which took share prices back to their previous nominal heights and house prices to new real ones, finally broke in 2007. It seems likely that the Fed's policy response, after the stock market fell from its 2000 peak, was all the more excessive for fear that those who criticized its indifference to the stock market bubble would have had added ammunition if the economy had fallen into a marked recession shortly afterwards. The result of the Fed's policy, whatever its motivation, was that the stock market bubble of 2000 became by 2007 a bubble which was not confined to shares but common to all asset prices. This chain of causality cannot of course be proved; we cannot tell what might have happened had monetary policy been different or whether those implementing it had unrecorded or even unacknowledged motivations. It could be, though it seems to me unlikely, that the excesses of the 2007 bubble were due to errors unconnected with the stock market bubble that broke in 2000. The sequence of events is, however, clear. The break in the stock market in 2000 was followed by a recession and then by monetary conditions which allowed and encouraged the asset price excesses which peaked in 2007.

Events change views. The slump of the 1930s probably contributed as much as Keynes's arguments to today's widespread, though sadly by no means universal, acceptance that intentions to save and

⁵Examples of the Fed easing in response to asset price declines include the cuts in interest rates made when Russia defaulted in 1998 and the hedge fund LTCM was saved from liquidation. This anxiety to preserve overvalued asset prices became known as the "Greenspan put" and contributed both to further market madness and to subsequent collapse.

to invest are not automatically balanced under conditions of full employment and that such a balance cannot necessarily be achieved by monetary policy alone. The problems of the late 1970s and early 1980s led to renewed emphasis on monetary policy and the recognition that unchecked inflation could, through its impact on expectations, lead to an unpleasant combination of inflation and lost output, which became known as stagflation. The financial turmoil of 2008 is likely to bring about another reassessment. I hope that the importance of asset as well consumer prices for central banks will be increasingly recognized. Already there are encouraging signs, notably in reports, that even the Federal Reserve has decided to reconsider its attitude.⁶

While I naturally find evidence of such a change of heart welcome, it will not have any practical influence on policy unless some broad agreement can be established as to how assets can be valued. This is not going to be easy, as any discussion encounters strong prejudice in both popular and academic debate. Central banking is subject to strong political pressure and a degree of popular understanding and discussion in the financial press is essential rather than just desirable. This book is therefore addressed to a wider audience than academics. I hope that it will prove useful to those with a broad interest in finance and macroeconomics. This aim is reflected in the book's structure. In the main text I set out the arguments in a non-technical way, with the algebra and technical details set out in the appendices. I have also made extensive use of Charts as I find that these are often a telling way to communicate important points. The heroine of *Alice in Wonderland* wonders "what is the use of a book without pictures or conversation". In this book the absence of conversation is at least offset by many pictures.

In presenting a serious debate on value I find myself in opposition to the majority of the views that I have encountered from stockbrokers and investment bankers. While there are some admirable exceptions, I have come to the harsh conclusion that they are a major source of misinformation encouraged, perhaps, by concerns that a general understanding of the issues involved was unlikely to

⁶As reported, for example, in "Troubled by bubbles" by Krishna Guha in the *Financial Times*, 16 May 2008.

be helpful for business. Except in rare and extreme times, value has very little influence on the way share prices move, looking even three or more years ahead. However, the claim that “shares today are good value” is believed to be an aid to sales. If it becomes generally understood how shares can be valued, then it must follow that this claim will be known to be nonsense around 50% of the time. In practice, this would be unlikely to matter very much, as the stock market is often a sensible place to invest, giving a higher return than other possible choices among asset classes, even if mildly overvalued. But the stock market, while not wholly irrational, encourages irrationality in its participants, whose instincts are to see reason as a threat to their livelihood.

Financial journalists can seldom afford the time to engage in their own research and are therefore dependent on the work of others. They receive most of their information from stockbrokers and investment bankers and only a few can therefore be expected to offer a view which is independent of these sources. Popular views on value, which are largely derived from the media, are thus naturally biased towards irrational claims whose sole aim is to be always, under any circumstance, amenable to demonstrating that “shares are cheap”. It is therefore no surprise to find that among investment bankers and financial journalists the two most common claims to value are, as I plan to show, unadulterated nonsense. One of these is that “Shares are cheap given the level of current (or forecast) PE multiples” and the other is that “Shares are cheap relative to interest rates”. As popular views influence economic policy, it is important that popular nonsense should be exposed rather than ignored, and by doing so I hope to add some lighter touches, which can often be in short supply in any discussion of the dismal science of economics, particularly in the current economic climate.

While the problems of opening up a serious debate on asset value among academics have been reduced by the recent turmoil in financial markets, they remain powerful. Because the fluctuations of financial markets are of vital importance to the real economy, policy makers need a soundly based and broadly shared understanding of financial markets. No such paradigm exists today. The various theories that are held by academics and financial practitioners cannot be readily pulled together and no simple statement can be made that “As generally agreed this is the way that markets work”.

Financial economics today has similarities with macroeconomics in the earlier part of the 20th century, when it became increasingly clear that markets did not necessarily work without friction on the lines assumed by perfect competition and some modifications to the model were therefore needed. In the 19th and even in the early 20th centuries, neither governments nor central banks were held responsible for managing the economy and, even if such responsibility had been acknowledged, there was no agreed economic theory on which such management could be based. There were no agreed methods for offsetting the consequences of policy errors or boosting the economy in the face of sharp contractions in demand. Today there is a large degree of agreement on how to respond to macroeconomic problems of this sort, though recent debates show we are well short of unanimity. But financial economics is without a broad basis of agreed theory on how to prevent or respond to financial turbulence and as the output of the financial sector has increased as a proportion of total GDP, the consequent potential for misfortune has risen.

In academia, the main problem is the hangover from the Efficient Market Hypothesis (EMH). Despite the doubts and scepticism that it aroused even at its peak of popularity, its one-time dominance has left a feeling that discussion of value is not a serious activity for economists. This has been reinforced by a concern that if value could be ascertained it must somehow involve money making and this was beneath the dignity of economists even if they succeeded and, even more, if they failed.

The article⁷ which set out the opinions of Stephen Wright and myself on the importance of equity prices for central banking, while more detailed than any previous comments we had made on the subject, reflected views that we had been expressing as the US stock market went to its peak in 2000. When the market fell the following recession was quite mild, partly due to fiscal stimulus and partly to the Federal Reserve's policy of extreme monetary ease. While this was successful in achieving the short-term aim of moderating the weakness of demand, it did so by driving up asset prices, including houses, and virtually all forms of risky assets as well as equities. As asset prices are one of the main transmission mechanisms by which

⁷Footnote 1 op. cit.

monetary policy affects the economy, it is common, but by no means invariable, for the prices of different types of assets to move together. This was, for example, the experience of Japan in its asset bubble of the 1980s. But one bubble differs from another and there are often bubbles on bubbles in which one particular asset class, or sub-group, becomes even more absurdly priced than others. Telecommunication and internet companies were particularly prone to overvaluation in 2000, real estate companies were exceptional in the Japanese market of the late 1980s and leveraged investment trusts stood out in the US in 1929. These particular excesses have provided a source of euphemism and excuse for those who like to assume that the problem was specific rather than general. Thus the 2000 stock market bubble, which led to the greatest recorded overvaluation of the US stock market in general, has its apologists who like to refer to it as the “high tech or dotcom bubble”. Central banks therefore need to look at asset prices in a broad way and consider how excesses may be reflected in house and other property prices, as well as in the prices of risky financial assets such as equities and credit sensitive debts. Robert Shiller has also emphasized this. In *Irrational Exuberance*, he wrote in part 5, “A Call to Action”: “It is a serious mistake for public figures to acquiesce in the stock market valuations we have seen recently and to remain silent about the implications... The valuation of the stock market is an important national – indeed international – issue.”

Economists have sometimes been accused of such attachment to their theories that they take a cavalier attitude to conflicting evidence. Although I have found occasions when this critique has had some measure of justification, I doubt whether economists’ attachment to their theories and their response to threats to them are as a rule any worse than those found in other sciences. But it is clearly vital that such excess attachment should be avoided and I will therefore support the arguments set out in this book with a careful study of the data. But in order to prevent the detail that this involves from distracting attention from the central case, I first set out a synopsis in Chapter 2 and then seek to show that each of the key points are supported by evidence.⁸

⁸The data sources and other essential help for this book are set out in Appendix 1 Sources and Obligations.

The neglect from which asset value analysis has suffered is reflected in the limited amount of work that has been devoted to the construction of reliable long-term data series for stock markets and, as a result, there are marked weaknesses in the available statistics. For example, share prices are available in many stock markets for over 200 years but, with the exception of Professor Siegel's admirable compilation of US data, I have not been able to find reliable indices dating before the 20th century. Even for data since 1899, it is only as recently as 2002 that the excellent work by Elroy Dimson, Paul Marsh and Mike Staunton⁹ has resulted in reliable figures on financial market returns covering a wide range of countries being published. I make extensive use of both these sources and I hope that one benefit from the higher profile that the subject is now beginning to receive will be an improvement in stock market data over long periods. Unfortunately, such statistics are little prized by market participants, with the result that important data series which cover more than the past 20 or even 10 years are often unavailable from internet data providers such as Bloomberg and Reuters. For the study of value, short-term data series are generally useless, because if they revealed regular patterns of mispricing, these would be arbitrated away. Over long periods, however, arbitrage is highly risky and so patterns of mispricing, if not too regular, may be observed and still survive. Only very long-term data are thus capable of providing insights into market behaviour. It is perhaps unkind – but not, I think, unjustified – to ascribe this indifference to data which covers a long period to the sharp reduction in the ability to misuse data by “data mining” which results. As I shall show, particularly when dealing with how not to value the stock market, data mining is a common and egregious fault of “stockbroker economics”.

Even when long-term data are available, the nature of statistical evidence provides problems with its testing, as market values become most important and interesting when they are at extreme values. In these circumstances, the probabilities as shown by statistical tests, for example for mean reversion, tend to be less strong than when values are around average. Happily, as more data become available from the work of statistical archeologists and the efflux of time, the statistical evidence should improve.

⁹ *The Triumph of the Optimists* published by Princeton University Press.

If my claims are correct they will tend to be supported as additional data become available. I hope, however, to persuade readers on the basis of the evidence and arguments set out now. I recognize that the claims I am making are large ones. Although the EMH is largely discredited, an alternative is not readily available and this I aim to supply. However, not only am I seeking to show that asset markets are not perfectly efficient, I aim to show that they can be valued not only in theory, but with a fair degree of accuracy in practice. This ability is not only important for investors, fund managers, and actuaries, but crucially for central bankers. Furthermore, if they take note of asset prices and adjust policy when prices move towards excess, the management of economies will improve and large benefits to our welfare should then be attainable by avoiding a repetition of the problems from which we are currently suffering.