
Boom and Bust

**The equity market crisis – Lessons for asset
managers and their clients**

A collection of essays

Michael Haag

The Governing Council of EAMA dedicates
this book to the memory of Michael Haag,
Secretary General of EAMA from its
formation in October 1999 until 21st
September 2003.

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managers and their clients**

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Preface

Between the first quarters of the years 2000 and 2003 respectively European equity markets lost 52.8% of their value, Euro government bond indices went up 24.6% and European investment grade corporate bonds increased their value by 23.4%. According to *The Economist*, UK pension funds had invested 70-80% in shares compared to around 40% in Continental Europe (and 60% in the US). An admittedly simple calculation on the basis of these figures suggests that between 2000 and 2003 the assets of UK and Continental European pension funds shrunk by 30-37% (UK) and 7% (Continental Europe) respectively. A combined asset-liability-view would reveal even more alarming figures because falling interest rates (10-year Bund yields down from 5.20% to 4.05%) have during the same period significantly increased the present economic (if not balance sheet) value of the pension funds' long duration liabilities.

Not surprisingly, total assets under management (AuM) by asset and fund managers also have been shrinking significantly and, as a consequence, have led to a painful decrease in asset managers' average profitability. According to *The Economist*, market impact and withdrawals reduced AuM in major countries in 2002 alone as follows:

- UK 17% down from \$2.8 trillion to \$2.3 trillion.
- Netherlands 12% down from \$0.57 trillion to \$0.5 trillion
- Germany 10% down from \$1.22 trillion to \$1.1 trillion
- USA 8% down from \$20.8 trillion to \$19.1 trillion
- Switzerland 8% down from \$0.86 trillion to \$0.8 trillion.
- France 4% down from \$1.25 to \$1.2 trillion.

Why were asset and fund managers – in their capacity as fiduciaries for institutional and individual (retail) investors – on average not positioned to better protect the interests of their clients and their own profitability base more effectively in the equity market crisis? How were (and are) the roles and responsibilities of asset managers defined vis-a-vis clients and their internal or external consultants? Was there a lack of understanding of the respective roles? Should they be clarified or even redefined? Why could solid buy side equity research not prevent what can be characterized – with hindsight – as blatant mis-allocation of funds? And, most importantly, what are the lessons to be learnt for asset managers and their clients?

The European Asset Management Association (EAMA), representing major European asset managers and national trade associations, presents this collection of essays in order to contribute to, and stimulate, the current debate on the causes and consequences of the recent equity market crisis. The booklet offers the views of practitioners in the field of asset and pension fund management, consultants, academic observers, financial journalists and regulators. The authors had not been asked by EAMA to focus on pre-defined aspects of the market crisis, but had full discretion to choose the topics which in their view are most relevant. Three articles selected by

EAMA for their particular relevance to the topic of this booklet are reprints from prior publications¹.

As a starting point for discussion and analysis from the perspective of a practitioner in investment management, some figures from the last months of the equity boom may be illustrative: From October 1, 1999 through mid-March 2000 when equity markets peaked, the DAX index of 30 leading German companies with a bias to growth stocks increased by almost exactly 50%. At the same time the M-DAX, an index for German small caps with a bias towards value stocks grew by “only” 7.1%. If an asset manager had advised its client in October 1999 to follow a value-oriented approach, meetings with the same client early March 2000 were probably not too pleasant and, from a business perspective, it may have been difficult for the asset manager to stick to its value-oriented approach. It would probably have been of little help to point out to the investor that European small cap companies at the time traded at a price to book discount of 70% to large cap peers in early 2000. Even an investor like Warren Buffet was close to getting ridiculed by investors because he seemed to no longer understand the new world of investment. The example shows that in a real business context it can be rather difficult to provide sound advice once market euphoria has caught on.

Looking forward, what can and should be done by the asset and fund management industry to reduce the risk of future market crises or to reduce the damaging effects of such a crisis to investors?

Asset managers should and will continue to raise the level of professionalism in all aspects of their business such as staff education, independent research, risk control, avoidance or sound management of conflict of interests, ethical standards. The Codes of Conduct issued by industry associations in a growing number of European countries already point to the right direction and should be further refined. The asset management industry will have to pro-actively stimulate and shape the discussion and define best practice standards on issues of particular interest to the industry and its clients². Regulation at EU and Member State level should not be the only and certainly not the first answer. In the area of Corporate Governance, asset managers will undoubtedly have to play a more active role and, together with their clients, they will also have to balance the benefits and costs of a such an approach.

¹ EAMA would like to thank Princeton University Press (Shiller, *Irrational Exuberance* - see page 1), Werner G. Seifert and Hans-Joachim Voth (Seifert and Voth, *The Stock Market Boom and the Silent Death of Equity* – see page 48, English version of Seifert/Voth, *Die heimliche Abkehr von der Aktie: Realwirtschaftliche Ursachen des Kapitalmarktes*, in: Seifert/Voth, *Krise des Kapitalismus und Neuordnung der Wirtschaftspolitik*) and *The New York Review of Books* (Rohatyn, *Betrayal on Capitalism* - see page 134) for giving their permission to EAMA for a reprint of the afore-mentioned articles in this booklet.

² For example, EAMA has published collections of essays on pensions, indexation and best execution, research on capital adequacy and custody, a code of best practice for the construction of equity indices and, together with FEFSI, has produced a discussion paper on best execution in equity markets; see www.eama.org.

Even so, bubbles may not be avoidable. If this is true, asset managers have to continue to increase their efforts in getting closer to their clients to

- ensure that their clients have a good understanding of the risks they are taking and that they
- know what kind of risks they can and should afford.

In practice this is often more easily said than done. The ongoing discussion in the retail area about best advice and costs with regard to the distribution of asset management and fund products clearly illustrates this. But also with regard to institutional investors, the communication process leaves room for improvement. In theory, the roles could be defined as follows: the client defines, on the basis of advice from internal or external consultants, the overall investment strategy and the asset manager manages monies entrusted to it against a clear benchmark which corresponds with the overall benchmark or represents a segment thereof. In this case, the benchmark from the asset manager's point of view is the "risk free" strategy which the asset manager either tracks (passive investment) or tries to outperform (active investment); there is usually little room for the asset manager to advise the client on the investment strategy and benchmark respectively.

I believe, however, that it will be worthwhile for investors and their consultants to make greater use of the specific market know how of asset managers in order to secure a more diversified input of ideas, concepts and experience at the level of strategy formulation. While in the more mature asset management and pension fund markets (defined geographically or along the lines of client sophistication) the functional division of labour between clients, consultants, actuaries and asset managers may have become too technical, in less mature markets the respective roles and responsibilities of investors and their advisers sometimes are not clearly enough defined with regard to formulation, implementation and monitoring of an investment strategy.

Beyond providing good quality products asset managers will have to more actively take - or offer to take - responsibility, in cooperation with consultants and actuaries, in ensuring that their products meet the "real" needs of their clients. At the same time, the asset manager should help establishing a communication process which ensures that the client knows at all times which risks will be managed by the asset manager or consultant and which risks will have to be monitored and handled by the client itself.

The contributions to this booklet highlight a wide range of aspects of the recent equity market crisis. I am positive that the lessons to be learnt from the crisis will improve the capability of the asset management industry to efficiently protect the assets of their clients in difficult market environments.

I would like to thank all those who made this booklet possible, and in particular the authors for their excellent contributions, my colleagues at the Governing Council of EAMA and Michael Haag (the late Secretary General of EAMA) and Robin Clark (Acting Secretary General of EAMA).

EAMA is working with FEFSI to create a single body to represent the asset and fund management industry in Europe from 2004. Publications of this kind, to inform and stimulate debate, should be an important part of the work of the new association.

I hope you will enjoy the reading.

Dr. Klaus Mössle
President, European Asset Management Association
October 2003

Irrational Exuberance: The Stock Market Level in Historical Perspective¹

Robert J. Shiller
Princeton University

When Alan Greenspan, chairman of the Federal Reserve Board in Washington, used the term *irrational exuberance* to describe the behavior of stock market investors in an otherwise staid speech on December 5, 1996, the world fixated on those words. Stock markets dropped precipitously. In Japan, the Nikkei index dropped 3.2%; in Hong Kong, the Hang Seng dropped 2.9%; and in Germany, the DAX dropped 4%. In London, the FT-SE 100 index was down 4% at one point during the day, and in the United States, the Dow Jones Industrial Average was down 2.3% near the beginning of trading. The words *irrational exuberance* quickly became Greenspan's most famous quote--a catch phrase for everyone who follows the market.

Why did the world react so strongly to these words? One view is that they were considered simply as evidence that the Federal Reserve would soon tighten monetary policy, and the world was merely reacting to revised forecasts of the Board's likely actions. But that cannot explain why the public still remembers *irrational exuberance* so well years later. I believe that the reaction to these words reflects the public's concern that the markets may indeed have been bid up to unusually high and unsustainable levels under the influence of market psychology. Greenspan's words suggest the possibility that the stock market will drop--or at least become a less promising investment.

History certainly gives credence to this concern. In the balance of this chapter, we study the historical record. Although the discussion in this chapter gets pretty detailed, I urge you to follow its thread, for the details place today's situation in a useful, and quite revealing, context.

Market Heights

By historical standards, the U.S. stock market has soared to extremely high levels in recent years. These results have created a sense among the investing public that such high valuations, and even higher ones, will be maintained in the foreseeable future. Yet if the history of high market valuations is any guide, the public may be very disappointed with the performance of the stock market in coming years.

An unprecedented increase just before the start of the new millennium has brought the market to this great height. The Dow Jones Industrial Average (from here on, the Dow for short) stood at around 3,600 in early 1994. By 1999, it had passed 11,000, more than tripling in five years, a total increase in stock market prices of over 200%. At the start of 2000, the Dow passed 11,700.

¹ Shiller, Robert; IRRATIONAL EXUBERANCE. Copyright © 2000 by PUP.
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However, over the same period, basic economic indicators did not come close to tripling. U.S. personal income and gross domestic product rose less than 30%, and almost half of this increase was due to inflation. Corporate profits rose less than 60%, and that from a temporary recession-depressed base. Viewed in the light of these figures, the stock price increase appears unwarranted and, certainly by historical standards, unlikely to persist.

Large stock price increases have occurred in many other countries at the same time. In Europe, between 1994 and 1999 the stock market valuations of France, Germany, Italy, Spain, and the United Kingdom roughly doubled. The stock market valuations of Canada, too, just about doubled, and those of Australia increased by half. In the course of 1999, stock markets in Asia (Hong Kong, Indonesia, Japan, Malaysia, Singapore, and South Korea) and Latin America (Brazil, Chile, and Mexico) have made spectacular gains. But no other country of comparable size has had so large an increase since 1994 as that seen in the United States.

Price increases in single-family homes have also occurred over the same time, but significant increases have occurred in only a few cities. Between 1994 and 1999 the total average real price increase of homes in ten major U.S. cities was only 9%. These price increases are tiny relative to the increase in the U.S. stock market.

The extraordinary recent levels of U.S. stock prices, and associated expectations that these levels will be sustained or surpassed in the near future, present some important questions. We need to know whether the current period of high stock market pricing is like the other historical periods of high pricing, that is, whether it will be followed by poor or negative performance in coming years. We need to know confidently whether the increase that brought us here is indeed a speculative bubble--an unsustainable increase in prices brought on by investors' buying behavior rather than by genuine, fundamental information about value. In short, we need to know if the value investors have imputed to the market is not really there, so that we can readjust our planning and thinking.

A Look at the Data

Figure 1.1 shows, for the United States, the monthly real (corrected for inflation using the Consumer Price Index) Standard and Poor's (S&P) Composite Stock Price Index from January 1871 through January 2000 (upper curve), along with the corresponding series of real S&P Composite earnings (lower curve) for the same years. This figure allows us to get a truly long-term perspective on the U.S. stock market's recent levels. We can see how differently the market has behaved recently as compared with the past. We see that the market has been heading up fairly uniformly ever since it bottomed out in July 1982. It is clearly the most dramatic bull market in U.S. history. The spiking of prices in the years 1992 through 2000 has been most remarkable: the price index looks like a rocket taking off through the top of the chart! This largest stock market boom ever may be referred to as the *millennium boom*.



Figure 1.1

Stock Prices and Earnings, 1871-2000

Real (inflation-corrected) S&P Composite Stock Price Index, monthly, January 1871 through January 2000 (upper series), and real S&P Composite earnings (lower series), January 1871 to September 1999. *Source:* Author's calculations using data from S&P Statistical Service; U.S. Bureau of Labor Statistics; Cowles and associates, *Common Stock Indexes*; and Warren and Pearson, *Gold and Prices*. See also note 2.

Yet this dramatic increase in prices since 1982 is not matched in real earnings growth. Looking at the figure, no such spike in earnings growth occurs in recent years. Earnings in fact seem to be oscillating around a slow, steady growth path that has persisted for over a century.

No price action quite like this has ever happened before in U.S. stock market history. There was of course the famous stock run-up of the 1920s, culminating in the 1929 crash. Figure 1.1 reveals this boom as a cusp-shaped price pattern for those years. If one corrects for the market's smaller scale then, one recognizes that this episode in the 1920s does resemble somewhat the recent stock market increase, but it is the only historical episode that comes even close to being comparable to the present boom.

There was also a dramatic run-up in the late 1950s and early 1960s, culminating in a flat period for half a decade that was followed by the 1973-74 stock market debacle. But the price increase during this boom was certainly less dramatic than today's.

Price Relative to Earnings

Part of the explanation for the remarkable price behavior between 1990 and 2000 may have to do with somewhat unusual earnings. Many observers have remarked that earnings growth in the five-year period ending in 1997 was extraordinary: real S&P Composite earnings more than doubled over this interval, and such a rapid five-year growth of real earnings has not occurred for nearly half a century. But 1992 marked the end of a recession during which earnings were temporarily depressed. Similar

increases in earnings growth have happened before following periods of depressed earnings from recession or depression. In fact, there was more than a quadrupling of real earnings from 1921 to 1926 as the economy emerged from the severe recession of 1921 into the prosperous Roaring Twenties. Real earnings doubled during five-year periods following the depression of the 1890s, the Great Depression of the 1930s, and World War II.

Figure 1.2 shows the price-earnings ratio, that is, the real (inflation-corrected) S&P Composite Index divided by the ten-year moving average real earnings on the index. The dates shown are monthly, January 1881 to January 2000. The price-earnings ratio is a measure of how expensive the market is relative to an objective measure of the ability of corporations to earn profits. I use the ten-year average of real earnings for the denominator, along lines proposed by Benjamin Graham and David Dodd in 1934. The ten-year average smooths out such events as the temporary burst of earnings during World War I, the temporary decline in earnings during World War II, or the frequent boosts and declines that we see due to the business cycle. Note again that there is an enormous spike after 1997, when the ratio rises until it hits 44.3 by January 2000. Price-earnings ratios by this measure have never been so high. The closest parallel is September 1929, when the ratio hit 32.6.



Figure 1.2

Price-Earnings Ratio, 1881-2000

Price-earnings ratio, monthly, January 1881 to January 2000. Numerator: real (inflation-corrected) S&P Composite Stock Price Index, January. Denominator: moving average over preceding ten years of real S&P Composite earnings. Years of peaks are indicated. *Source:* Author's calculations using data from sources given in Figure 1.1. See also note 2.

In the latest data on earnings, earnings are quite high in comparison with the Graham and Dodd measure of long-run earnings, but nothing here is startlingly out of the ordinary. What is extraordinary today is the behavior of price (as also seen in Figure 1.1), not earnings.

Other Periods of High Price Relative to Earnings

There have been three other times when the price-earnings ratio as shown in Figure 1.2 attained high values, though never as high as the 2000 value. The first time was in June 1901, when the price-earnings ratio reached a high of 25.2 (see Figure 1.2). This might be called the “Twentieth Century Peak,” since it came around the time of the celebration of this century. (The advent of the twentieth century was celebrated on January 1, 1901, not January 1, 1900.) This peak occurred as the aftermath of a doubling of real earnings within five years, following the U.S. economy’s emergence from the depression of the 1890s. The 1901 peak in the price-earnings ratio occurred after a sudden spike in the price-earnings ratio, which took place between July 1900 and June 1901, an increase of 43% within eleven months. A turn-of-the-century optimism, associated with expansion talk about a prosperous and high-tech future, appeared.

After 1901, there was no pronounced immediate downtrend in real prices, but for the next decade prices bounced around or just below the 1901 level and then fell. By June 1920, the stock market had lost 67% of its June 1901 real value. The average real return in the stock market (including dividends) was 3.4% a year in the five years following June 1901, barely above the real interest rate. The average real return (including dividends) was 4.4% a year in the ten years following June 1901, 3.1% a year in the fifteen years following June 1901, and -0.2% a year in the twenty years following June 1901. These are lower returns than we generally expect from the stock market, though had one held on into the 1920s, returns would have improved dramatically.

The second instance of a high price-earnings ratio occurred in September 1929, the high point of the market in the 1920s and the second-highest ratio of all time. After the spectacular bull market of the 1920s, the ratio attained a value of 32.6. As we all know, the market tumbled from this high, with a real drop in the S&P Index of 80.6% by June 1932. The decline in real value was profound and long-lasting. The real S&P Composite Index did not return to its September 1929 value until December 1958. The average real return in the stock market (including dividends) was -13.1% a year for the five years following September 1929, -1.4% a year for the next ten years, -0.5% a year for the next fifteen years, and 0.4% a year for the next twenty years.

The third instance of a high price-earnings ratio occurred in January 1966, when the price-earnings ratio as shown in Figure 1.2 reached a local maximum of 24.1. We might call this the “Kennedy-Johnson Peak,” drawing as it did on the prestige and charisma of President John Kennedy and the help of his vice-president and successor Lyndon Johnson. This peak came after a dramatic bull market and after a five-year price surge, from May 1960, of 46%. This surge, which took the price-earnings ratio to its local maximum, corresponded to a surge in earnings of 53%. The market reacted to this earnings growth as if it expected the growth to continue, but of course it did not. Real earnings increased little in the next decade. Real prices bounced around near their January 1966 peak, surpassing it somewhat in 1968 but then falling back, and real stock prices were down 56% from their January 1966 value by December 1974. Real stock prices would not be back up to the January 1966 level until May 1992. The

average real return in the stock market (including dividends) was -2.6% a year for the five years following January 1966, -1.8% a year for the next ten years, -0.5% a year for the next fifteen years, and 1.9% a year for the next twenty years.

A Historical Relation between Price-Earnings Ratios and Subsequent Long-Term Returns

Figure 1.3 is a scatter diagram showing, for January of each year 1881 to 1989, on the horizontal axis, the price-earnings ratio for that month, and, on the vertical axis, the annualized real (inflation-corrected) stock market return over the ten years following that month. This scatter diagram allows us to see visually how well the price-earnings ratio forecasts subsequent long-term (ten-year) returns. Only January data are shown: if all twelve months of each year were shown there would be so many points that the scatter would be unreadable. The downside of this plotting method, of course, is that by showing only January data we miss most of the peaks and troughs of the market. For example, we miss the peak of the market in 1929 and also miss the negative returns that followed it. The price-earnings ratio shown in Figure 1.3 is the same as that plotted in Figure 1.2. Each year is indicated by the last two digits of the year number; years from the nineteenth century are indicated by an asterisk (*).

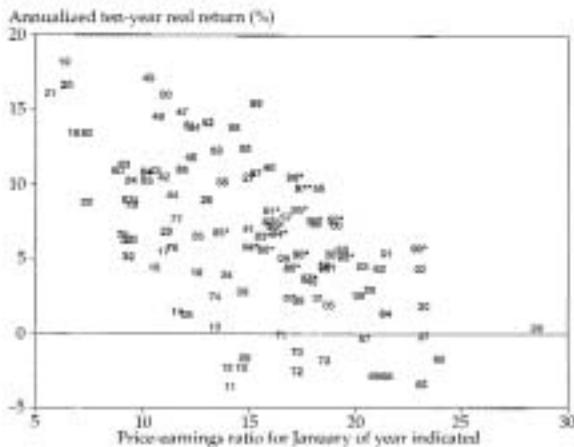


Figure 1.3

Price-Earnings Ratio as Predictor of Ten-Year Returns

Scatter diagram of annualized ten-year returns against price-earnings ratios. Horizontal axis shows the price-earnings ratio (as plotted in Figure 1.2) for January of the year indicated, dropping the 19 from twentieth-century years and dropping the 18 from nineteenth-century years and adding an asterisk (*). Vertical axis shows the geometric average real annual return per year on investing in the S&P Composite Index in January of the year shown, reinvesting dividends, and selling ten years later. *Source:* Author's calculations using data from sources given in Figure 1.1. See also note 2.

Figure 1.3 shows how the price-earnings ratio has forecast returns, since each price-earnings ratio shown on the horizontal axis was known at the beginning of the ten-year

period. This scatter diagram was developed by fellow economist John Campbell and me. Plots like it, for various countries, were the centerpiece of our testimony before the board of governors of the Federal Reserve on December 3, 1996.

The swarm of points in the scatter shows a definite tilt, sloping down from the upper left to the lower right. The scatter shows that in some years near the left of the scatter (such as January 1920, January 1949, or January 1982) subsequent long-term returns have been very high. In some years near the right of the scatter (such as January 1929, January 1937, or January 1966) subsequent returns have been very low. There are also some important exceptions, such as January 1899, which still managed to have subsequent ten-year returns as high as 5.5% a year despite a high price-earnings ratio of 22.9, and January 1922, which managed to have subsequent ten-year returns of only 8.7% a year despite a low price-earnings ratio of 7.4. But the point of this scatter diagram is that, as a rule and on average, years with low price-earnings ratios have been followed by high returns, and years with high price-earnings ratios have been followed by low or negative returns.

The relation between price-earnings ratios and subsequent returns appears to be moderately strong, though there are questions about its statistical significance, since there are only about twelve nonoverlapping ten-year intervals in the 119 years' worth of data. There has been substantial academic debate about the statistical significance of relationships like this one, and some difficult questions of statistical methodology are still being addressed. We believe, however, that the relation should be regarded as statistically significant. Our confidence in the relation derives partly from the fact that analogous relations appear to hold for other countries and for individual stocks. Figure 1.3 confirms that long-term investors--investors who can commit their money to an investment for ten full years--do well when prices were low relative to earnings at the beginning of the ten years and do poorly when prices were high at the beginning of the ten years. Long-term investors would be well advised, individually, to stay mostly out of the market when it is high, as it is today, and get into the market when it is low.

The recent values of the price-earnings ratio, well over 40, are far outside the historical range of price-earnings ratios. If one were to locate such a price-earnings ratio on the horizontal axis, it would be off the chart altogether. It is a matter of judgment to say, from the data shown in Figure 1.3, what predicted return the relationship suggests over the succeeding ten years; the answer depends on whether one fits a straight line or a curve to the scatter, and since the 2000 price-earnings ratio is outside the historical range, the shape of the curve can matter a lot. Suffice it to say that the diagram suggests substantially negative returns, on average, for the next ten years.

Part of the reason to suspect that the relation shown in Figure 1.3 is real is that, historically, when price was high relative to earnings as computed here (using a ten-year moving average of earnings), the return in terms of dividends has been low, and when price was low relative to earnings, the return in terms of dividends has been high. The recent record-high price-earnings ratios have been matched by record-low dividend yields. In January 2000, S&P dividends were 1.2% of price, far below the 4.7% that is the historical average. It is natural to suppose that when one is getting so much lower dividends from the shares one owns, one ought to expect to earn lower

investing returns overall. The dividend is, after all, part of the total return one gets from holding stocks (the other part being the capital gain), and dividends historically represent the dominant part of the average return on stocks. The reliable return attributable to dividends, not the less predictable portion arising from capital gains, is the main reason why stocks have on average been such good investments historically.

Returns from holding stocks must therefore be low when dividends are low--unless low dividends themselves are somehow predictors of stock market price increases, so that one can at times of low dividends actually expect stock price to rise more than usual to offset the effects of the low dividends on returns. As a matter of historical fact, times when dividends have been low relative to stock prices have not tended to be followed by higher stock price increases in the subsequent five or ten years. Quite to the contrary: times of low dividends relative to stock price in the stock market as a whole tend to be followed by price *decreases* (or smaller than usual increases) over long horizons, and so returns tend to take a *double* hit at such times, from both low dividend yields and price decreases. Thus the simple wisdom--that when one is not getting much in dividends relative to the price one pays for stocks it is not a good time to buy stocks--turns out to have been right historically.

Worries about Irrational Exuberance

The news media have tired of describing the high levels of the market, and discussion of it is usually omitted from considerations of market outlook. And yet, deep down, people know that the market is highly priced, and they are uncomfortable about this fact.

Most people I meet, from all walks of life, are puzzled over the apparently high levels of the stock market. We are unsure whether the market levels make any sense, or whether they are indeed the result of some human tendency that might be called irrational exuberance. We are unsure whether the high levels of the stock market might reflect unjustified optimism, an optimism that might pervade our thinking and affect many of our life decisions. We are unsure what to make of any sudden market correction, wondering if the previous market psychology will return.

Even Alan Greenspan seems unsure. He made his "irrational exuberance" speech two days after I had testified before him and the Federal Reserve Board that market levels were irrational, but a mere seven months later he reportedly took an optimistic "new era" position on the economy and the stock market. In fact, Greenspan has always been very cautious in his public statements, and he has not committed himself to either view. A modern version of the prophets who spoke in riddles, Greenspan likes to pose questions rather than make pronouncements. In the public exegesis of his remarks, it is often forgotten that, when it comes to such questions, even he does not know the answers.

“A crisis that offers opportunities for a rebound”¹

Alain Leclair

*Chairman of the AFG, the French Asset Management Association
Founding partner of La Française des Placements*

Carlos Pardo

Head of Economic Research (AFG)

For the past three years, the world’s financial markets have been experiencing a crisis that has elicited responses from virtually all economic agents. The AFG has contributed to the debate by publishing a Collection of essays². This document brings together the opinions and reactions of twenty key figures from French academic and financial circles to a report published by the *Conseil des Marchés Financiers* (CMF) in December 2002 entitled *The increase in equity market volatility*³. The CMF is the French financial markets watchdog. This report put forward a series of hypotheses on the role played by certain products (derivatives, guaranteed funds, hedge funds, etc.) or market practices (short selling, share buybacks, etc.) in fuelling this phenomenon, without however providing any details on their beneficial or harmful effects.

Despite the diversity of the opinions expressed in the AFG’s Collection of essays – which is hardly surprising given the complexity of the subject matter – there is a clear convergence of views on certain points. While the authors take a more or less explicit stance in relation to the problems described in the CMF report, they also discuss other issues omitted from the report that they feel are essential to an understanding of the current crisis and, more generally, of the effect of market (in)stability on the real economy.

We believe these essays not only provide a good introduction to the debate on the supposed increase in market volatility over the past few years⁴, but above all should contribute to a better understanding of conditions for market liquidity and equilibrium. The subject matter is extremely complex and has inspired a large volume of technical and empirical literature, particularly in the United States.

* * *

¹ The authors would like to thank Olivier Davanne, and all contributors to the Collection of essays on volatility in equity markets published by the AFG, whose reflections have been a source of inspiration for this paper. We would also like to thank Pierre Bollon, Delegate General of the AFG, for his helpful comments and constructive suggestions. Any errors and omissions are entirely ours.

² Collection of essays on volatility in the equity markets, AFG, June 2003 (www.afg-asffi.com/afg/fr/publication/index.html).

³ www.cmf-france.org/.../docpdf/rapports/RA200201.pdf

⁴ At the time of writing, market volatility was decreasing.

There has been extensive debate about both the causes of instability in market valuations and the cost of volatility, which itself is shrouded in uncertainty. It could be claimed that short-term volatility has a very limited impact if there is a rapid correction in price fluctuations. One could also argue that the efficiency of a financial system cannot be judged solely on the basis of the stability of asset prices. The question of who bears the risk, or how risks are pooled, is just as important, if not more so. It could be argued that, despite appearances, recent volatility reflects a degree of flexibility that contributes *in fine* to the efficiency and solidity of the system. Any study of volatility should therefore be placed in the broader context of the role of the financial markets and, in particular, the interrelation between the financial markets and the real economy. This seems to be the overriding view that emerges from the contribution of various French experts, financial professionals and researchers to the present Collection of essays. We consider some of these ideas below.

1. Whether they are discussing French, European or US indices, the authors are virtually unanimous in highlighting that there is **no clear trend towards a structural increase in volatility**, but instead that the past three years have been marked by a specific set of circumstances, with significant peaks in volatility. That said, to what extent have cyclical and structural factors contributed, respectively, to the development of recent years?
2. The main **cyclical factors** that could lie behind the current crisis are the bursting – which we consider salutary – of the “new economy” speculative bubble, excessive borrowing by large corporations and the crisis of confidence in financial reporting sparked by the Enron and WorldCom scandals... In the light of these factors, one can justifiably assert that, rather than being down to excess volatility, the current crisis has been caused by excessive debt levels and share valuations that led to the formation of stock-market bubbles⁵. In a way, the rapid rise in volatility has coincided with peaks in risk aversion and ‘flights to safety’ typically seen only during periods of rapid asset price deflation and the consequent threat of economic depression, as seen in Japan⁶. Uncertainties linked to both geopolitics and deflationary risks, combined with increased macro-economic instability, figure among the main cyclical factors⁷ explaining largely risk aversion.
3. As regards **structural and technical factors** (so discussed in the CMF report) relating to the different types of financial innovations in both products and

⁵ O. Garnier, *Excès d’endettement et de valorisation plutôt qu’excès de volatilité*, Collection of essays on volatility in equity markets, AFG, June 2003, pp. 31-35.

⁶ F.-X. Chevallfier, *Les mystères d’une volatilité débridée, ou le rêve brisé d’un bonheur économique perdu*, idem, pp. 23-27.

⁷ For some authors, these factors alone are enough to explain the extreme sensitivity of the markets. In his analysis of the Dow Jones since 1946, Zajdenweber concluded that “the emergence of discontinuous information, notably on monetary policy and interest rates”, and the corresponding forecasts by economic agents, “are responsible for the concentration of significant stock market fluctuations” (see EAMA, *Boom and Bust*, October 2003).

market practices (hedge funds and short-selling, credit derivatives, convertible bonds and capital-guaranteed funds, etc.), the experts are clear and, bar a few minor differences, almost unanimous: techniques and products cannot in themselves act as destabilising factors⁸ On the contrary, certain innovations involve increased arbitraging between different markets, which increases overall market liquidity and tends more to reduce volatility. There appears to be no solid empirical or theoretical basis for the argument that the rise in volatility can be ascribed to financial innovations.

4. By contrast, the role and responsibility of the different market participants, notably institutional investors, does seem to be more problematic. The analyses in the Collection more or less agree on the **behaviour of institutional investors** (such as life-assurance companies, pension funds, etc.), who have often found themselves obliged to liquidate part of their assets prematurely while maintaining their liabilities, in our view principally as a result of the accounting and regulatory constraints to which they are subjected, but also due to a lack of long-term vision and a tendency to adopt a crowd mentality among a certain number of them. This, combined with exceptionally sharp falls in share prices, has deprived the markets of their main source of structural liquidity. As a result, it is essential **to strengthen the position of institutionals**, who are by nature long-term investors, and to adapt the body of regulations that apply to them, above all in Continental Europe. Indeed, most continental European markets (including France), which are seriously handicapped in this domain, have experienced much higher levels of volatility than the US. Thus, it would be pointless envisaging any changes to the current regulations before taking the steps needed to **counter the “short-termist” mentality**, by creating or reinforcing conduits for long-term investment (pension funds, strengthening employee savings schemes, etc.), and by moving to attenuate – rather than encourage – marked-to-market accounting, etc. A system of “market governance” must also be implemented to enable buy-side players (investors and fund managers) to fully play their role. This would act as an effective counterweight to the current sell-side bias prevailing in the markets and financial information that has resulted from the excessive prominence given to issuers, brokers and investment banks.
5. **Volatility**, the “raw material” for a significant proportion of market activity, **provides a means of hedging against increasing risks in the real economy**. Market regulators should not prioritise or focus exclusively on a reduction in volatility. **Volatility is an indicator of underlying problems** (see points 2 to 4), a consequence rather than the cause of instability in financial markets and

⁸ Several authors recognise, however, that these innovations can be destabilising at times of economic stress or crisis, which supports the argument for more flexible regulations that are adapted to market conditions. In the event of a sharp upturn in the stock markets, a lesson could be drawn from this crisis by increasing the resources available to supervisory and regulatory authorities in order to better control the ability of agents to take on risk in the event of a market turnaround.

in the real economy. The best antidote to excessive volatility is the restoration and maintenance of a climate of confidence.

6. **It is residual volatility that needs to be reduced**, the type of volatility that market participants cannot counter, notably because **markets are too incomplete**⁹. Insofar as financial innovations give market players an additional tool for hedging risks, and thereby improve the functioning of the economy, they are probably beneficial, regardless of their effects on volatility. In other words, we need to look at the big picture and must not let technical considerations on volatility's effects cloud the most important issue, namely the markets' ability to respond as effectively as possible to the needs of the economy¹⁰.
7. Certain analyses currently underway focus on the need for a **stronger system of market governance and increased market transparency**, which we support wholeheartedly. Given the increasing role played by markets in financing the economy – as a means of diversifying investments and sharing risk – and given the huge amount of capital that they attract, participants need to behave in a responsible fashion to merit the trust placed in them by investors. To earn this trust and to reduce any conflicts of interest to a minima, market participants need to continue their efforts to improve self-regulation, compliance and discipline and thus protect markets and, above all, investors effectively. That said, some economists are sceptical about the effectiveness and scope of general rules on corporate governance, stressing that conflicts of interest – or agent/principal relationships – are difficult to avoid, particularly because they are, *ceteris paribus*, inherent to existing compensation incentives, which play a major role in determining the behaviour of those involved in the fund management business and other market players (financial analysts, investment banks, consultants, rating agencies, etc.). Other economists, drawing their inspiration from game theory, offer a more positive and seemingly more realistic vision that advocates attenuating rather than eliminating these conflicts of interest by stressing a form of co-operation that is based on more diversified forms of interaction between agents.
8. There is a general consensus in the essays **that in order to improve the functioning of financial markets** – i.e. markets where risk taking can be fully transparent – information needs to be more reliable and transparent at all levels (issuers, intermediaries, investors, regulators, political leaders, etc.), and clear,

⁹ The completion of markets should serve to increase the depth and liquidity of financial markets, and thereby reinforce the offer/demand for securities. In other words, this comes down to providing companies with access to more sizeable capital flows. But the increase in the availability of capital that would come from the development of pension funds in continental Europe would need to be accompanied by increased surveillance of governance in those companies in which the capital is invested.

¹⁰ P.-A. Chiappori, *Gestion Alternative, quelle réglementation ?*, in *Gestion alternative – Collection of essays*, AFG, July 2002, pp. 10-14. (www.afg-asffi.com/afg/fr/publication/index.html).

precise and strict rules need to be enforced in order to maintain and manage this information.

9. In the meantime, **it is not necessary to look to prevent at all costs corrections in share prices** – even if they appear aberrant – and the resulting economic restructuring. Although at one time there was a fear that the Japanese syndrome (economic stagnation and widespread deflation of real and financial asset prices over a sustained period) would spread to western economies, stock market corrections have in fact helped purge the real economy, thus creating a healthier basis for a market revival. Whatever theoretical, the classic Schumpeterian model of “creative destruction” followed by a gradual return to trend highlights two points: first, that it is foolish to believe we can do away with economic cycles, and, second, that while it is true that markets provide the fuel for economies, markets cannot ignore the absorption capacity of these economies. The extreme tension between market fundamentals and the forecasts of market participants (which too often take the form of blind leaps of faith) sooner or later leads to the formation of speculative bubbles and then to the drying up of market liquidity when the plummeting cost of capital finally takes its toll on earnings forecasts. The important thing is to keep this phenomenon under control.
10. The recognition of the role and **impact of macro-economic and monetary policy, and of economic policy in general, on the equity, bond and currency market and on the wider economy**, should – if it is subject to an in-depth analysis – put into perspective the impact of financial innovations, which are all too easily singled out as the primary culprits behind instability in financial markets and, consequently, in the economy in general. The determination to reduce volatility – while both feasible and indeed desirable – presupposes increased vigilance on the part of financial and monetary authorities, notably as regards the way in which markets are organised and the behaviour of market participants. But this objective of market stability “can only be fully achieved if these same authorities also strive to limit sizeable fluctuations in inflation and growth variables”¹¹.

* * *

To sum up, while we recognise there is a real need for market regulation, we believe this should take the form of more transparency and accountability for all market participants in order to promote the development of financial markets, notably in terms of completeness, rather than take the form of administrative restrictions that would serve only to restrict financial markets’ growth. We also stress the need to restore a balance between the sell-side and buy-side, which should, in practice, mean greater representation and power for investors in relation to the excessive powers currently held by issuers and intermediaries. This is a basic condition for providing all market

¹¹ See A. Brender, *Volatilité financière et politiques macroéconomiques*, Collection of essays on volatility in equity markets, AFG, June 2003, pp. 20-22. The observations in this note are based on the book *Les marchés et la croissance*, A. Brender and F. Pisani, Paris, Economica 2001.

participants with access to high-quality information in order to avoid any asymmetries. While such moves may not solve all the problems that have recently undermined confidence in the financial markets, they should at least help to widen market liquidity by making markets more accessible to issuers and investors, and preventing the emergence of restrictive regulations that aim to control and eventually to reduce the size of markets.

Lastly, in the light of current discussions, and given the complexity of the issues relating to volatility, liquidity and, in particular, market stability, we continue to support the view expressed in France and by most of our European and US counterparts, that the introduction of measures at a national or regional level, without taking into consideration initiatives implemented in other market places, would prove detrimental to the financial industry, by distorting competition and the attractiveness of markets.

Excessive Volatility or Uncertain Real Economy? The impact of probabilist theories on the assessment of market volatility¹

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1. Market informational efficiency

1.1. Fair prices and informational efficiency of a market

The question of market volatility can be addressed by starting with that of the informational efficiency of capital markets (the “efficient market hypothesis”). This refers to the ability of the “market” tool to provide social actors with information about the intrinsic value of companies. It is not by chance that, two years after the crash of 1987, articles published in the financial press bore such titles as “The shortcomings of efficient markets”³ and “Market efficiency seemed like a good idea – until the stock market crash”⁴: the question of business valuation (fair asset value) cannot be separated from that of informational efficiency. In other words, the economic concept of market informational efficiency is central to the problem of market volatility.

The concept of market informational efficiency is relatively complex if we wish to analyze all its theoretical and practical aspects, but for the purposes of this article we will consider only the primary insight involved⁵. Very generally speaking, a stock market is said to be informationally efficient if it correctly translates information into money. The traditional definition is more precise: a stock market is considered informationally efficient if, based on all available information, market prices are good indicators of the intrinsic value of a company, in that they fully reflect all available and relevant information, namely “the long-term growth outlook of the activities in question”⁶. Figure 1 illustrates the principle of market informational efficiency: the so-called “real” economy can be seen in the listed market price, as if looking through a non-distorting glass.

¹ The aim of this article is to demonstrate the importance of the probabilistic nature of the randomness of the so-called “real” economy in the debate on market volatility.

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³ *Revue Banque*, no. 497, September 1989, pp. 827-834.

⁴ *Business Week*, 22 February 1988, pp. 38-39.

⁵ For a historical and epistemological perspective on the changing semantic content of the notion of market informational efficiency, see Walter [1996a, 2003].

⁶ This requires the use of a pricing model (see below).

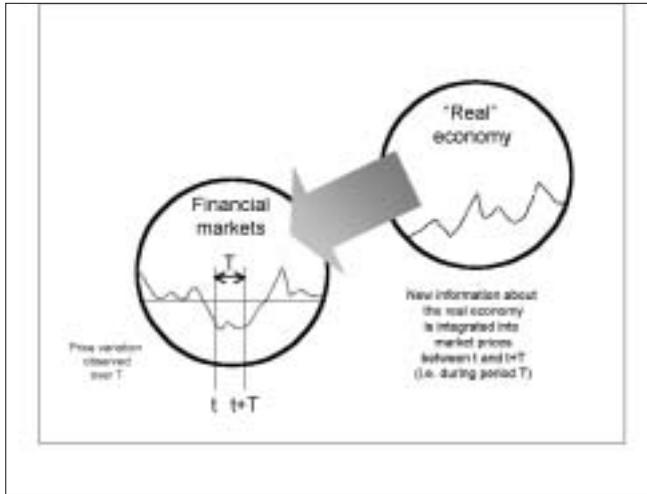


Figure 1: Market informational efficiency

The real economy is integrated into market prices through the property of informational efficiency: the market is efficient in the sense that it correctly translates information into money.

The notion of information is central to this discussion. How is information integrated into prices? If the equilibrium price is to reflect the value of the company accurately, operators who are informed about this value must intervene in sufficient numbers, thus steering the market price towards its intrinsic value (it is said that informed operators are the “arbiters” of the market). The intervention of informed operators is therefore essential: for all practical purposes, market informational efficiency relies on arbitrage by players who are informed of the conditions of the real economy. This illustrates the importance of financial information in fair price formation, and reveals just how dangerous the current informational crisis is. Many theoretical studies have shown that confidence in the quality of information is an important factor in market efficiency (the market price cannot manage scarcity and quality at the same time), and practitioners have drawn the public’s attention to the key role of such confidence, a lack of which leads to widespread mistrust and the disappearance of markets.

To assess a company’s value correctly, however, operators must have access to a capital asset pricing model and agree on how it is to be used. It appears that a *modelling consensus* is central to market informational efficiency and that the pricing model is the formal cause of equilibrium, in terms of the mathematical form of the value that leads arbitrage operators to take action when they detect improper valuation by the market. The fair price on a given date is the arbitrated price, in the sense that operators believe that no further arbitrage is possible, based on the intrinsic value resulting from this model.

The two types of information and the modelling consensus

Since the quality (and therefore value) of the “financial market” tool is judged according to its ability to translate information into money, it is also important to consider the type of information that is integrated into prices. It is customary in financial theory to take into account two types of information: so-called “exogenous” information, which refers to the “real” economic environment *external* to the market per se (corporate financial statements, macroeconomic indicators, social conditions, etc.), and what is known as “endogenous” information, which refers only to the market’s *internal* technical characteristics (market position, volume, past stock prices, etc.), i.e. information specific to the operators themselves.

Exogenous information is considered “good” because it allows one to form a well-reasoned opinion regarding the real value of the company, the so-called “fundamental” value, while endogenous information is considered “bad” because it cannot be used to determine the fundamental value. Even worse, it is believed that endogenous information contributes to the speculative behaviours of operators who, in this case, are more interested in other operators than in the company’s value: instead of examining the state of the real world, they focus on each other, which leads nowhere. Figures 2 and 3 illustrate these two types of attitude assumed by operators: the healthy attitude, which looks ahead (the company’s future performance), and the unhealthy attitude, which looks backwards or sideways (behaviour of other operators).

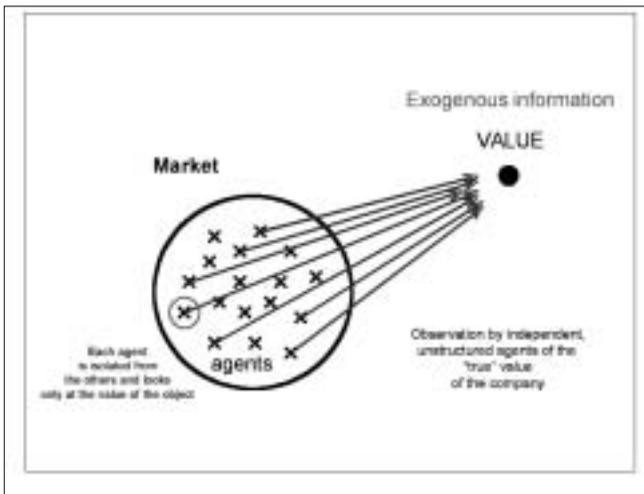


Figure 2: *A good information model*

All operators make an effort to inform themselves as to the company’s value: each one looks outside the market, without considering the other operators (his/her neighbours). Exogenous information is “good”.

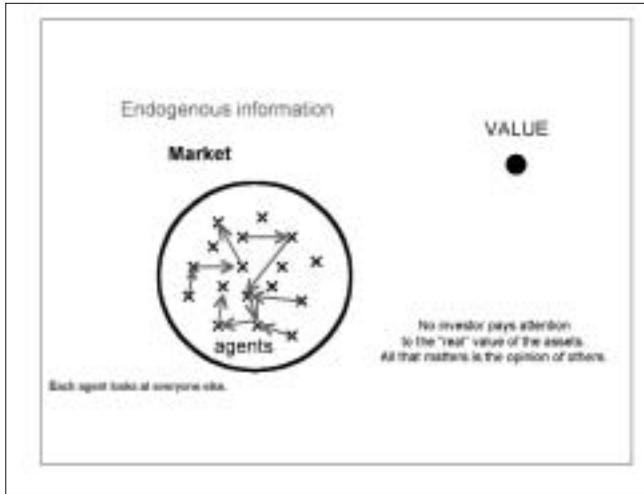


Figure 3: *A bad information model*

No one is interested in the company's value: all the operators look within the market, taking into account only its technical characteristics or their neighbours' opinions. Endogenous information is "bad".

Expectations related to each type of information pertain either to an expected increase in the stock price (the "speculative" component of the price) or to a return linked to the stock's dividend (the "fundamental" component of the price). This difference of interpretation is coupled with a sociological difference between two populations of players on the markets involved: whereas information related to the "real" economy is the area explored by financial analysts and economists, studying information related to the collective behaviours of market players is the much-disputed territory of technical analysts. From this epistemological standpoint, the world is divided into two sets of knowledge, information and players: the "good guys", who are concerned with the real economy and expected stock returns, and the "bad guys", whose only interest is to achieve gains through skilful speculation exploiting the herd mentality of operators. This sociological dichotomy evokes the now classic distinction proposed by Keynes between "speculative" behaviour and "company" behaviour.

Based on this vision of the world, the problem of market volatility seems to be simple and easily resolved: either speculators intervene by processing bad (endogenous) information, which results in the formation of a speculative bubble and a dissociation between price and value, or investors and arbitrageurs intervene by processing good (exogenous) information, in which case the difference between price and value is eliminated, no abnormal market boom occurs and shares are valued at their "fair price". Since in a real market the two categories of players co-exist, the proportion of operators who are well informed about the real economy becomes a significant parameter: if their numbers decrease, the market will likely be driven by misinformed

operators who will feed on prices like parasites, and will flip-flop between the successive majority opinions of these parasite operators. A great many theoretical models have studied the impact of well-informed operators compared to that of misinformed operators (parasite operators), while attempting to isolate the avenues that lead towards equilibrium from those that lead to chaos. From this point of view, it is tempting to imagine that all one need do to avoid speculative booms is to ensure that arbitrageurs predominate by drastically reducing the number of speculators through taxation on transactions (such as the tax proposed by Tobin).

In reality, one must fully understand the importance of the pricing model in equilibrium price formation, as well as the modelling consensus argument. The pricing model determines how the predictions will be used, and in theory there is nothing to prevent the opinions of informed operators from moving together and simultaneously in the direction of an arbitrary, and arbitrarily wrong, valuation. A wide variety of equilibria based on sound predictions is possible, even with supposedly good (exogenous) information, and polarization effects may occur, pushing prices up or down for no apparent reason. The subjective beliefs of individuals about a specific modelling consensus tend to bring about a real increase in the imaginary content of prices and the content of the model itself, such that price forecasts can become self-fulfilling as a result of the simultaneous action of operators who believe them to be true. Based on self-referential logic that has nothing whatsoever to do with any real features of the company, the market moves towards a stock price which results simply from the fact that the operators' mistaken idea of the fair price of the company becomes the actual listed price. This continues until a hypothetical return to real economic considerations, at which time it becomes apparent that the market boom was completely unfounded (for example, market declines after valuations of Internet stocks). This is an especially sensitive situation when the modelling consensus is not based on any empirical validation of the real behaviour of the companies or stock markets and therefore leads all the players to an arbitrary fixed point, an unstable attractor that is akin to a severe collapse in prices. This incorrect model, coupled with the polarization of opinions, has been caused recurrent financial mishaps, to the point where a new concept, that of "model risk", appeared several years ago in financial institutions' management of market risk.

The modelling consensus based on the nature of randomness, which we will now discuss, is one of the most important in present-day finance, and one of the trickiest to evaluate.

2. From stock market randomness to the randomness of the real economy

2.1. The consensus on the nature of randomness and its problems

We need to take a closer look at this issue of randomness and to examine, in particular, the content of one of the most powerful modelling consensuses that has characterized business practices since the time of Bachelier: the normality consensus⁷.

This consensus, which is extremely important for the real development of modern finance, has gradually taken shape over the last 50 years, and has given rise to the standard model of market fluctuations: the hypothesis is made that, on first approximation, successive variations in prices show a normal (or log-normal) distribution. The Laplace-Gauss normal distribution, for example, calibrates the theoretical market fluctuations and makes it possible to categorize these fluctuations qualitatively (and with precision) as “too strong” or “normal” on the basis of Gaussian dispersion measurements. This means that fluctuations in the intrinsic value of stock must be normal (in both senses of the word) in order for market operators to establish clear information. Figure 4 illustrates the significance of this: a Laplacian fluctuation in the figures observed for the real economy enables operators to forecast the stock value with certainty.

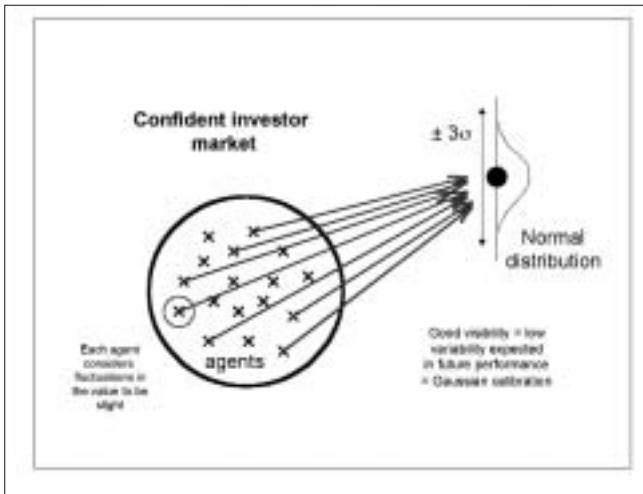


Figure 4: Importance of the Gaussian consensus

⁷ The financial literature on this topic is extremely rich (several thousand articles and textbooks). For the historical aspects related to the formation of the normal-Gaussian paradigm, see Walter [1996a, 2003]. For a discussion of the challenges of normality faced by financial markets, see Walter [1996b]. Two recent works make certain aspects of the problem readily available. For the mathematization of markets made possible by the normality hypothesis, see Bouleau [1998]. An interpretation of normality in terms of Keynesian convention is provided by Orléan [1999].

The valuation consensus based on the Gaussian law ensures good visibility for operators: the value is apparent and clearly visible to all. In theory, there is no reason for speculative swings to occur.

Ever since the first statistical studies of market fluctuations, however, analyses of market fluctuations based on various time scales (quarterly, monthly, weekly, daily and intraday frequencies) have revealed a violation of the Gaussian hypothesis. For all practical purposes, actual distributions of price variations are more peaked and extended than the Gaussian distribution: the tails of distribution are thicker than those envisioned by the normal distribution, which corresponds to a higher number of large variations than the theoretical number implied by the corresponding probability level. This phenomenon, known as “leptokurtosis” (from the Greek *lepto* for “peaked”, and *kurtosis* for “curve”), occurs in almost all financial time series. When examined using cross-section analysis, all the actual tails of distribution can be adjusted according to a specific law of probability described in the theory of extreme values⁸: generalized Pareto distribution. Market variations would therefore be Paretian rather than Gaussian and, as a result, market randomness would not be Gaussian but Paretian⁹.

This observation of Paretian structures in the financial arena, which went against the Gaussian consensus, triggered a debate on financial modelling which runs through the history of finance and has led to the emergence of several competing models to account for this empirical non-normality. These models are categorized according to their objectives (descriptive or explanatory) and to the cause assigned to market booms, two approaches that define two general lines of thought. These two schools of interpretation can be presented using the following formula: either we attribute leptokurtosis to causes external to the markets or we make the markets themselves the cause of the leptokurtosis.

2.1. The two understandings of the cause of market volatility

In the first way of understanding large market fluctuations, the non-normality of distributions of market variations is simply the transposition onto financial markets of the non-normality of real-economy variables. The property of market informational efficiency ensures this transfer of non-normal shocks from real economic phenomena to price variations. In this case, leptokurtosis is external to the market.

⁸ For a technical summary, see Embrechts *et al.* [1997].

⁹ Pareto distribution expresses the common notion that “very few have much and many have very little”. In Gaussian randomness, a large number of similar events of little significance results in a classic form of randomness, in which the simple form of the law of large numbers applies: (nearly) each person has as much as his/her neighbour. In Paretian randomness, on the other hand, a small number of very significant events produces the result observed and the law of large numbers must be generalized. A small number of events captures the essence of the phenomenon: for example, most of the losses are tied to a few incidents and most gains to a handful of industrial ventures, etc. See Walter [2002] and Zajdenveber [2000].

The second way of looking at large variations takes the opposite approach: leptokurtosis simply stems from the amplification by operators of real, normal shocks that are over-interpreted as a result of opinion and copycatting, which can lead to market disruption. According to this view of the world, financial specularity results from the polarisation of opinions in a self-referential logical system (the “animal spirits” that Keynes spoke of). In this case, leptokurtosis becomes internal to the market.

In the first case, large market movements are normal because the real economy is not normal, while in the second case, large market movements are abnormal because the real economy is normal. To use Mandelbrot’s terminology, we can say that, according to the first hypothesis, the markets are fractal because the real economy is fractal, whereas, according to the second hypothesis, the markets are “exuberant” because the real economy is in balance.

2.2. External cause: the economy of extremes

For the line of thinking in which the source of non-normality is external to the financial market, it is important to be able to establish that the real-economy figures are, in fact, Paretian. Today, however, this phenomenon appears to be clearly established, and in 1972 Samuelson was able to assert that “such *ultra-extended* distributions occur frequently in economics”. For example, company size, annual revenues, the distribution of wealth, populations of countries and so on always follow Pareto distribution, and it appears that the real economy is, to use Zajdenweber’s words, an “economy of extremes”. Therefore, extreme market fluctuations would be a true reflection of the economy of extremes: the Paretian structure of the “nature” of the real economy is fully transferred to market prices, in such a way that the leptokurtic structure of the market variations mirrors the Paretian structure of the economy.

2.3. Internal cause: extreme interaction

For the line of thinking in which the source of non-normality is internal to the financial market, it is necessary to describe and then test models of operator behaviour in which polarization of opinions based on any arbitrary consensus steers the market towards a speculative bubble. This line of research has been extremely productive and widespread for the last 20 years or so, and has made it easier to understand that the supposedly sound predictions of economic agents were, in fact, merely a rationalization of subjective beliefs which, depending on the circumstances, could be either likely or completely disconnected from reality (for example, “sunspot” models in which the stock market follows the appearance of sunspots, even though these spots have no impact on the real economy). Moreover, the existence of very powerful stock market computer systems, such as the SuperDOT system in New York and SuperCAC in Paris – which make all the operators’ quotations and order books, on a quotation-by-quotation basis, accessible for research – has already led to significant advances in the modelling of the aggregation of information into market prices. The analysis of market microstructure should make it possible, in the near future, to offer better explanations of how prices are formed and hence a better understanding of the relationship between information, rumour, belief and prices.

2.4. Our hypothesis: extreme uncertainty

Our intention here is to show that these two analyses, which lead to apparently opposite conclusions, are not only not contradictory, but can in fact be reconciled. If the real economy is characterized by the existence of quantities which, in structural terms, are not Gaussian, then the fluctuations in the fundamental intrinsic value are too strong to be reliably understood by Gaussian models (phenomenon whereby the notion of “average” becomes irrelevant, even if it is still possible to calculate an average). The volatility of the fundamental value then leads operators to doubt normal valuations, which, according to the theoretical models of polarization of individual opinions, results in copycatting and speculative behaviour. In other words, we are making the following proposal:

Proposal: non-normality of the real economy and heightened volatility

A non-Gaussian real economy leads to uncertainty about the fundamental value; this uncertainty results in copycat behaviour which, in turn, intensifies market fluctuations and increases speculative movements. Faulty modelling of fundamentals and the impaired ability to understand the fundamental value constitute a theoretical potential for strong market volatility.

The difficulty in modelling economic fundamentals stemming from the very structure of the phenomena that make it difficult to arrive at the fundamental value constitutes a theoretical potential for market speculation. Figures 5 to 8 illustrate the road towards speculation based on this faulty modelling, resulting from the non-Gaussian structure of the real economy.

3. Conclusion: excessive volatility or nature of the real economy?

In the attractive, elegant and powerful constructive model which distinguishes “good” volatility from “bad”, competent investors from harmful speculators, operators who act in an ethically responsible manner from those who intervene merely to take advantage of the efficiency of the markets with no regard for a common purpose, it appears that a fundamental factor has been underestimated and even ignored: the probabilist nature of the randomness affecting the real economy. Taking this factor into consideration would make it possible to eliminate, in part, the prevailing fatalism or pessimism that attributes the causes of financial specularity to the very existence of the markets.

In this article, we have shown that:

- a) On the one hand, this dichotomy between good and bad volatility is based on the strong but necessary implied hypothesis that the randomness of the real economy is Gaussian in nature. Based on this condition, the constructive model described above can be applied without much difficulty since the tendency of market prices to gravitate around a well-calibrated hypothetical fundamental value allows us to make a clear distinction between “normal” (in the literal and figurative senses of the word) and “abnormal” variations. Normality (Gauss distribution) allows us to make a simple description of normal and abnormal and a clear distinction between fair price and speculation.

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- b) On the other hand, in the case of non-Gaussian randomness that affects real-economy figures, and particularly randomness of the Paretian variety (in terms of Pareto distributions), this distinction between normality and non-normality becomes blurred: the uncertainty of the fundamental value leads operators to fall back on the convention (in the Keynesian sense) of a value that can be justified only by a self-referential argument.

This is bound to have serious consequences on the fair, ethical assessment of market volatility.

Annex

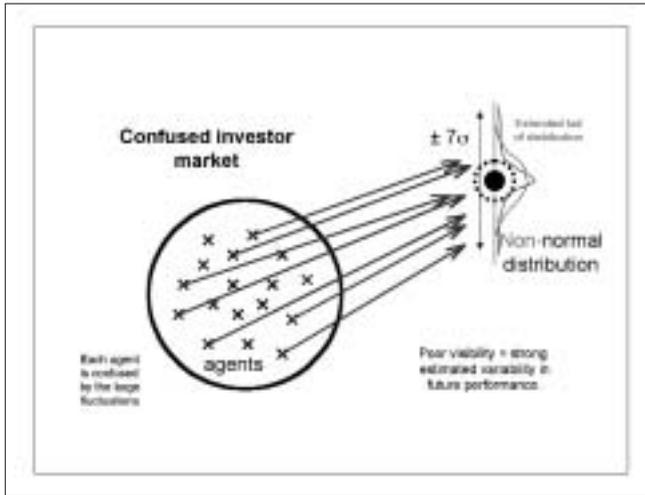


Figure 5: Impact of non-normality

The modelling consensus based on the Gaussian distribution is used by default. The real value can fluctuate very sharply (non-normally) and operators are not able to discern it clearly enough.

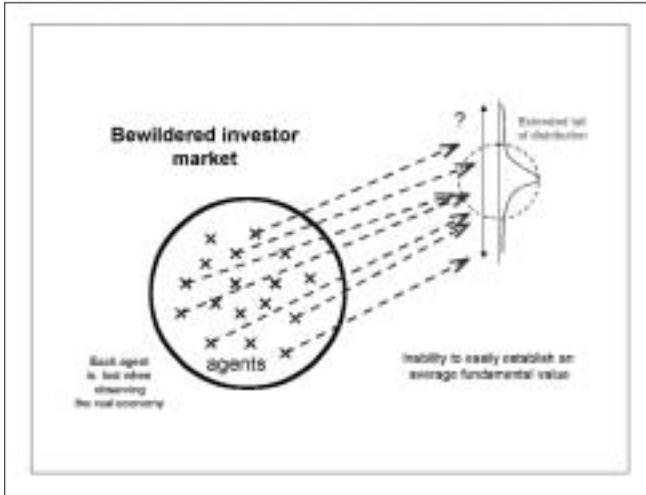


Figure 6: Loss of value in a non-normal world

In a real, non-Gaussian world, the clear representation of the intrinsic value is erased as a result of fluctuations which are too strong to allow relevance to be assigned to the notion of average. Operators become bewildered.

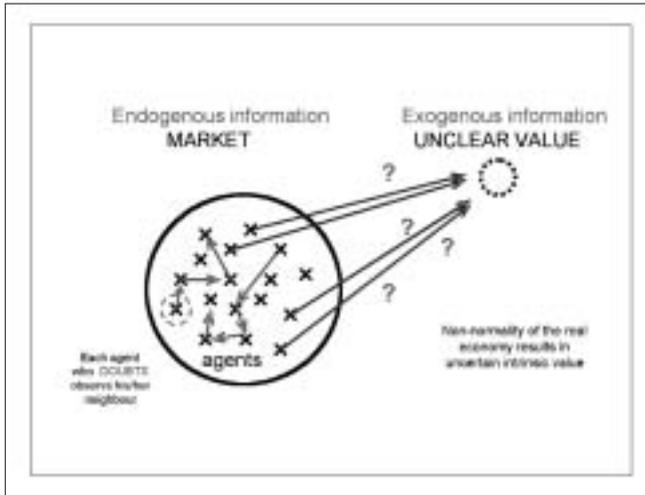


Figure 7: *From loss of value to agonizing doubt*

The loss of intrinsic value results in the onset of doubt as to the validity of one's own valuation. When this occurs, the market may adopt copycat behaviour and endogenous information appears to be relevant.

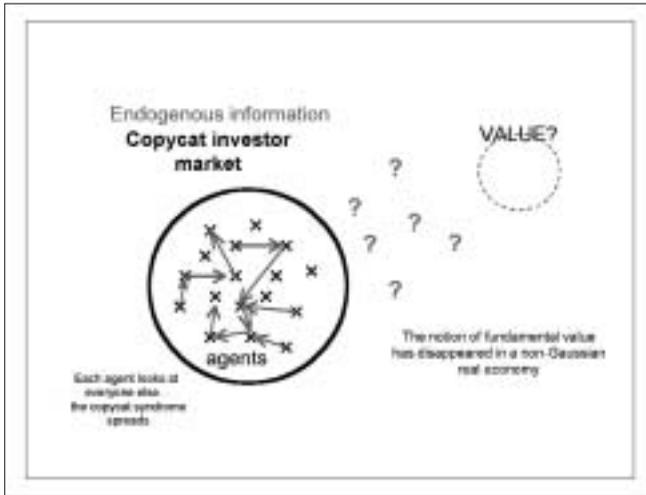


Figure 8: *From non-normality to speculation*

During the doubting process resulting from the non-normality of the real economy, the market runs amok in a seemingly unstoppable frenzy of copycat speculation.

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Financial markets – is price volatility irrational?¹

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Stock price volatility, which seems to be exceptionally strong today, nevertheless has many historical precedents. Volatility takes the form of “bursts”, the frequency of which is not at all cyclical. The sharp up-and-down waves observed in the last several years are, in fact, made up of a very small number of extreme variations concentrated over a few trading sessions. These “peaks”, which are not accounted for by the efficient market hypothesis, are due to the absence of economic “fundamental constants” or an “intrinsic scale”, to the technical characteristics of the financial markets and, more importantly, to the volatility of the “fundamental” value of shares.

Between 1987 and 2000, the increases in the main market indexes, as “exuberant” as they may have seemed, especially to Alan Greenspan, were not really exceptional. In a period of twelve years, from December 1987 (after the crash in October) until its absolute peak on 14 January 2000, the Dow Jones Industrial Average rose from 2,850 to 11,722 *in constant dollars*, which represented an increase by a factor of only 4.1, and the CAC 40 index, *in constant monetary units*, increased by a factor of 5.3 between the end of December 1987 (1,300) and its peak on 5 September 2000 (6,929). The point is that equally spectacular rises had already occurred in the past. The Dow Jones Average rose by a factor of 6.3 between 1922 and October 1929, also in constant dollars, and by a factor of 4.4 between 1949 and its second highest all-time peak in January 1966 (5,355). This peak was followed by a lengthy decline which began with the bombing of the Tonkin Gulf in Vietnam and lasted until 1982 when the index hit 1,400!

In fact, the downturns in the market indexes have been as dramatic as the upswings. From 1929 to 1932, the Dow Jones Average fell by a factor of 7.3, and by a factor of 3.8 between 1966 and 1982. As of February 2003, the decline in constant monetary unit has not yet reached such extreme levels; however, since its peak in September 2000, the CAC 40 has fallen by a factor of 2.5, whereas the Dow has fallen by only 37% since its peak in January 2000. The most exuberant index is not the one Mr. Greenspan was referring to.

To understand the cause of these sharp fluctuations, typical of all stock markets, and why they continue to occur, the simplest method is to analyze the percentage variations of the indexes in the form of a graph. These variations determine operators’ gains and losses, allow the volatility of the indexes to be assessed and reveal a number of typical patterns of stock market time series.

The vertical axis of the first figure shows the approximately 2,000 consecutive daily variations in the Dow Jones between January 1980 and December 1987. The second one depicts the 1,260 monthly variations in the Dow between 1896, the year of its creation, and 2000. Without resorting to complex statistical techniques, a simple inspection of these two figures reveals a number of typical features.

¹ Article published in *Sociétal* magazine, “Repères et tendances” section, no. 40, April 2003

The daily and monthly variations in percentage are more or less symmetrical and fluctuate around the zero point. There are almost as many positive variations as negative, and the number of gains is therefore comparable to the number of losses. There is no trend in the variations, since both graphs are perfectly horizontal.

The average volatility of daily variations can be estimated at approximately 1%, with the vast majority of daily variations falling within a horizontal band of $\pm 2\%$ in relation to the zero point. Similarly, monthly volatility can be estimated at approximately 4.6%, with a confidence interval of about $\pm 9.2\%$.

Sporadic “bursts” of volatility

In both graphs, however, volatility fluctuates greatly from one period to the next: it is itself volatile. It varies in “bursts”, by alternating between turbulent periods and periods of relative calm. In terms of daily variations, volatility is very strong beginning in March 1982, with a large number of variations close to or in excess of 4%. It is even stronger at the end of 1987 with the crash of 19 October, when the market fell by 22.6%, followed by an uptrend of 9.1% on 21 October and another 8.04% decline on 26 October. Conversely, daily volatility is lower than average volatility at the beginning of 1982 and the end of 1985. Monthly variations since 1896 clearly demonstrate that volatility was substantial in the 1930s, limited during the post-war era, and again strong in 1987 and 2000.

An in-depth analysis of Figure 2 reveals a distinctive trait of the New York market’s volatility: it is significantly higher throughout the period between 1896 and 1940, with monthly variations which exceed 10% and are visibly higher in number than those observed after the 1950s. Moreover, prior to 1940, there are 16 annual variations that exceed 25%, compared to only 4 after 1950. This change in pattern, little known to the public, stemmed from the founding of the Securities and Exchange Commission (SEC) in 1933. The SEC put an end to unsupervised and often dishonest forms of speculation and, above all, imposed rules of good conduct on intermediaries and established conditions for providing shareholder information.

The main characteristic, however, of historical variations in stock prices is the very obvious presence of a large number of “peaks”, which correspond to very sharp variations, well beyond the $\pm 2\%$ confidence interval shown in Figure 1 and the $\pm 9.2\%$ interval shown in Figure 2. Since 1885, more than 125 daily variations over 5% have been recorded in New York, several of which have exceeded 10%; if we apply “traditional” statistical theory, however, such as that used in surveys, only two or three over 4% and none over 5% should have been recorded. What is worse, these exceptional variations are themselves grouped together. Sharp daily variations are immediately followed by other sharp variations, though not necessarily in the same direction, the result being that an annual increase or decrease occurs, by and large, in a very small number of days. For example, between 1983 and 1992, most of the increase in the Dow Jones index (by a factor of 2.4 in constant dollars) took place over 40 days, or four days per year on average. If we eliminate these 40 days showing the highest increase from the historical daily variations and recalculate the Dow Jones average based on the remaining 2,486 variations, the increase in constant dollars becomes almost nil. In other words, on the stock market, even during periods of an

extended upward trend, it is not enough simply to buy, but to buy at the right time. It should be added that this phenomenon is not specific to annual variations, but also occurs in intraday variations, which are important for traders who begin their transactions when the market opens and complete them by closing. They are also aware that most variation during the day often occurs in 10-minute periods, and sometimes less.

These sharp variations, which are infrequent but clustered together in time, have always occurred in all speculative markets, whether trading involves stocks, interest rates, raw materials or foreign currencies. Thus, Louis Bachelier (1870-1946), the French mathematician who proposed the first probabilistic model of speculative markets in his 1900 thesis on fluctuations in perpetual annuity prices, had already observed that large fluctuations were “too numerous” compared to frequencies that would follow Gauss’ more common “bell” curve. Another French mathematician, Benoît Mandelbrot, in an article published in 1963 on the stochastic modelling of variations in cotton prices in Chicago, showed that, from the time of this market’s creation in the nineteenth century, extreme variations were relatively frequent and clustered together.

Fluctuations classified as exuberant have therefore always existed in stock markets. Those observed in the last ten years or so, first upward and then downward, are no more exuberant than those in the past.

The so-called efficient market hypothesis, which is the underlying rationale for stock markets, helps explain some of the characteristics we just described (but not all, as we will see), particularly the fundamental role of volatility. To understand the origin and extent of market fluctuations, we must therefore begin by taking a brief theoretical detour.

The efficient market hypothesis

The efficient market hypothesis, proposed by Louis Bachelier, was developed during the 1960s by Paul Samuelson, winner of the 1970 Nobel Prize in Economics, and further enhanced in 1965 by Eugene Fama, a professor at the University of Chicago, which has produced many Nobel laureates in economics. According to this hypothesis, all relevant information about listed companies is known by all participants, immediately and at no cost, and is therefore always incorporated into stock prices. A common saying summarizes this fundamental idea: “Once you have heard the news, it’s too late to use it”. This theory legitimizes stock markets by pointing to the opposition between market finance and bank finance. The fact is that banks do exactly the opposite of stock markets: they base their legitimacy on secrecy and privileged information which bankers try to obtain and keep regarding their customers, usually borrowers.

The efficient market hypothesis is founded on two premises: 1) what is traded on these markets are predictions and only predictions (with the exception of voting rights, which are valued at the time of public offers to purchase stock); 2) markets are fair and favour neither buyers nor sellers, since the buyer expects the opposite of what the seller does. Based on these two premises, the efficient market hypothesis shows that stock price variations must, in fact, be symmetrical to the zero point. In other words, the average gain (not including dividends) must be exactly equal to zero, whereas in bank finance, borrowers are subject to a much higher interest rate than they would charge if

they lent money using their deposits. Another adage refers to the absence of systematic gain: “You cannot beat the market, because you are the market”. The volatility of variations is a direct consequence of the absence of systematic gain. It measures the share of randomness which buyers and sellers split between themselves, much like a coin toss in which each player’s gains are identical and result from symmetrical chance.

Market efficiency also helps to explain several statistical peculiarities:

- Prices fluctuate aperiodically. Apparent cycles are not regular and their length is merely a statistical artefact.
- The longer the time interval, the stronger the volatility of the variations; it increases as the square root of time, as demonstrated by the comparison between Figures 1 and 2. According to the hypothesis, monthly volatility is 4.6 times greater than daily volatility².

The mystery of extreme values

Despite its scientific success among economists and its many practical applications, such as the opening of the negotiable options markets in 1973 (the premiums of which, depending on volatility, are calculated using a mathematical formula based on the theory of efficiency³), the efficient market hypothesis does not explain extreme values. However, it is these “peaks” in variations and these “bursts” of excessive volatility, often categorized as irrational because of how surprising they are to economists themselves, that are highlighted by journalists in their reports to the general public. There are three fundamental reasons used to explain and justify the existence of these fluctuations. First of all, economics is not a natural phenomenon. It does not belong to the world of physics or biology, but can be polluted by psychology. Second, the interaction of supply and demand on a market gives rise to instability. Lastly, the so-called “fundamental” value of stock or a stock index is, by its very nature, a volatile value.

Unlike physics, economics has no fundamental constant – no “Planck’s constant” and no gravitational or speed of light constant according to which matter and the universe are organized. It is therefore impossible to create fixed rules. Nor does economics have any “conservation of energy” laws which limit growth phenomena in physical reality. This means that for a physicist, all growth rates, even as low as 1% a year, are capable of triggering explosive reactions and therefore cannot persist for very long⁴. This absence of constants in economics clearly encourages the most outlandish predictions, which give rise to speculative bubbles, such as that of new technologies. *They are corrected only after the fact, when reality makes it apparent that unlimited growth is impossible.*

² For the record: $4.6 = \sqrt{21} = \sqrt{\text{of the average number of trading days in a month}}$.

³ This is the “Black and Scholes” formula, which earned Myron Scholes the Nobel Prize in 1997. Fisher Black had died and, in accordance with the rules of the Nobel Foundation, was unable to receive the award.

⁴ For example, \$1 invested for 2,000 years at a rate of 1% becomes \$439,000! If invested for 5,000 years, the value of this same dollar would be beyond comprehension (4 followed by 21 zeros). On the scale of the age of the universe, the calculation loses all meaning.

The effects of this lack of constants on expectations are compounded by another characteristic of economics, namely the absence of an intrinsic scale. In economics, there are no hypothetical constraints which prevent excessive growth. The size of a company can vary from one person to hundreds of thousands of employees; the size of population clusters can range from a few residents to tens of millions; salaries can vary from the French minimum wage, or even less, to 1,000 times the minimum wage, or even much more; box office figures can range from almost nothing to 20 million moviegoers in France (Titanic) and so on. We can give endless examples in every sector, but it is still the same economic theory that applies. In this sense, economics is very different from biology, where all living beings have an intrinsic dimension and only very slight variations in size are tolerated. Thus, all human beings are limited by the ratio of their body volume, which grows as the cube of their height, to the surface of their skin, which grows as the square of their height. Beyond 2.50 metres, the size of the tallest basketball players, it becomes difficult to ensure body heat exchange without changing the entire respiratory and cardiovascular systems, the result being that the difference between the smallest adults and the largest adults does not exceed a factor of two. The absence of an intrinsic scale is also apparent in the structure of market fluctuations. As demonstrated by both figures, if we eliminate the scale indications on both axes, there is no fundamental difference between the pattern of daily variations and that of monthly variations⁵.

Although these two properties of economics make it possible for large fluctuations to occur, they are not enough to why they do occur, nor why they occur in clusters. This explanation must be found in the way in which stock markets operate and the behaviour of unequally informed operators.

Magnification mechanisms

Prices result from the relationship between the supply and demand curves. However, two major characteristics set stock markets apart from product or service markets:

- Buyers and sellers of securities can easily switch roles at any time and at no cost. All that is needed is to change one's expectation, which market professionals willingly do several times per month, or even per day. A company, on the other hand, cannot change its business at any time and at no cost. It can perhaps change certain parameters of its business, but not at the speed at which stock exchange orders are given. The price of Renault shares can vary by any number of percentage points in a few sessions, whereas Renault's output from one year to the next can hardly vary by more than 10%. Moreover, Renault cannot become a buyer of the cars it has sold, like a speculator buying back a security he or she just sold – and possibly sold short.

⁵ The same is true for intraday variations. The CAC 40 index is displayed every 30 seconds, which represents nearly 1,000 variations per trading day; these variations are similar in every respect to daily variations over four years. The absence of an intrinsic scale is an essential feature of fractal objects, the theory of which was created by Benoît Mandelbrot.

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- The supply of and demand for securities are not independent. On the contrary, they are negatively related. The same information can trigger a change in demand and an opposite change in supply simultaneously, resulting in significant price variations. In this way, when information hits the market which is considered positive for a stock, for example the discovery of a new massive oilfield or a new drug that is effective against a disease which is prevalent around the world, demand soars but people who already owns shares are wary of selling them, which magnifies the uptrend. The same is true for downturns. When the news is bad, people are in a hurry to sell but find no buyers, which is what happened on 19 October 1987 when the Dow Jones fell by 22.6%. In fact, the decline would have been much worse if trading had not been interrupted for several hours. This negative relationship between supply and demand is so destabilizing that sometimes just a handful of operators changing their expectations can trigger extreme price variations⁶.

On product and service markets, supply and demand are not independent either, but in contrast to what occurs on stock markets, they are positively related. When demand increases, producers try to increase supply; when demand decreases, they try to decrease supply as well. Price variations are held to a minimum.

Copycatting and irregular information

This magnification of variations resulting from the behaviours of buyers and sellers can be fuelled by a lack of information, or simply the inaccuracy of the information available. In fact, the efficient market hypothesis is based on full disclosure of information. If buyers or sellers do not have access to this information, specific behaviours can disrupt the market by magnifying the variations. All that is needed is for uninformed buyers or sellers to rely on the behaviour of other operators, who are not necessarily better informed than they are. They buy when everyone buys and sell when everyone sells, which leads to crashes and rallies. This herd instinct, which is strongly influenced by the psychology of operators who panic or become over-enthusiastic, and which has been coined “copycatting”, plays a very significant role. This flocking tendency has been the subject of many analyses and cartoons, such as the famous Mr. Gogo of Honoré Daumier. The psychological and cognitive roots of this phenomenon have been analyzed in depth by André Orléan, but the severe variations cannot be attributed to this behaviour alone. If supply and demand on the stock markets were not negatively related, this herd mentality would not have such an impact. In the event of high demand, supply would adjust to demand by increasing and prices would therefore not be able to rise as much. Furthermore, “copycatting” does not explain the clustering of large variations. In other words, it does not explain why this clustering stops on its own during relatively calm periods.

⁶ The way the market operates can be compared to the game of tug-of-war, where two teams compete by pulling on a rope. The game continues as long as both teams are equal in strength. Fluctuations from the point of equilibrium represent small fluctuations in stock prices. However, if any of the team members were to switch sides (if a buyer were to become a seller), the imbalance would be immediate (sharp variation in prices).

The clustering of extreme price variations on stock indexes is the result of information, particularly that related to monetary policy and interest rates, being received inconsistently. In the case of the Dow Jones index, nearly two-thirds of all sharp variations since 1946 were the result of interest rate variations, which either occurred earlier or had been announced. The other third were related to wars or presidential elections.

The sequence of market mechanisms which lead to extreme, clustered variations can therefore be described as follows: as long as there is no significant information, price variations resulting from the countless buy and sell orders remain confined to a few percentage points above or below zero. However, as soon as the market receives important information, such as a hike in interest rates or a profit warning, the effect of the decrease in demand coupled with the increase in supply, compounded by the herd-like behaviour of some operators, triggers a sharp decline in prices, such as 5% in one day. Such a downturn always has secondary technical effects linked to hedging, arbitrage, close-out of speculative positions, profit-taking, etc., which results in serious ups and downs after the information is received. Prices will therefore have a tendency to vary greatly for several days, in one direction or another, with the variations decreasing as the information becomes integrated into prices.

The last factor related to extreme variations is the volatility of the so-called fundamental stock value (V). This value is nothing more than an extension of the dividend discount model, a formula whereby dividends (d) are discounted by the interest rate (i), to which are added two modifiers, expected dividend growth rate (g) and risk premium (p). For the purpose of clarity, we can break this down to a simple expression, the elements of which are frequently published in the financial and economic press:

$$V = d / (i + p - g)$$

This means that the fundamental value of a stock is equal to the dividend divided by a denominator equal to the interest rate plus the risk premium, minus the growth rate. However, it is not difficult to verify using a pocket calculator that the slightest variation in the interest rate i, especially if it results in changes in the same direction in the risk premium and in the opposite direction in the growth rate, can have significant effects on V. In fact, in the United States between 1972 and 1995, a 1% increase in the nominal interest rate caused stock prices to drop by an average of 26%. This makes it easier to understand why financial analysts examine with such apprehension or hope the announcements, or the lack thereof, made by monetary authorities such as the Federal Reserve (Fed) and the European Central Bank. Moreover, in extreme cases where some analysts are convinced that the expected growth of dividends exceeds the interest rate plus the risk premium, the stock's fundamental value becomes, quite literally, "incalculable", which undoubtedly explains some of the excesses committed with regard to Internet stocks.

Volatility and portfolio management

The pattern of variations in stock prices, at the very least erratic and “exuberant” for some, seems to be incompatible with the concept of sound financial investing. This is far from the truth. In general, all scientific studies show that, over the long term, investing in a diversified portfolio of stocks is a good hedge against inflation. What is more, if all dividends are capitalized, investing in stocks is the best type of securities investment. In the United States, the annual average rate of return since 1896 has been approximately 7%, net of inflation, but before deducting portfolio management costs (1% to 2%) and before tax on any dividends or capital gains. In France, the return on stock investments has been substantially lower since 1913 – 4% per year in constant monetary unit – but has been comparable to that of the United States since 1950, also before deducting management costs and income and capital gains tax⁷. No other investment in securities provides such strong return. However, it must be pointed out that these are medium- and long-term rates of return, and not results that can be achieved at any time. One must be willing and able to wait. Since the volatility of stock price variations is never insignificant (on average, 18% per year in the United States since 1896 and 24% per year in France since 1950), to be absolutely sure that a portion of one’s capital is not lost, in constant monetary unit, it is essential to wait 15 years in the United States and more than 25 years in France. On the other hand, investing in stock for less than five years can be disastrous, as was apparent in the United States in the periods 1915 to 1921, 1929 to 1932, 1937 to 1942, and 1966 to 1982. For very short periods, namely less than two years, the effects of volatility are so great that investing in stock should be left to speculators, who contend that they are better informed than other investors.

The length of the reference periods, which shows a link between a portfolio’s rate of return and its risk measured in terms of volatility, may seem excessive. It is a result of analyses conducted over a long period which spans a particularly troubled century, namely the twentieth. Will the twenty-first be as volatile? The first two years lead us to speculate that, for the moment, the answer is yes.

⁷ The difference between the inflation-adjusted rates of return in the United States and France stems from the very significant inflation differential between these two countries. Since 1900, the dollar’s purchasing power has fallen by a factor of 20, as opposed to a factor of 2000 for the French franc. Currency fluctuations also explain the greater volatility of indices in France compared to those of the United States.

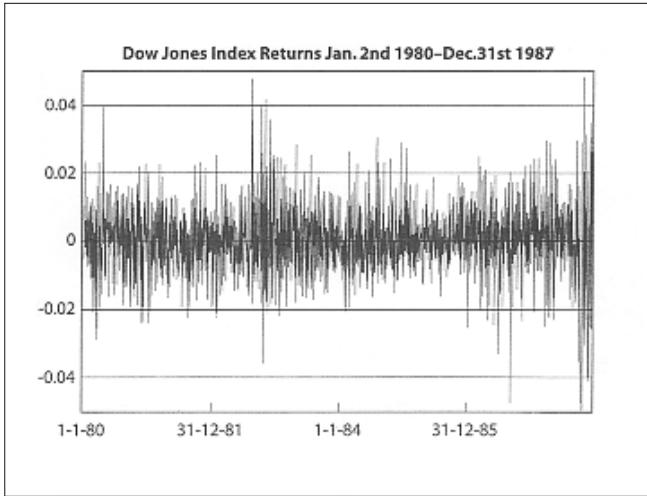


Figure 1
Daily percentage variations in the Dow Jones, 1980-1987

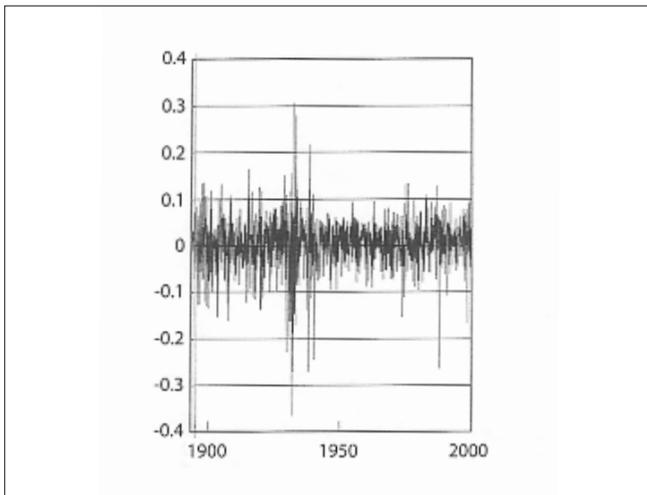


Figure 2
Monthly percentage variations in the Dow Jones, 1896-2000

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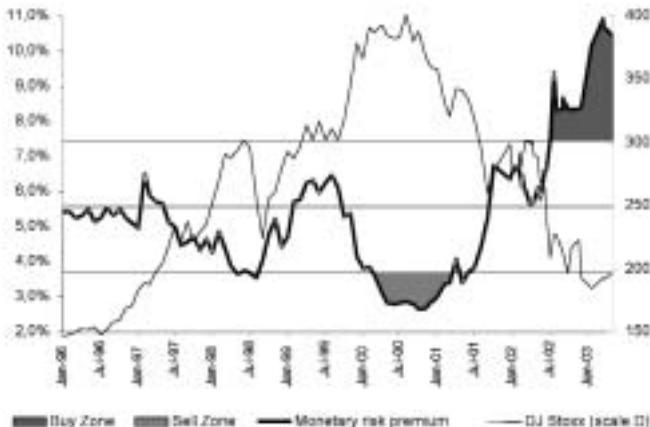
The Mysteries of Unchecked Volatility, or the Shattered Dream of Lost Economic Bliss

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The irresistible surge in risk aversion, which hitherto had been contained

From the mid-1990s to March 2000, the American economy and the world economy went through an extraordinary period of prosperity and low inflation, characterized by peace dividends, civil security, the extension of globalization to formerly communist countries such as China and Russia, the implementation of prudent monetary and fiscal policies, the upswing in trade and the productivity gains resulting from the widespread application of new technologies. The optimism was such that economic agents believed they were no longer subject to the constraints of the business cycle and that risk aversion, as measured below by the DJ Stoxx stock risk premium, remained within a narrow range around its historical average of 5%, before falling to 3.0% at the peak of the bubble.

Monetary risk premium of the DJ Stoxx index, 1996-2003



The bubble burst when risk aversion was at its lowest, triggering the start of three full years of asset deflation that would wipe out nearly \$10 trillion in market capitalisation worldwide, or the equivalent of the US GDP for one year spread over all markets. A distant echo of the Japanese disaster in the early 1990s. Of course, a return to an average level was needed, but the pendulum swung back so far that it surprised even the most pessimistic. The risk premium is currently hovering in *terra incognita* at levels that are unprecedented in recent economic history.

What does this anomaly mean? A threat of depression like that suffered by Japan?

The early years of the millennium coincided, at the peak of the bubble, with four strategic disruptions:

- 1) A major balance sheet crisis, stemming from over-investment and over-indebtedness in wealthy countries, with the cleanup of excesses raising the spectre of the Japanese syndrome. We regard this as the most significant disruption since it echoes the crisis of the 1930s. An awesome challenge for central bankers and politicians! A balance sheet crisis is always more frightening than an ordinary business cycle crisis.
- 2) The rising power of the Asian economy, which is leading to price deflation and placing additional pressure on both political leaders and money masters.
- 3) The crisis of confidence on the markets (Enron scandal, crisis in auditing and financial analysis, overhaul of accounting practices, reappraisal of the role of directors, the restrictions imposed in the name of sustainable development, etc.), which has in some sense shaken the very foundations of capitalism¹, free-market economics and globalization.
- 4) The threats to globalization, crystallized by the geopolitical divisions and “the end of peace dividends” following the attacks of 11 September, which exacerbated the rise in oil prices and the resulting negative impact on growth.

Excess risk aversion as the mirror image of deflationary threats

Each isolated threat of falling into deflation brings a “flight towards quality” and hence a surge in risk aversion. The dramatic increase in risk aversion today is the result of a series of deflationary factors capable of plunging the world economy into a prolonged recession, as occurred in Japan². It can also be viewed as a self-defence reflex of an overdeveloped, overtaxed planet. The growth expectations reflected in market prices have fallen to dismal levels compared to the historical average, as illustrated in the figure below:

¹ Claude Bébéar and Philippe Manière, *Ils vont tuer le capitalisme* (They will kill off capitalism), Plon, Paris, 2003.

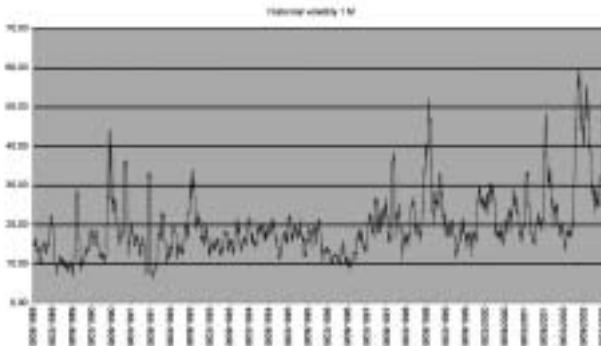
² *Déravage à la japonaise : risques et parades* (Loss of control Japanese style: risks and solutions), CIC Securities Strategy Study, 29 October 2002.



Excess volatility: another sign of extreme risk aversion

Along with the risk premium, volatility is another measurement of risk aversion. From the end of World War II until the LTCM crisis of September 1998, the annualized monthly volatility of the Paris Stock Exchange indexes averaged about 20%, a figure roughly the same as for the S&P 500 index. Throughout this period, and indeed in 1998, sudden surges in volatility were rare and short-lived. In contrast, the most striking feature of the recent 2001-2003 period is a real change in the scale of volatility, in which the maximum fluctuations increased from 10-25%, with peaks at 30%, and lows at 8, to a much higher range of possible values: 15 to 35% with peaks at 60%!

Annualized monthly volatility of the CAC 40 index, 1988-2003



This anomaly is summarized in the above figure, which gives a historical overview of the annualized monthly volatility of the CAC 40 from 1988 to the present. The difference is clearly visible between the 1988-2000 period, which, despite the mishap of 1998, is fairly representative of the previous 30 years, and the three years following the Y2K transition. This anomaly at the start of the millennium, of which the brief upsurge of 1998 was merely a preview, reflected a dramatic and objectively recurrent shift in risk aversion, which was mirrored by the risk premium indicator described above.

What are the chances of escaping from this zone of turbulence? Responses of the economic authorities

The question now is whether the response of governments worldwide, and particularly in America, will be sufficient to meet the challenge of avoiding deflation, bring back confidence and hence calm down excess volatility.

On a geopolitical level, the initial American response has been “determined”, and although it is too early to assess its longer-term effectiveness, it should nevertheless help bring about a return to a fragile but real confidence in the short to medium term. The initiation of the Israeli-Palestinian road map is, in this respect, very promising for the future.

On a monetary level, Mr. Greenspan’s response appears to be adequate after all, since by helping both consumers and retail banking, this policy has made up for the setbacks experienced by businesses and investment banks. It at least gives companies the time needed to rebuild their profit margins, get back on a sound footing and get ready to move ahead. The strong performance of Citigroup and Bank of America is a distant echo of the American savings and loan bailout in the early 1990s. It is a sign of immunization against the deflationary, recessionary spiral.

On a budgetary and fiscal level, the American response is almost as risky as its go-it-alone approach in Iraq, since the prospect of a surge in the twin deficits has, in the short term, caused the dollar to flounder and raised concern in Europe, which would be the main victim of an overvalued euro. Even in this respect, however, we feel that the “reflationary” response of the authorities in Washington is appropriate and that the ECB’s failure to take action regarding the appreciation of its currency is highly questionable.

In this context, the only weak response has been that of the European authorities, particularly the ECB, whose wait-and-see policy regarding speculation on short-term interest rate differentials is difficult to understand. By bringing the two rate structures more into line, it could choke off such speculation and give new life to both the markets and export manufacturers.

When will the crisis end and prosperity return?

1) The dollar: determinant of market volatility

In an initial phase, the dollar’s decline is part of America’s enormous effort aimed at bringing about “reflation” and adjusting its economy, in order to increase its saving

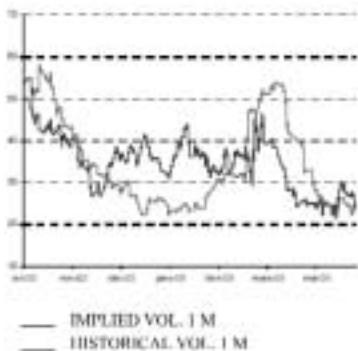
rate and check domestic demand. This effort, along with America's diplomatic progress in the Middle East, is helping to restore confidence and avert the risk of deflation. It is our conviction that, in a second phase, the growth differential between the United States and Europe will help stabilize the US currency. And a stable dollar will be the driving force behind any future renewal of prosperity, because, although the euro zone is less sensitive to the dollar's decline than the sum of its components might have been four years ago, a healthy American currency seems to be indispensable for a return to normal levels of confidence and therefore of volatility.

2) Optimal world conditions suggest stabilization of the dollar

Another sharp fall in the dollar would be in no one's interest, particularly for creditors of the United States, who will have to re-channel the proceeds from their current account surpluses there. For the United States, the stronger the dollar, the lower the interest rates it will be able to obtain. Lastly, the growth differential will be a stabilizing factor.

3) The recent sharp decline in historical volatility, in the wake of implied volatility, clearly points to the continued strong performance of the markets – and perhaps the end of the crisis

The implied volatility reflected in options prices tends to precede changes in historical volatility by a few weeks. The recent drop in both of these indicators of risk aversion could indicate a consolidation of the gains achieved since March 2003 (see the figure below) and an end to the threat of deflation.



Source: CIC Securities, Derivatives and Options Desk

Conditions Conducive to Long-Term Investment Must Be Restored in Order to Stabilize Markets

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- The excessive volatility of the stock market is a fact. It shows that stock exchanges (especially those in continental Europe) operate poorly and that price formation does not occur efficiently. This situation is dangerous because it compromises the equity financing capacity of companies and is gradually making stocks unsuitable for use as a savings instrument.
- There are many reasons for volatility, and it is important to examine them in detail to ensure that consequences are not taken as underlying causes.
 - The great instability of monetary policies, particularly since 1997, has contributed to the volatility of business and, consequently, financial cycles. Monetary tightening in 1996-97, easing off in 1998-99 (Asian crisis, Y2K preparation), tightening in 2000-01, easing off in 2001-2002-2003: four phases in seven years!
 - Corporate debt: The zealous and disastrous pursuit of 15% return on equity in a context of nominal growth of at best 5% per year has led to misuse of leverage. The low nominal economic growth rate worldwide since 2001 has made corporate debt unmanageable and given rise to real disasters and fraudulent practices (Enron, among others). Generally speaking, creditors and bondholders are better protected in these situations and shareholders have become the balancing item, which largely explains the volatility of stock prices.
 - The disappearance of long-term stock investors: the widespread use of mark-to-market practices, solvency margin and provisioning requirements, and the lack of pension funds in continental Europe are several factors which explain the lack of long-term investors, the only ones who have the ability to be counter-cyclical. Today, only 20% of all transactions correspond to long-term investments.
 - The near-disappearance of long-term investors has been exacerbated by changes in their investment process. Thanks to 20 years of bull markets, absolute risk has taken a back seat to relative risk. Picking stocks has become a secondary concern; today's managers know little about the companies they invest in and are more concerned with their relative risk budget than their absolute performance. This has fuelled the pro-cyclical, follow-the-herd behaviours that have become all too familiar and that further contribute to volatility.

All the factors cited above have encouraged the emergence of alternative, structured and guaranteed management companies, many of which correspond to a real need for and expectation of investment vehicles for household savings. Corporate bondholders and alternative management companies have therefore, by their very nature, become heavy users of derivatives and the principal players on stock markets. As a result, stocks have become “underlying” instruments, a sort of raw material which has only very tenuous links to the companies themselves.

Lastly, stock markets’ loss of vitality and efficiency has led to the emergence of long-short management approaches, the refuge of the real stock-pickers and probably one of the places where people know stocks the best. It is obvious, however, that price formation is distorted by artificial, leverage-induced increases or decreases in stock supply and demand. In certain narrow markets, especially in continental Europe, we are even seeing outright manipulation of some stock prices by a minority of unscrupulous speculators.

What is the solution?

Restoring corporate health, lowering companies’ debt and eliminating the spectre of deflation are clearly macroeconomic prerequisites for a return to stability.

- A structural increase in long-term institutional investors is an essential requirement. It would be futile to consider regulatory measures without first ensuring the build-up of investment forces capable of taking a medium-term view. This must necessarily include the creation of pension funds, the stepping up employee savings schemes, less use of mark-to-market practices and so on.
- More targeted regulatory measures can also have a positive effect:
 - changes in margin calls approved by the regulatory authorities based on market activity
 - advertising and transparency at the level of markets and security lending
 - better monitoring, transparency of the guarantees offered by structured products
 - giving regulators supranational capabilities to punish or prosecute those who manipulate stock prices
 - development of corporate governance and, in particular, obliging company managers to submit debt and bond issue programmes to shareholders for their approval at annual and extraordinary meetings of shareholders

In conclusion, it is evident that market volatility is not simply a matter of regulation or control. This is needed, of course, to put a stop to the most flagrant abuses and to make transparency a requirement, but the crux of the matter probably lies elsewhere. Restoring conditions that are conducive to long-term investment appears to be the real priority. With regard to management companies and their investment process, falling stock markets have already forced them to re-think risk management in absolute terms.

Let us also recall that sound economies make good markets. In particular, it is essential for the euro area to implement reforms and revise its policy mix, which is currently too tied to a certain “fetishism” regarding quantitative budgetary and monetary performance targets. This would allow European stocks in the future to be something other than mere warrants on American stocks.

The Stock Market Boom and the Silent Death of Equity: How the Crisis on the Capital Markets is Rooted in the Real Economy

Werner G. Seifert¹ and Hans-Joachim Voth²

Collapsing stock prices in recent years are often cited as the cause of growing economic imbalances in Europe and America. However, stock markets have two distinct functions – they provide financing and information about the value of current and future profits. In recent years, the first function has more or less disappeared. Instead, in the 1990s, debt has become the financing mechanism of choice for many companies. In this essay, we demonstrate why this heavily skewed approach to corporate finance has contributed to the crisis in the real economy.

Millions of small investors have been in for a nasty surprise. They expected to earn the same sort of returns as millionaires do by copying them and investing in shares. They hoped that this would help them avoid the looming pensions crisis. Also, spurred on by the capital markets, companies would operate more rationally, invest more intelligently, grow faster and create more jobs. Finally, the state would build on comprehensive privatization programmes to withdraw from involvement in the economy, thereby boosting efficiency and using sales proceeds to cut its debt. Journalists and politicians, academics and stock market operators, analysts and managers all sang the praises of the (equity) market in the 1990s, citing studies by the World Bank that countries with large equity markets grow faster, are more productive and create higher employment. We – the authors of this essay – were among them. And many people were able to point proudly to their equity portfolios, where IPOs and privatization shares were already turning a handsome profit.

Today, disappointed investors are bitter when they read the panegyrics of years past. The forecasts and uniformly optimistic scenarios now ring hollow. The summer of 2002 saw stock markets fall back to 1997 levels, with market capitalizations plunging by thousands of billions – price losses in the US alone totalled 7,000 billion dollars since March 2000. In many cases, management was driven by stock options to drive up share prices, using doctored figures to turn in a sparkling performance. Scams and accounting fraud were by no means isolated occurrences, although the order of

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magnitude encountered at Enron was rare; this year alone, hundreds of US companies have had to restate their prior period financial statements. The once glittering world of telecom and internet companies is reporting a stream of bankruptcies and financial difficulties. On top of all this are the job losses – according to reports in German news magazine *Der Spiegel* in August 2002, 22,000 jobs were at risk at Deutsche Telekom, a further 11,700 at Siemens, and so on. Fibre optic cables, buried underground the world over in the boom years, are largely unused, and the business prospects of the companies that installed them are every bit as dim as the cables themselves. The slide in share prices has made borrowing more expensive, and mergers and acquisitions more complicated. It has forced companies to set aside considerably higher amounts for their employees' pensions. Life insurers are finding it increasingly difficult to generate the statutory minimum interest they are required to pay on premium payments, with many of them forced into a fire sale of their equity portfolios and withdrawal from the new policy business. Retail investors who bought shares as a form of retirement provision are often worse off today than if they had stuck their savings in a piggy bank, under the mattress or in mortgage bonds. People in their fifties in the US who had hoped to fund their retirement using 401k plans now have to work longer to avoid poverty in old age. So, following their brief and heady flirtation with equity investments in the 1990s, it's hardly surprising that they are returning to more traditional forms of saving. In Germany alone, the number of shareholders has dropped from 5.7 to 4.7 million over the past year, while the number of equity fund investors has fallen from 6 to 5.1 million.

So what went wrong? Were the boom in the 1990s, and the speculation in equities that accompanied it, merely a cynical get-rich-quick show for corrupt managers and “cool” dotcom entrepreneurs? Is the stock market still an appropriate allocation mechanism if billions of value can be destroyed from one month to the next? The cover page of *Der Spiegel* on 8 July 2002, with dollar symbols reflected in a tiger's eyes and the slogan “predatory capitalism”, illustrated perfectly the mood of many. Even the liberal German weekly broadsheet *Die Zeit* talked of the “crisis of capitalism”, triggered by the share price meltdown, the fraud cases and the bankruptcies.

However, simple moral outrage – justified as it may be in many cases – is insufficient to help us understand the causes of the current crisis. There is a confluence of different problems. Two phenomena are all too often confused in the eyes of the public – the bursting of a speculative bubble on the one hand, and the disruptions in the real economy as a consequence of the end of the 1990s boom on the other.

The wave of speculation affected almost all capital markets in the developed economies and drove up valuations to all-time highs. Price/earnings ratios in the US soared to almost 50 (in the S&P 500) – the normal long-term average would be more in the order of 15 to 18. They were still hovering around the 20 mark in 2002, despite the fact that the impact of stock options on corporate earnings was not properly priced in. If earnings are analysed more realistically, the price/earnings ratio would still be 25. The S&P 500 would have to fall by a further third just to return to the “normal” average.

This speculative bubble also led to disruptions in the real economy because excessive surplus capacity developed. This affected the companies in the telecom sector in

particular. A fundamental principle of the New Economy – that a growing number of new sectors of the economy could be turned into a goldmine thanks to increasing economies of scale and falling marginal costs – turned out to be a fallacy. When the economy started to cool off, the high level of fixed costs crippled many companies.

Many people also think that the speculative bubble is evidence of the “irrationality” of the markets. If Internet startups can be worth billions today, but can equally well go bust tomorrow, then many observers think that there’s something wrong somewhere. However, it is just this uncertainty about future developments following a technology revolution that results in these “excesses” – because not enough people were sufficiently sure that dogfood.com and the 1,001st Internet travel agency would go bust, prices were able to explode unchecked for a while. But when it gradually became clear that the magical three letters after a company’s name weren’t necessarily a licence to print money, prices collapsed. However, this isn’t irrationality, but rather precisely the sort of price swings that can be expected during a (potential) technological revolution if markets work the way they should.

Many of the deeper causes of today’s crisis in the financial markets and the real economy have been overlooked. We believe that characterizing the negative consequences that have come to the fore since the speculative bubble on the markets burst in 2000 as a general equity and capital market crisis is too simplistic. A more detailed analysis shows that a range of unique, one-off factors coincided, and that they were responsible for the rise and fall of tech stocks, of share prices in general and of investment levels. Much of this trend was driven in a highly traditional way – by massive corporate borrowing, backed by the policy of low interest rates practised by the central banks for many years. The collapse in share prices and growth is only due in part to failures in the “system” of equity market-based capitalism, such as strong price swings and the potential for speculative bubbles; the more significant cause is a corporate debt crisis, coupled with excessive interference by government institutions. The role in this played by the central banks deserves greater attention.

A market economy in a policy-free area?

Is Alan Greenspan’s aura still justified?

In the early 1990s, one of Bill Clinton’s economic advisers admitted to dreaming about being reincarnated as the bond market – “you can intimidate everyone”. And this was how the role of the capital markets was generally interpreted in the 1990s – as an objective, unemotional, all-powerful allocation mechanism not exposed to political interference. According to this view, the capital market regulates “entry, conduct and exit”, without any thought or performance targets. In the real world, though, politics and the markets cannot be separated so distinctly.

When hedge fund LTCM started listing dangerously in 1997, the global financial system was shaken to the core. The Fed intervened on the markets to maintain liquidity and indirectly forced the major banks to join forces in a rescue mission. But it was not merely in such extreme situations that the capital markets increasingly became the plaything of the central banks. Whenever prices started sliding on Wall Street, Greenspan came to the rescue – the “Greenspan Put”, as investors and analysts called

it, was a more or less zero-cost guarantee that the central bank would change its monetary policy to avoid significant market downturns. In many cases, the main fear here was of an economic slump because of falling consumer confidence. Central bank interest rate policy plays a major role in all attempts to explain why the stock markets were evidently able to move so far away from appropriate valuations linked to the fundamentals. On average between 1995 and 2000, the Fed did not respond to significant price increases, but always cut interest rates when prices fell. The situation was further exacerbated by the crises in Southeast Asia and Russia in 1997/98. Again, the central banks cut interest rates and used their open market policy to stifle any significant liquidity problems – and much of this cheap money found its way onto the stock markets, where it contributed to the excesses on NASDAQ and the Neuer Markt. Bill Martin, Chairman of the Federal Reserve under Eisenhower, Kennedy and Johnson, once said that it was the thankless task of central banks to “take away the punch bowl just when the party’s getting started”. But the policies adopted by the central banks in the 1990s ran directly counter to this maxim. Notorious for being the party-poopers for many years, they now handed out drinks all round by holding down interest rates for too long.

The excesses were further magnified by the research studies and public statements of central banks, above all the Federal Reserve. Although Greenspan had warned in December 1996 in a now famous speech against the dangers of “irrational exuberance”, he appeared to be making a U-turn towards the end of the decade. In his testimony to Congress, the Fed Chairman repeatedly emphasized that productivity gains were so high that we could expect a new era of zero-inflation, rapid growth. The dubious productivity figures, which were boosted in particular by the heavily exaggerated drop in computer prices (as a result of “hedonic price adjustments”), therefore received what in many eyes was seen as an almost infallible “seal of approval” from the man with the miracle touch. This was interpreted by the equity markets as a direct call to start buying.

In the same way that the 1960s and 1970s saw attempts to manage demand using “Keynesian” economic programmes, central banks used changes in interest rates to fine-tune the economy. And they increasingly factored share price movements into their policies. Those who believe that central banks are the most suitable central planning agency for the economic process will see this as a sensible policy: stock market downturns erode confidence, slashing consumer and capital spending. The overall effect is not dissimilar to a hike in interest rates. But the politicization of the markets was at least a contributory factor to the huge speculative bubble between 1995 and 2001. A growing number of academics are now calling for central banks to consider only inflation and (at most) growth when setting their interest rate policy, but not share prices. The corresponding models indicate very clearly that a central bank that also tries to manage the capital markets only produces more instability in growth, inflation rates and the capital markets themselves.

Many people believe that largely independent central banks, such as the Federal Reserve or the ECB, are the embodiment of apolitical state intervention. In reality, however, they are exposed to political pressure from many sides; statistical studies regularly illustrate that even the Bundesbank, famous for its independent stance,

frequently paid more attention to employment and growth when setting interest rates than it would ever admit publicly. This is certainly rational – central bank independence can be taken away again almost everywhere, and even in the USA, for example, it is only institutionally entrenched to a certain extent. But this in turn means that when looked at more closely, any talk about the failure of the markets in a policy-free area is misconceived. Much of today’s hangover is down to the fact that the central banks spiked everyone’s drink with a bit of vodka when the party was really getting going.

Equity crisis or debt crisis?

There is repeated reference to an unparalleled economic slump, and to overinvestment during the stock market boom that led overall to a tremendous misallocation of capital. But looked at more closely, the crisis in the real economy is not really any “worse” than previous post-war crises. The decline in growth and unemployment is relatively mild, despite the frequently cited news of job losses. Neither is capacity utilization in the USA at anything near catastrophic levels. Average capacity utilization in both the good and the bad years since 1967 was 81.8 per cent, and fell to 75.4 per cent in 2002 (76.7 per cent in June). But even this lower level is better than in the recession-hit years of 1975 (74.6 per cent) and 1982 (74.5 per cent). In retrospect, capital spending levels were certainly too high, and individual sectors such as telecommunications were definitely far too optimistic. But these were more the sort of ordinary “honest” mistakes that frequently occur in expansionary phases. For all sectors of the economy as a whole, the speculative surge did not lead to any unusually high level of unused capacity (Fig. 1) – as would have been expected if the telecom and Internet boom had resulted in an overall excessive expansion in the capital stock.

But why then are the equity markets in such poor shape? Why is there the feeling of a general crisis, and why have corporate earnings crashed so dramatically? It’s not the tremendous optimism that was reflected in the stock markets that is responsible, nor is it to do with excessive investment levels as such. The really decisive factor was the increasingly debt-focused funding policy adopted by the corporate sector.

If a company takes on debt in good times and uses it to expand its business, it can increase its profitability substantially. The more debt is used relative to equity, the higher the return on equity becomes – this simple principle that every student learns in first-year business studies was applied thousands of times over by corporate managers in the USA, and partly in Europe as well. A company that generates a return of 9 per cent on its investments, and funds itself 70:30 through debt and equity, can boast a return on equity of 13.6 per cent for a 7 per cent interest rate. If its debt financing is 90 per cent, the return on equity will climb to 27 per cent.

However, the higher returns on equity in boom years are also accompanied by the risk of a rapid slide when the economy starts cooling off. The revenue stream needed to make the fixed payments suddenly disappears, and the return on capital employed suddenly dips into negative territory. In extreme cases, a company may even go bust. In the case of the conservatively managed company (with 70:30 funding), the return on capital employed will have to fall to 4.9 per cent before any equity capital starts to melt away. But the “aggressively” managed company already slips into crisis at 6.3 per cent. In many cases, what appeared to observers to be an appreciable hike in

profitability during the years of rich pickings was merely the outcome of the decision to take on ever more debt. And as soon as things start slipping, it quickly becomes clear that the impressive castle of the highly profitable company was actually built on sand.

The effect is amplified if the new debt is also used to buy back shares. This is precisely what has happened in the USA in recent years. Between 1995 and 2001, companies raised a total of 2,700 billion dollars in debt in the form of loans and bonds. 930 billion was used for refinancing. Of the remaining 1,770 billion dollars, 900 billion was used to finance investments, as the companies spent 870 billion dollars on buying back their own shares. Without the “debt orgy” and the share buy-backs, the ratio of debt to net worth at US companies would have been only 39.8 per cent, instead of 57 per cent. The ratio would have been 47 per cent (and thus below the 1995 level) if they had not engaged in the share buy-back programmes.

The most visible consequence of the rapid growth in debt has been the extinction of the AAA companies – only a handful are still awarded Moody’s highest rating today. There were 60 US companies with the highest rating in 1979, a number that had slipped to 21 in 1992 (in the midst of the recession). By 2002, only eight AAA-rated companies were left. Anybody who still doubts whether the rapid growth in debt was the real cause for the drop in share prices needs only to analyse the investment performance of these companies. While the Dow lost about 28 per cent between January 2000 and the end of July 2002, the prices of AAA-rated companies slipped by a mere 9.7 per cent (Fig. 2).

In a recession, it’s not just the highly geared companies – such as telecom firms – that get into financial difficulties because of the problems they have in servicing their debt. In the USA, dividends are now frequently being paid from capital. In 2000, well on 70 per cent of earnings before taxes were distributed to shareholders, but this had risen to more than 180 per cent in the first quarter of 2002. Companies tend to keep dividends at a constant level as far as possible. But in a crisis, this widespread practice runs the risk that a growing number of companies will tap their capital reserves to avoid having to admit to their shareholders that they are on the verge of bankruptcy. This is not by any means a typical action in a recession – the last time that the US corporate sector as a whole paid dividends from capital was during the Great Depression in the early 1930s.

Modern financial theory implies that debt or equity-financing should produce similar risks and rewards. The famous Modigliani-Miller Theorem states that the market value of a firm does not change if it modifies its financing mix. In the real world, borrowing is normally “cheaper” because of tax breaks. For decades, it was more or less impossible to find an explanation as to why companies didn’t take on much higher levels of debt. But they have learned their lesson since the 1980s – as indicated by the dwindling number of AAA-rated companies. The consequences are visible today, and there is still a risk of even stronger distortions. In 1997, the total value of interest payments by (non-financial) companies came to 423 billion dollars. Today, it has climbed to 554 billion (annualized), an increase of 31 per cent. At the same time, though, profits have slipped by 13 per cent, meaning that during the course of 2002, the companies will spend more on interest payments than they generate as after-tax profits. A further factor is that at present, the debt mountain is being serviced at

relatively low interest rates. If interest rates climb back again from their current unusually low levels, an even greater number of firms will rapidly face the risk that they can no longer afford to make their interest and principal repayments. If interest rates were merely to return to average levels between 1985 and 2001, the additional payment burden would be 733 billion dollars – one third more than today, and 73 per cent more than in 1997. Even if this doesn't mean that bankruptcy will be necessarily automatic, the only course open to many companies would be Chapter Eleven restructuring or something similar.

This has produced a radical change in the traditional link between corporate earnings and economic growth. Due to the high debt levels and the thin capital base in the corporate sector, profits have recently grown much faster in boom-times than before, but they also collapse faster once growth starts easing off. Fig. 4 illustrates the relationship between corporate earnings and economic growth in the USA since 1960. The lower line represents the change in earnings as a factor of growth rates between 1960 and 1987. The second line (with triangles) shows the relationship from 1988 to 2001.

On average, corporate profits rose by 2.7 per cent between 1960 and 1987 when the US economy grew by one percentage point. The relationship has been much stronger since 1988 – each percentage point of growth pushes up profits by an average of 8.9 per cent. This means that overall, the US economy became increasingly similar to the ill-fated hedge fund LTCM: highly profitable in good years – because a lot of really cheap money could be borrowed – but extremely vulnerable to fluctuations as soon as the first signs of crisis emerge. But this in turn means that the equity markets merely reflect misguided corporate investment strategies and financing in particular. The markets are not responsible for the failures, but rather they are the messengers who are currently taking the brunt as the bearers of bad news. The real culprits behind the crisis are not just speculation and fraud, but rather massive disruptions and imbalances in the real economy.

Germans have no grounds for complacency – the equity base in Germany is particularly thin by international standards and should be increased as a matter of urgency. Despite the problems faced in any cross-border comparison because of different accounting systems, German industrial companies' equity ratios still lag behind those of their US counterparts, according to figures released by IDW, the professional association of German auditors. The debt/equity ratio in German is probably lower still (Fig. 5). The aggregate debt of non-financial corporations rose even faster between 1995 and 2000 than in the USA (+75 per cent versus +60 per cent), and borrowings and corporate bonds more or less kept pace (+55 per cent in Germany, +60 per cent in the USA). In Germany, however, the funds raised were rarely used for share buy-backs, due to long-standing legal restrictions, among other reasons. In addition, a mere ten per cent of external financing in Germany was provided by new share issues – more than in the USA, but still astonishingly low compared with the overall flow of funds. But this also meant that debt rose faster than equity, and there is a risk that balance sheets will be eroded, as in the USA. The massive wave of bankruptcies in 2001 and 2002 that reached all-time highs in Germany is just one all-too-evident indicator of the risks. However, it is merely the peak of a longer-term trend. The number of insolvencies in Germany has risen each year since unification.

Over the past decade – supposedly the age of equity – only a handful of companies used share issues as a funding instrument. In many cases, no – or only very few – new funds were generated from IPOs. The contribution to corporate funding was often negative, with the IPOs on the Neuer Markt and NASDAQ more than offset by share buy-backs by existing firms. But this in turn highlights the real paradox of the past decade – share prices exploded on the one hand, partly because of the reduced supply, with the result that the size of the equity markets relative to gross national product reached all-time highs almost everywhere. At the same time, however, rarely was such a small percentage of capital formation financed by issuing shares. Key factors in the crisis of confidence and the slide in share prices were thus the rejection of equity as a funding instrument, and borrowing for share repurchases.

Although something may well make sense at an individual company level, it can pose serious risks for the economy as a whole. British economists of the 18th century wrote of the “tragedy of the commons” – the fact that the village meadows were always used too intensively as long as they were not privately owned. The situation in today’s economy is very similar – nobody punishes the companies for the mountains of debt that they pile up. The markets often respond too late. The policy of a bit more corporate paper here, another credit there, was still “worthwhile” for each company because the return on equity rose and shareholders were for a long time happy about the low cost of capital – just like the extra cow put out to graze on the common. But if everybody does it, a thriving meadow suddenly turns into a cattle pen where the green grass has been trampled to extinction. It’s the same with corporate debt policies. No company is currently paying for the general risks to growth and stability that arise from the debt binge. As long as the company itself doesn’t run into financial difficulties, everything’s alright. The macroeconomic consequences are ignored, because equity ratios are not regulated. Instead, the discrimination in favour of interest, and against dividends, drives firms into a debt crisis – on an after-tax basis, loan finance will almost always be cheaper, despite Modigliani-Miller. An initial step that is urgently required would therefore be to put the tax treatment of debt and equity finance onto an equal footing. This would also reduce the incentive for share buy-backs.

The lack of any such regulation applies to all corporate sectors, except the banks. The bitter experience with banking crises in the past 200 years has prompted all developed countries to prescribe a minimum capital cover for the banks. This has even been institutionalized in the form of the Basel capital adequacy guidelines. There are strong arguments for applying similar rules to the corporate sector as a whole. In a situation where each recession threatens an increasingly devastating spate of bankruptcies, acceptance of the free market itself starts to dwindle. But if the state requires firms to have a minimum equity ratio, even unforeseen crises can be overcome. There are no headline bankruptcies and job losses – so such rules would substantially support macroeconomic stability. Dramatic hikes in earnings per share, driven by buy-backs and debt accumulation, would be just as impossible as sudden collapses in times of crisis. Essentially, this would exchange higher profits for more security and stability, at least in part. This deal would probably be worthwhile. The greater confidence in companies’ ability to survive would be accompanied by stronger consumer spending, and if share prices were less volatile, the mutually reinforcing cycles of capital

spending, growth, profitability, consumer confidence and share price movements would be more stable.

More state intervention, less politics

Manchester liberalism and predatory capitalism; the horror of unfettered markets; and the capital markets as the true root of all evil – these are views that are widely held today, and the calls for political intervention, for the return of control to the state, are getting louder. There is no doubt that the problems that have surfaced since the slowdown in US growth are, indeed, alarming. If left to themselves, markets do not always function properly, and experience long phases of excess and instability. But the repoliticization of the markets is not the answer. Comprehensive reforms are certainly necessary, but they should strengthen the role of the state as a neutral authority in the economic process, rather than becoming an agent itself.

Developing, supervising and, if necessary, enforcing a certain level of capital adequacy means “more state intervention” in the best possible sense. Letting the central bank make interest rate policy to prevent an upturn from faltering is “politics” in the worst possible sense. The overall framework for business decisions ought to be more strictly regulated. A more detailed analysis shows that much of the economic instability that supposedly has its roots in the equity markets is actually due to corporate debt policies. This is an area where the state can, and should, intervene, because important aims, such as economic stability, are under threat. Instead of trying to micro-manage the economy with public speeches and interest rate changes, high-profile corporate rescues and tax-motivated accelerated depreciation rules, the state should be modifying the ground rules for stable business management.

A state is only “strong” if it limits itself to its core functions. We argue that these functions also include rules for business. The first steps should include abolishing the differential treatment of interest payments and dividends; minimum equity ratios for all companies; and the return of central bank policy to containing inflation. Much of the illusory magic of recent years can be avoided if firms are no longer exposed to the bizarre incentive to maximize their debt ratio, and the macroeconomic consequences of overindebtedness can be prevented by minimum ratios. The reorientation of central bank policy would trim back the politicization of the markets, and the volatility caused by repeated prophetic interpretations of the economic situation by the central bank would be reduced.

Once before – in the 1930s – a dramatic economic crisis and the apparently destabilizing role of the capital markets prompted a “revolt against the markets”. In many countries, the stock market crash of 1929, the Great Depression and mass unemployment were followed not only by massive state intervention in the economy, but also by the death of democracy. Of the 26 democracies in Europe in 1920, only 13 were left by 1939. And even where the rule of law and parliamentary democracy still prevailed, the state directly assumed control over much of the economy. In many economies, the role of the stock markets in the economic process more or less disappeared, only to re-emerge in the last two decades or so.

It was only in a very few countries that the markets were not marginalized – those where new institutions gained the upper hand over criminal wheeling and dealing, and helped build well-founded confidence in the ground rules, the players and the referee. Under Franklin D. Roosevelt, Joseph Kennedy was appointed as the first Chairman of the SEC – and JFK’s father, who had made his fortune as a bootlegger, really did clean things up. As the saying goes: “It takes a thief to catch a thief”. The swamp of dubious practices on Wall Street was drained by insider trading investigations and high fines. In many other countries, it was often decades before the first attempts were made to prosecute insider trading. The developed economies must now take a similarly radical leap forward in the regulatory environment and the strengthening of supervision by the state. This will help cushion the extreme fluctuations on the capital markets. In contrast to the early modern era, for example, today’s state is sufficiently large and (at least potentially) well informed to ensure the proper functioning of the capitalist system. A policy that’s in tune with the markets doesn’t necessarily have to be unpopular. According to recent surveys, more people now believe – for the first time since 1996 – that what the social market economy in Germany really needs is more of a free market, and not more social security. Sometimes, there are political payoffs from intelligent intervention that does not give in to the easy populism of a campaign against “free markets”. Franklin D. Roosevelt, whose New Deal reinvented a fairer form of capitalism, was re-elected three times – more often than any other US president.

Figure 1: Capacity utilization in the USA, 1967-2002
 Total industry, including commodities and construction, %



Figure 2: Price movements: Dow-Jones vs. AAA companies
3 January 2000 to 26 July 2002

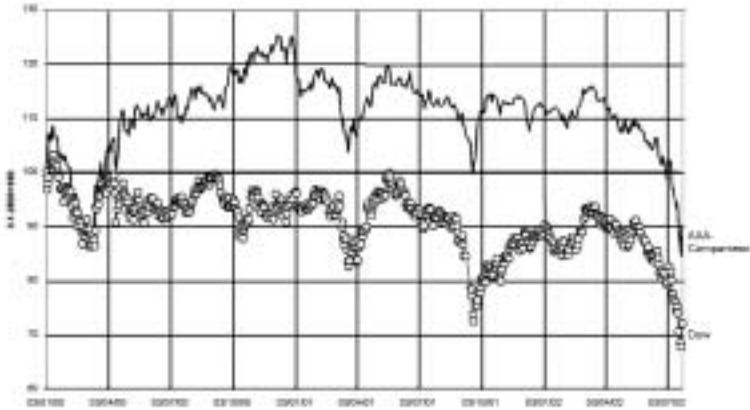


Figure 3: Profitability and dividends of US corporations 2000 and 2002 (\$bn)

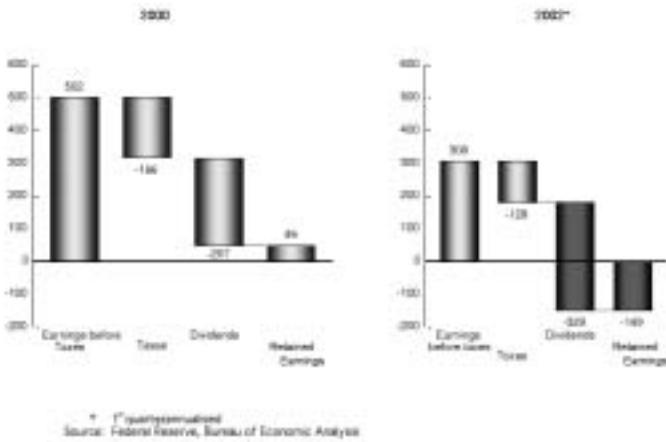


Figure 4: Relationship between corporate earnings and economic growth in the USA since 1960

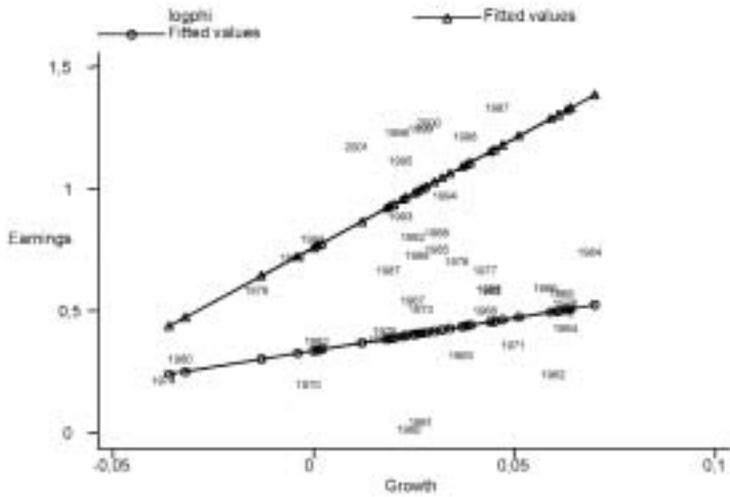
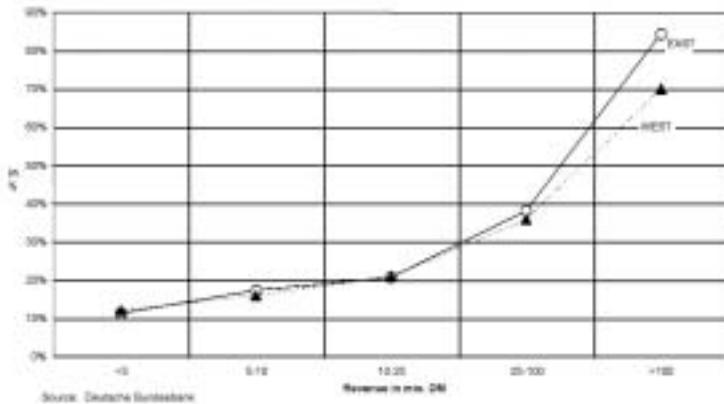


Figure 5: Debt/equity ratios, Eastern and Western Germany Manufacturing industry, 1988



Blatant overshooting in the wake of incentive problems and windfall profits – a look back at the formation of the German stock market bubble

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Naturally, speculative bubbles are generally easier to identify with the benefit of hindsight. It now seems clear that, in the bull markets of the late 1990s, the share prices of many enterprises, especially in the telecommunications, media and technology (TMT) sector, were beginning to become detached from the fundamentals. The great slide of stock market prices since March 2000 set in at a valuation level that, on the basis of classical fundamentals, has to be seen as quite high. Indeed, classical fundamentals were implying a high risk of collapse for a long time before spring 2000.

In the 1990s, the share prices of listed German public limited companies rose much faster than the underlying corporate profits. Based on analysts' 12-month estimates, price-earnings ratios for DAX companies were increasing significantly up to the point when the boom peaked in spring 2000. On average, the DAX 12-month forward price-earnings ratio was just under 21 in the period from 1996 to 2000, compared with 12 between 1988 and 1992.

As late as summer 2000, fund managers surveyed in Germany still stated they paid hardly any attention to dividends in their investment decisions. This may now have changed in the wake of the bear market. In particular, financial market theorists have been pointing out for some time that dividend payments typically fluctuate less than profits and, leaving aside changes in the tax assessment base, can therefore supply useful information on corporate yield potential. In an individual analysis, other indicators, such as the ratio between a public limited company's share price and cash flow, may be preferable. Relative to the overall market index, however, a very close correlation between operating profit and reported profit may be expected over the medium term. Ultimately, all dividend payments and other profit distributions also depend on the actual profitability trend. The dividend yield has, at any rate, proved to be a reliable ex post benchmark. For DAX shares, the yield averaged 4% between 1988 and 1992, thereafter showing a marked trend decline to a low of just over 1% when share prices peaked in spring 2000.

Of course, the informative value of dividend yields or price-earnings ratios *per se* is limited. A high price level and low dividend yields may be appropriate if profits and dividends are growing at a matching pace. Expectations of growth in profits per share were, in fact, very high in the second half of the 1990s. The average three-year forward profit growth expectations were more than 15% pa, compared with around 7% pa in

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the late 1980s and early 1990s. For a long time, the high stock market valuations were regarded as being quite justified, since a scenario of major productivity gains and low interest rates and favourable user cost of capital was perceived as creating the best conditions for a considerably accelerated growth in corporate profits. This fundamental optimism was certainly not groundless but was ultimately also encouraged by special macroeconomic circumstances, shaped by receding inflation and interest rates, new technologies and, in part as a consequence, increased appetite for market risk.

New Economy technologies created a state of virtual euphoria. Fuelled by new investment projects, a self-reinforcing momentum in growth was generated. The productivity gains that were brought about in part by this growth reinforced optimism and accelerated the rise in stock prices. Share price valuations had also been boosted by the significant reduction and stabilisation of inflation since the early 1990s. In this environment, real interest rates declined. This, in turn, eased enterprises' user cost of capital, generating a further boost to growth and strengthening the prospects of higher profits.

At the same time, a continuous stream of investment flowed into the stock market. It was not just the fact that past gains, accompanied by the expectation of future increases, were tempting. In addition, nominal interest rates were increasingly felt to be unattractive. Given that situation, however, adequate consideration may not have been given to the fact that the "disinflation dividend" on the stock market represented, to a certain degree, a one-off special bonus.

Stock market investors also became more daring than they had been for a long while. This may have been a reflection of the euphoria surrounding the New Economy, but it was perhaps also due to rashness emerging as the boom persisted. At all events, the risk premium implied in overall stock market prices, which may be calculated using dividend discount models, fell sharply and pointed increasingly to a relatively high valuation level that was susceptible to downward corrections. The implied risk premium on an equity portfolio modelled entirely on the DAX at the height of the boom in early 2000 was far below the average figure in the late 1980s and early 1990s.

Structural changes and systemic shortcomings also help explain what went wrong on the stock exchanges in the biggest boom and bust cycle since the 1920s. To begin with, the financial market infrastructure has become considerably more advanced in past years, although this has not been without implications for investor behaviour. The deregulation of international capital movements and innovations in information and communication technology (ICT) have made securities trading and settlement much cheaper and faster. In addition, the volume of information available to investors and the speed with which it can be provided and processed has increased enormously. Today, market players have at their fingertips a vast range of up-to-date information from all over the world to which they can react immediately by adjusting their portfolios. As a consequence, markets have indeed become more "information-elastic" over the past few years. The downside to this development is that it has encouraged investors to focus more on the short term. Uncertainty is now much more likely to lead to high share price volatility, which in turn may heighten uncertainty (at least in the short run) – even outside the financial markets.

Herding behaviour on the part of investors may be one major reason why the stock market became so obviously overvalued. In securities investment, there is a clear global trend towards involving institutional asset managers. Their expertise and analytical knowledge can thus fundamentally benefit general market developments. However, even professional portfolio managers often have virtually no scope for taking positions against the market trend. That is how excessive swings can come to acquire increasing momentum and, for a while at least, become self-perpetuating until the trend reverses itself.

These risks emanating from high price volatilities and self-perpetuating momentum took on a new dimension owing to various structural weaknesses which have become apparent during the bear market that has prevailed on major equity markets for the past three years. They include, for instance, the poor quality of some market-relevant data and information, purpose-made forecasts and even glaring examples of fraudulent accounting practices. In principle, all market participants have an interest in the production of reliable data on the business developments of listed enterprises in a system of checks and balances policed by independent auditors and financial analysts. However, this can function only if all participants, in their own and in others' interest, maintain their integrity and respect the rules of the market.

During the stock market boom, which was accompanied by high growth targets, checks and balances increasingly took a back seat to short-term gain. Especially where the New Economy was concerned, many companies switched to remunerating their employees on a large scale with stock options. The rising asset prices also led firms to make very optimistic assumptions regarding their pension scheme obligations. As a consequence, the focus of management was often narrowed to boosting their own company's share price in the short term while disregarding their company's fundamentals. In some cases this took the form of exaggerated self-marketing, as happened when some start-ups abused the instrument of ad hoc disclosures on the Neuer Markt stock exchange. In other cases, such as in the USA, management often sought to meet market expectations by submitting supplementary and uncertified financial statements. In these "pro forma" financial statements, earnings were often overstated, in some cases by not listing employee stock options as expenses.

As a result, the principle of "shareholder value" was frequently turned on its head. Some audit firms showed increasing interest in acquiring additional consultancy and service contracts from enterprises whose financial statements they were supposed to be certifying independently. Securities trading firms focused more and more on lucrative IPO business, for which favourable analyses were an important prerequisite. It is an observable fact that such conflicts of interest harbour the danger of overstating current and future profits. Insufficient monitoring of reported corporate earnings and excessively optimistic forecasts reinforced this effect. The quality assurance of market-relevant information has thus become a core issue to which the various national and international economic policy decision-making bodies and committees will have to give in-depth consideration in future.

In the meantime, the previously reviving stock market culture in Germany has taken a serious hit. As investment and financing instruments, shares played a rather minor role

in the German financial system for many years. It was only towards the end of the 1990s that an increasing number of enterprises ventured a listing on the securities markets. Owing to the fact that the financial markets are broader and deeper (partly as a result of the adoption of the euro), this trend is likely to continue in the medium term despite the bursting of the stock market bubble.

Shares were long regarded by private investors in Germany as a very risky form of investment and were not very popular. There has been a certain change in attitude in this respect since the mid-1990s, although still fewer than one out of ten Germans holds an investment in a company either as a shareholder or through an investment fund. The debate on the problems involved in funding the statutory pension insurance scheme has raised awareness of the need for private old-age provision and, either directly or indirectly, this is benefiting the capital market. In addition, the long period of rising share prices, accompanied by falling nominal interest rates, has helped direct attention to shares as an alternative investment vehicle. The euphoric mood with which the markets celebrated the liberalisation and privatisation of the telecommunications sector and the dramatic upswing in the other “new growth industries” nevertheless raised overblown expectations in the markets that were ultimately dashed, thus causing considerable damage to the incipient stock market culture.

Rational Iniquity: Boom and Bust - Why did it happen and what can we learn from it?

Edward Chancellor^{©1}

Is the stock market overvalued? Is a bubble inflating? These questions were asked incessantly from the mid-1990s on. As the stock market continued to rise, climbing towards record valuations levels, people looked around for reasons why this time things might be different. Two hypotheses were put forward: the New Economy and the New Paradigm. It was claimed that future business prospects were greatly superior to anything that had been seen in the past and that the traditional methods of valuing stocks had become outmoded. There was some substance to the arguments that were put forward, but much was exaggerated. Moreover, the corruption that accompanied the bull market undermined even those aspects of the New Economy – such as the notion that management was increasingly responsive to the interests of shareholders – which appeared to be most substantial. In this essay, I will outline the arguments for the New Economy and explain how they lost validity over time.

I will also show why most investors, and many other business professionals besides, nevertheless overwhelmingly accepted the New Economy despite its increasing improbability. Their failure, in my view, was not primarily an intellectual one. Rather, the bubble put many of these professionals in an invidious position: either they could choose to act as if a bubble didn't exist and prosper, or they could choose to recognise the bubble and find themselves out of a job. Faced with this choice most of them naturally put their own personal interests above the long term interests of their clients.

A. What Went Right? The Rationale for the New Economy

The economic prosperity which the United States experienced during the course of the 1990s and exported to the rest of the world resulted from the convergence of many factors. They included the widespread perception that government policy had improved on former periods, the expansion of markets owing to the collapse of communism and the spread of free trade, the improvement in the management of corporations which was promoted by the so-called 'shareholder value revolution', advances in technology which accompanied the arrival of the internet, and further improvements in the management of business and financial risks, owing to the more widespread adoption of derivatives. All these factors both contributed to economic growth and fuelled the boom on the stock market.

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1. The Retreat of Big Government. The long bull market (1982-2000) was characterised by the retreat of 'big government.' Governments in both the United States and Europe promoted liberalisation and deregulation at home and free trade abroad. In the Anglo-Saxon economies, the power of the unions was challenged and their membership went into decline. The enforcement of competition laws (antitrust) became more lax. Privatisation spread from the United Kingdom to Europe and other parts of the world. In response to popular demand, many governments reduced taxes and cut back on public spending.

These developments were generally bullish for business. Globalisation and the collapse of communism in the late 1980s created larger markets for Western products and services. Liberalisation and privatisation provided new opportunities. While deregulation and the relaxation of antitrust laws gave business more freedom in which to operate. As the influence of unions waned, workers' pay in the United State lagged increases in productivity. In both the 1980s and the first half of the 1990s, pay decreased as a percentage of GDP and the share of profits climbed.

2. The Control of Inflation. The bull market began in the summer of 1982 after inflation had peaked, beginning a slow, sometimes unsteady, descent that lasted for two decades. Central bankers were deemed to have refined monetary policy to the point where they could anticipate and pre-empt incipient inflation. For instance, in 1994 Alan Greenspan at the Federal Reserve raised interest rates to fend off a suspected inflation which subsequently failed to materialise. Many believed that the United States had entered into the era of the 'Goldilocks economy' - neither too hot, nor too cold. Some argued that economic growth would no longer need to be sacrificed in the battle against inflation. And an extenuated business cycle implied a longer sustained period of higher corporate profits, and so entailed higher equity valuations.

3. An End to Boom and Bust. The Federal Reserve under Alan Greenspan was also deemed to have perfected the art of using monetary policy to control the business cycle and even the stock market. The recession of the early 1990s was the briefest economic slowdown since the Second World War. The great stock market crash of 1987 came and went without lasting ill effects. On each occasion, expeditious interest rate cuts by the Fed were credited with saving the day. Economic historians looking back at the early 1930s, blamed Greenspan's predecessors at the Federal Reserve for causing the Great Depression by maintaining interest rates too high. As the authorities had learnt from their past errors, history was not going to repeat itself. If the threat of long recessions, even depressions, had been removed, then higher equity valuations were justified. The New Paradigm was born.

4. The Shareholder value revolution. Rising profits during the 1990s were not simply a result of congenial economic conditions and benign government. The managers of public corporations also played their part. They were inspired by the shareholder value revolution which commenced in the mid-1980s and gathered strength over the following decade. Shareholder value held that companies should be run to maximise their value to shareholders, rather than in the interest of other 'stakeholders', such as employees. Its progress reflected the increasing clout of institutional investors in the United States who by the late 1970s controlled more than three-quarters of the shares in the stock market.

Its most significant innovation of the shareholder value movement was the introduction of equity-linked incentives for senior managers which were intended to align the interest of management with that of shareholders. This was the carrot. Shareholder value demanded that managers pay more attention to returns on capital and market expectations. Empire-building by managers was no longer tolerated. The managers would be sacked or the underperforming company would attract a hostile bid. This was the stick.

As a result of this management revolution, American companies in the 1990s improved their returns on equity and maintained strong growth in profits despite the slowdown in inflation. The efficiency of the US corporate machine became the wonder of the business world. The influence of the shareholder value movement was also strongly felt abroad. Partly this was a response to the globalisation of the capital markets. Foreign investors, especially Americans, were not interested in preserving 'national champions', they were only concerned about 'total shareholder returns.' By the turn of the century, most large European companies were either actively embracing shareholder value or at least were paying lip service to its nostrums.

Shareholder value was also deemed to have contributed to the taming of the business cycle. In the past, managers had often recklessly increased their business investment during periods of prosperity. Such actions generally resulted in excess capacity, which served to bring the prosperity to an end. However, in the age of shareholder value, companies were wary of frittering away shareholders' funds on uneconomic projects. Rather they were parsimonious with their capital. And in the 1990s, this parsimony was serving to prolong the business cycle, while boosting profits and share prices.

5. The Information Revolution. The main impetus to rising prosperity comes from improvements to productivity. This is largely determined by changes in technology. The last two decades of the twentieth century coincided with an ongoing information revolution that encompassed the advent of the personal computer, tremendous and sustained advances in semiconductor processing capacity, and the arrival of the Internet and mobile telephones. The development of these new technologies provided many opportunities for business investment (in semi-conductor 'fabs', internet 'hotels', fiber-optic networks, and so forth), It also held out the promise of improving corporate efficiency. Information travelled more quickly and efficiently both within companies and between companies and their outside partners. The new technology facilitated just-in-time production, allowing inventories to be reduced and squeezing capital out of businesses, which could be deployed more efficiently elsewhere.

The US productivity figures, which had been decidedly lacklustre since the mid-1970s, began to show a marked improvement. The New Economy promised higher rates of economic growth than had been seen before. Optimists declared that the business cycle, characterised by the build-up of unwanted inventories, had been confined to history.

6. Controlling Business Risks: The Progress of the financial revolution. Another type of technology – the technology of finance – also contributed to the prosperity of the 1990s and the general feeling of security. The collapse of the Bretton Woods currency system in the early 1970s led to increasing volatility in the foreign exchanges and interest rates and among consumer and commodity prices. During the 1980s,

however, complex financial instruments – derivatives - were developed to deal with these and other kinds of financial risk. While the pace of financial innovation slowed in the following decade, the employment of derivatives in the world of finance and business continued to expand rapidly.

Derivatives enabled firms to hedge their exposure to unwelcome risks, such as foreign currency losses. Financial institutions also learnt how to use derivatives to protect their balance sheets. Credit derivatives enabled the banks to insure themselves against losses on loans. Credit card issuers also applied the new financial technology to take the reduce their exposure to bad debts. Instead, they packaged their individual consumer loans together and sold on these receivables to investors (a process known as securitisation). Mortgage suppliers and car manufacturers also securitised their loans.

While these developments encouraged households to take on more debt, it was argued that in the new era of unbounded prosperity, they could afford to carry a larger debt burden. Besides, with credit risk spread more widely throughout the financial system, it was argued that the system itself was able to carry more risk. In particular, with the balance sheets of banks protected against the risk of bad debts, there was less danger that loan defaults at the end of the business cycle would provoke an indiscriminate credit crunch.

All these developments – the retreat of big government, the control of inflation, the shareholder value movement, together with the information and financial revolutions – promised to bring the business cycle under great control than in the past. They also suggested that corporate profitability and, therefore, stock prices would be higher than in the past. A further positive gloss could be put on these developments from an investment perspective. The shareholders' returns come after other claimants on the corporate surplus have taken their share. These claimants include workers who demand higher pay, governments which want higher taxes, and management which wishes to employ shareholders' funds for its own ends. By the 1990s, however, both government and the workers were in retreat, while managers had agreed to join the shareholders' camp in exchange for a small slice of the profits. Shareholders, normally the weakest of corporate constituencies, found themselves to be the locus of power in the business world and the strongest of claimants on the corporate surplus. That, at least, is how they flatteringly saw themselves.

B. What Went Wrong? New Economy in Practice

During the second half of the 1990s, the case for the New Economy was extolled loudly and repeatedly – by investment bankers and consultants, by politicians and journalists, by academic economists and business managers. The longest ever recorded stretch of economic growth in the United States was not a chimera. Nevertheless, the New Economy argument was immoderate from its outset. Over time, it was further undermined by behavioural responses to the bull market. The widespread feeling of complacency in the late 1990s concealed mounting risks, both in the economy and in the stock market, and led many to ignore the increasing abuse of conflicts of interest in the business world. In the end, the New Economy was not defeated by force of argument. It destroyed itself.

1. The Control of Inflation. One of the main tenets of the New Economy was that government activity had become more benign. While it is true that governments of a supposedly more ‘progressive’ nature (Clinton’s Democrats and Blair’s New Labour in the United Kingdom) consciously restrained their desire to raise taxes, much of their fiscal prudence of the time can be ascribed to the boom, which swelled tax revenues and reduced welfare payments. Nor was the peace dividend of the 1990s something to be enjoyed indefinitely, as the events on 11 September 2001 were to prove. Even before the attack on the World Trade Center, many defence experts argued that the West was living in a ‘security bubble’ by failing to pay sufficient attention to the threat of grand terrorism and asymmetric warfare.

Although the authorities could take credit for bringing inflation under control in the 1990s, the benefits of lower inflation were largely over-stated at the time. While it is true that inflation skews economic incentives and redistributes wealth in an arbitrary fashion (from the owners of nominal assets to the owners of real assets, from creditors to debtors), at relatively low levels it does not damage economic growth. Yet during the bull market the decline of inflation was hailed as a reason to buy stocks: lower inflation led to declining bond yields (interest rates) and lower bond yields implied lower earnings yields (higher price-earnings ratios) on stocks. This notion received support from the so-called “Fed model” for valuing stocks, which compared earnings and bond yields. Although widely followed in the 1990s, this model is theoretically flawed. It is an example of the so-called ‘money illusion’, namely people’s tendency to confuse real assets (e.g. equities) with nominal assets (e.g. bonds). If inflation declines more than expected, then the value of nominal assets which pay a fixed interest will rise. However, the value of stocks whose earnings will vary with changes in inflation should be unchanged. Everything else being equal, lower inflation should translate into lower corporate profits in future.

In reality, many companies enjoyed a brief and unrepeatable bonus from the decline in inflation. During inflationary periods, companies find they can boost their profits by maintaining large levels of stocks and by over-investing in real assets. When inflation declines, they can further enhance profits by reversing this policy and reducing stock levels. This probably explains why many companies in the early 1990s were able to maintain high (double-digit) profit growth at a time when inflation was falling. Clearly, these gains could not be enjoyed indefinitely.

Finally, the enthusiasm with which the decline of inflation was greeted overlooked the fact that deflation is far more damaging to companies than inflation. It tends to be accompanied by excess capacity, declining consumer demand and sinking corporate profits. Deflation causes nominal assets (debts) to increase in value and real assets (equities) to decline. As inflation came under control in the late 1990s, the prospect of deflation became more likely.

2. The Greenspan put and the New Paradigm. Alan Greenspan, the Federal Reserve Chairman was also invested in the public mind with semi-magical powers to control the business cycle and more important still, to protect the stock market. On several occasions, Greenspan used monetary policy to bolster the stock market: after the stock market crash of October 1987, in the early 1990s as the junk bond market collapsed,

in 1997 after the Asian crisis, and again in the autumn of 1998 after the collapse of the hedge fund, Long-Term Capital Management. On the last occasion, after two successive interest rate cut, the Nasdaq index climbed more than 50 percent in the following six months. People came to talk about the ‘Greenspan put’, the notion that the Federal Reserve was underwriting the stock market. It followed that people needn’t worry unduly about the overall level of the market, because if stocks were to fall the Fed could be counted on to support the market, by cutting interest rates to stimulate liquidity and to make stocks more attractive relative to other financial assets. ‘Don’t fight the Fed’ became the mantra of stock brokers and investors around the world.

By 1999, the cult of Greenspan had reached fever pitch. In Washington, the aged economist was referred to alternately as the ‘greatest central banker in the history of the world’ and a ‘national treasure.’ Whenever doubts were expressed about the high prices prevailing in the stock market, they were immediately calmed by reference to the Fed Chairman. However, at some point the runaway stock market reached a level that was beyond the power of any man to control. That point was reached sometime in the second half of the 1990s. When the market turned in early 2000, and continued falling despite repeated cuts in interest rates, investors’ faith in Greenspan was sorely tested.

Economists of the Austrian School raised a further criticism of Federal Reserve policy. They argue that central bankers who attempt to fine-tune the economy with a flexible monetary policy are prone to making mistakes. In their view, US interest rates were too low in the 1990s. As a result, a speculative boom was ignited in the stock market, a credit boom spread through the economy, and an imbalance between investment and saving appeared, accompanied by a gaping US trade deficit. For the Austrian economists, the technology boom and the shenanigans in the stock market and corporate world were not the causes of the boom, merely its symptoms. Instead, the real cause of the boom was the misguided policy of the Federal Reserve, which provided the cheap money to fuel the speculative excess.

3. Infectious Greed. While purporting to be a practical guide to how companies should be run, the shareholder value is in reality the product of neo-liberal economic ideology. It depends on several theoretical assumptions: that companies are simply a nexus of contracts which bind together disparate individuals, devoted to the self interest; that motivation of these individuals is primarily a monetary factor; and that contracts can be written that optimise the gains for both the company and the employee. Shareholder value also assumes that the main purpose of the company is to provide profits for shareholders rather than to harness the abilities, desires and ambitions of those involved with the company to satisfy the desires of customers. Finally, the theory of shareholder value demands that management should follow the strategy dictated by expectations embedded in the share price. This assumes that market expectations are rational and that market prices are efficient.

In reality, companies are more complex than the reductive theory of shareholder value supposes. All institutions, including commercial corporations, depend to a great extent on the trust that they are able to generate. In the absence of trust, institutions are forced to become coercive. The most successful institutions are those which make exceptional demands of their members. In order to make these demands, one must

appeal to a higher motive than pecuniary self interest. It is unlikely, therefore, that profit can be the prime purpose of a corporation. Rather, as Peter Drucker has commented, profit is simply a measure of the validity of a corporation's purpose—the company makes profits in order to survive, it doesn't survive in order to make profits. In addition, the corporate culture varies greatly among countries. Some countries adopt a more consensual approach to decision-making within corporations (e.g. Japan, Germany), while others have a tradition of strong centralisation (e.g. France). The ideas of shareholder value conform most closely to the Anglo-Saxon corporate tradition. These ideas cannot necessarily be exported.

The greatest flaw in the shareholder value theory, however, was its claim that market expectations should properly determine corporate strategy. If share prices always reflect intrinsic value, which implies that shareholders are well informed and rational, then a strategy of allowing market expectations to guide decision-making is be appropriate. However, if share prices do not reflect fair value - if market expectations are irrational, either overly optimistic or pessimistic, and if shareholders are not in possession of all the important facts about a company (if there exists an 'information asymmetry' between shareholders and the company) - then the pursuit of market expectations is likely to lead to errors.

Despite the weaknesses in the theory of shareholder value its practical implementation brought genuine benefits. Under its influence, many companies improved the allocation of resources; higher profitability and returns on capital, in turn, provided gains both to shareholders and the economy in general. The real costs of aligning the interests of senior managers, through stock options and other bonus schemes, with those of shareholders appeared negligible when compared with these benefits. Stock markets, however, have a tendency of absorbing sound practical ideas and pushing them to excess. Shareholder value suffered this fate. It became corrupted by the bull market. This was partly due to the fact that the 'infectious greed' of managers led them to find ways of manipulating stock prices to the detriment of the long-term interest of shareholders, and partly because the policy of allowing market expectations to determine corporate strategy came unstuck when market expectations reflected 'irrational exuberance.'

During the 1990s, senior managers were paid largely in stock options. Leaving aside the fact that these options were not expensed through the profit and loss account – the concealment of their true cost serving to flatter profits, they had a number of other ill consequences. First, they encouraged managers to substitute dividends which reduced the value of a stock option for share buybacks which enhanced the value of the option. By the late 1990s, US stock market was buoyed by hundreds of billions of dollars share repurchases. The buybacks were undertaken regardless of price. In order to fund these repurchases, many corporations took on large amounts of debt. The substitution of debt for equity served to boost returns on equity and earnings-per-share, thus giving the impression of efficiency gains. Secondly, most management share options could be exercised over a three-year period. This gave executives an incentive to focus on maximising their share price in the short run, notwithstanding any the long-term ill effects of their actions. In some cases, managers boosted earnings by cutting those costs whose benefits wouldn't be realised immediately, such as marketing and training.

Other more dubious practices were employed to maximise reported earnings. Some companies used derivatives to conceal loans and bring forward future profits. Some senior managers pressured their auditors to sign off on doubtful accounting practices, which served to flatter earnings. Compliant accountancy firms received lucrative consulting contracts. Many chief executives spent up to half their time worrying about their company's share price (their net worth). They leaned on investment banks to ensure their analysts produced favourable reports. Compliant analysts received better access to the company and his employer received lucrative banking business. Companies spent more money on financial PR and their bosses appeared more regularly on television, in order to preen their corporate image and their stock price, before the public. Meanwhile, corporate insiders cashed in their options and sold off hundreds of billions of dollars of shares, stakes in companies which they had been given by shareholders in order to align their interests. When asked why the corporate insiders were cashing in their stocks options, the company spokesman would reply, 'for portfolio diversification purposes and estate planning.' More likely, insiders simply knew more than outsiders (information asymmetry).

When the stock market expects a company to invest heavily in order to enjoy future profits and the chief executive's wealth is dependent on the short-term performance of the share price, it is not surprising that the CEO should follow market expectations. This, after all, is what the exponents of shareholder value advised. By the late 1990s, however, the share prices of many (possibly all) companies in the technology, media, and telecoms sectors reflected unrealistic market expectations. An orgy of capital expenditure took place. Hundreds of billions of dollars were spent, in both Europe and the US, laying new fibre optic networks. In Europe, tens of millions of dollars were spent by mobile telephone operators on new 'third-generation' licenses and networks. Any company which failed to invest, saw its share price fall. The chief executive, by implication, was 'destroying shareholder value.' His job was at risk, and his company vulnerable to a potential takeover bid. (When Bouygues, a French mobile phone company, failed to acquire a domestic 3G licence, its chief executive complained that to have bought a licence would have involved a slow death, but failure to buy one meant instant death). Savvy managers allowed market expectations to guide their hand. In this game of musical chairs, they only needed to keep playing until their options vested. Many played this game well. In the telecoms world, the 'Barons of Bankruptcy' emerged with billions of dollars in personal gains, leaving behind an insolvent industry operating at less than 5 percent capacity, strewn with 'dark fibre.' Never before had so few been rewarded so well, for achieving so little.

In late 2001, Professor Michael Jensen, formerly of the Harvard Business School, a leading exponent of the efficient market hypothesis and the most influential academic advocate of the shareholder value movement, stirred by these corporate catastrophes penned an op-ed piece for *The Wall Street Journal* advising CEOs to 'Dare to keep your stock price low.' Fine advice, but too late, far too late.

4. The Technology Bubble

In the last months of the bull market, as the Nasdaq index was climbing rapidly to its peak, stories were relayed excitedly in the media of how new technology held out the

prospect of enormous productivity gains (I heard one dotcom CEO claim that 9 per cent annual productivity growth was attainable). In support of these claims, people pointed towards the recent upsurge in productivity in the United States. In fact, US productivity in the 1990s was not remarkable when looked at in an historical context. It is true that it was higher than in the two extremely lacklustre decades after 1975. However, productivity growth in this period was worse than in the 1960s and significantly inferior to the 1920s. Furthermore, sceptics argued that the official measure of productivity was inflated because it included an adjustment from quality improvements (known as ‘hedonic’ adjustments). Thus, a factory which manufactured computers with a faster chip than the year before was deemed to have increased its productivity even if it sold the same number of computers at the same price, made by the same number of workers, as the year before.

The prospects for future growth were also overstated. There was no historical precedent for the belief that the new information technology would cause growth to rise to several times its historic norm. In the previous century and a half there had been many technological revolutions brought on by the advent of railways, motor cars, electricity, telephones and so forth. Some even argued that the humble air conditioner had brought greater improvements to economic efficiency than the internet was ever likely to attain. From an investment perspective, it might have been noted that most former technological revolutions had been accompanied by speculative booms, which led to excessive investment. The lessons of Britain’s railway mania of the 1840s is instructive. It is estimated that the enlargement of the railway system at that time produced only a marginal improvement in Britain’s economic growth. Yet a poorly planned and overbuilt railway system delivered miserable returns to investors. As with later technological booms, consumers of the new services benefited at the expense of the suppliers of capital. The lessons of history, however, were ignored as the new millennium approached.

During the boom, numerous myths were spread about the investment prospects of technology companies. I list some examples. Internet companies were said to have a ‘first-mover advantage’ (by analogy with Microsoft); new markets were said to be growing exponentially, following the pattern described by a Sigmoid or ‘S’ curve (by analogy with the growth of the internet and mobile telephony in the 1990s); the value of the new networks was said to increase exponentially with the number of users (following so-called Metcalfe’s rule). What can we say about these claims? In relation to the prospects of individual companies they were unverifiable. However, since the economic progress occurs through trial and error, it was never likely that all first-movers would be winners. Numerous precedents suggested that later arrivals would be better placed to avoid the mistakes of the vanguard. (Honest dotcom entrepreneurs admitted at the time that their business plan consisted largely of “throwing an idea at the wall and seeing if it would stick.” Such expressions of uncertainty, needless to say, weren’t included in the IPO prospectus.)

In fact, very few of the new sectors demonstrated the kind of network effects where it pays to be a first-mover (eBay, the online auction firm, is a celebrated exception). For instance, as fibre-optic technology was advancing rapidly in the late 1990s, the lowest cost telecoms operator was by definition the most recent entrant. The pace of market

growth was also greatly overestimated. At the time of the millennium, it was claimed that Internet usage was doubling every three months. Dotcom fever was then raging so strongly that, no one, apparently, attempted to verify this claim. In fact, the real Internet growth rate was far slower and the amount actually spent on telecoms services was shown even slower growth (prices for telephone services were falling). By early 2000, the aggregate value of companies in the telecoms, media and telecoms sectors implied future profits and sales that would have consumed a vast chunk of household disposable income. In order to spend their time surfing the internet with the latest equipment, watching videos-on-demand, and engaging in other New Economy pastimes, people would have had to forego spending on food, holidays, clothing, and so forth. The stock market, apparently, was anticipating a society of geeks and nerds.

Some careless analysts even put into their valuation models perpetual growth forecasts for individual technology companies that exceeded estimates for GDP growth. Had these forecasts been realised the companies would have ended up larger than the economies in which they operated. In short, the valuation of technology companies and the forecasts for the growth of new markets were cases of wishful thinking. A more rigorous analysis of assumptions and a glance at history might have produced a more cautious assessment of the prospects.

The technology sector was close to the vortex of the stock market boom. The abuses that occurred in this sector were similar, if rather more extreme, than those found in the rest of the market. The founders of technology companies, and their venture capital backers, had an interest in cashing in their profits quickly. The investment bankers were avid for juicy fees from initial public offerings (a standard 7 percent in the US). Professional investors were keen for allocations of shares in 'hot' IPOs which could be quickly 'flipped' to the day-traders. They were prepared to return favours to the investment bankers who awarded them shares in the flotation (some agreed to pay inflated commissions and also to support the IPO stock in the after-market). Investment bank analysts, some of whom were allowed to purchase shares in companies they covered prior to the IPO, were naturally supportive of these issues. According to one banker, the two 'unwritten' rules of investment bank analysis were: "If you can't say anything positive don't say anything at all" and "go with the flow of the other analysts, rather than try to be contrarian." To follow this advice was to receive a bonus, whose size inflated along with the bubble. If some analysts believed that the companies they touted were "pigs" or "pieces of shit", they kept these thoughts largely to themselves.

The telecoms and technology sector in the late 1990s relied on short-term funding and debt. In this pyramid scheme, the capital was only supplied providing the game was still profitable. The genuine business prospects of technology firms were a secondary consideration: who cared whether they succeeded or not, provided one could make money from them? As a result, many flaky businesses were financed, too much competition appeared, and when the music stopped, these companies quickly burnt through their remaining funds and disappeared. Investment bankers, technology entrepreneurs (promoters), stock brokers, venture capitalists, early stage investors, and a host of other business interests (media, advertising, financial PR, consultants, market researchers) benefited from the boom. Later stage investors, both retail and institutional, picked up the tab.

The End of the New Economy

Look back one sees that it was the behavioural responses to the rising stock market and New Economy that brought both into disrepute. The comforting presence of Greenspan at the Fed led investors to purchase shares regardless of price, thereby propelling the stock market to a point where market risk was beyond the control of monetary policy. The attempt to resolve the principal-agent problem failed after managers started to manipulate their stock prices in order to maximise the value of their options; the shakiness of the foundations of shareholder value were exposed when irrational market expectations stimulated excessive investment in overvalued sectors. The promise of new technology soured after the stock market bubble collapsed, producing enormous losses for investors. It is a sweet irony that the information technology industry which had been credited with helping to control inventories suffered itself from record levels of excess capacity and unsold inventories after the bubble burst. Financial derivatives were not solely employed to control legitimate business risks, they were also used to inflate profits and mislead shareholders in other ways. Credit default insurance encouraged banks to engage in reckless lending, secure in the knowledge that they would not be responsible for any bad debts. (In fact, the American banking industry prudently transferred credit risk from its own balance sheet to that of European insurers, so when the bad loans appeared that had been originated in the United States the losses were felt more strongly in Frankfurt than on Wall Street). In short, each apparently benign aspect of the New Economy turned malignant over the course of the bull market.

The progression of this bull market in the late 1990s generated a momentum of its own, enhancing corporate profits, stimulating business investment, and encouraging consumer spending and borrowing. It became impossible to separate the justification for the bull market – the New Economy hypothesis - with the virtuous cycle created by rising share prices. Exponents of the New Economy claimed that the supposed imbalances in the US economy – such as the falling savings rates and rising trade deficit - reflected a rational anticipation of a prosperous future that lay in store. The robust performance of the stock market was cited as evidence in favour of their hypothesis. The naysayers claimed the opposite: that the imbalances were characteristic of a financial bubble and that the New Economy was simply the rationale provided to justify the overvalued stock market. Presented with a choice between these two opposing views, investors overwhelmingly endorsed New Economy. Why they did so is the subject of the second half of this essay.

C. Investors and the New Economy

The Cult of Equity

By the late 1990s there had appeared, not for the first time, a cult of equity investment. To some extent this cult was independent of the New Economy and New Paradigm. The long bull market had served to enamour the public to equities; the longer it lasted, the more they loved them. The greater the profits they enjoyed, the more they forgot or ignored the downside. It helped that when the bull market commenced in 1982, stocks were very cheap on a replacement cost basis (Tobin's q), and that they remained cheap by this measure well into the 1990s. As I have already pointed out, the quick recovery

from the 1987 crash and the briefest of recessions in the early 1990s, reinforced the impression that stocks were less risky than many had formerly believed.

The cult of equity was fostered by academics (such as Professor Jeremy Siegel of the Wharton Business School, author of the best-selling *Stocks for Long Run*), who argued that stocks invariably outperformed bonds in the long run. Others argued that given the innate superiority of equity investment there was little point in trying to time one's entry into the market: the real risk was to be out of stocks. Academics claimed that in the past investors had irrationally shunned equities because of the fear of short-term volatility (this fear was given a fancy name, 'myopic loss aversion'). It followed that investors of the late twentieth century could quite reasonably pay more for stocks than they had in the past and hold more equities in their investment portfolios.

Economists of the efficient market school concurred with these views. In addition, they claimed that as the current level of the stock market was by definition 'efficient' (since the market price was deemed the same as intrinsic or fair value), investors should not heed the bearish types who warned of overvaluation. What was the judgement of a few self-promoting Cassandras worth when compared with the verdict of thousands of persons reflected in the stock market? Financial bubbles and speculative manias, said the market efficientists, were mere historical fables; tales of Dutch tulips had no more substance than Arthurian legend. Not only should investors have a blind faith in the stock market, said the learned professors, they should also buy the whole stock market as represented by the market index (this advice was popularised by Professor Burton Malkiel of Princeton, author of the best-selling, *A Random Walk Down Wall Street*). As the index represented the optimal balance of risk and reward, there was no need to appraise the fortunes of individual companies.

This propaganda for equity investment was immensely influential. It formed the opinions of the hordes of workers who had recently been given responsibility for allocating assets in their pension plans (as so-called 'defined contribution' plans took over from the traditional 'defined benefit' plans run by employers). It became the accepted wisdom of actuaries and trustees, who argued for increasing the allocation of institutional funds towards equities. It became the excuse for local governments in the United States to issue bonds and put the proceeds in equities, thus 'solving' their future pension problems. It encouraged companies to load up on equities in their corporate pension funds, the gains from this investment decision serving to turn the pension fund into an important profit centre. The effects of the cult of equity were felt across the entire financial system as people from virtually every walk of life, of varying degrees of financial sophistication, engaged in the most apparent, profitable and seemingly risk-free arbitrage of all time: Long equity, short debt.

The notion that stocks invariably outperform bonds over the long run was not newly discovered in the 1990s. It was also a widely held belief in the roaring twenties, largely as a result of the publication of a book in 1924 entitled *Common Stocks as Long-Term Investments* by Edgar Lawrence Smith. In a generally favourable review of this book, J.M. Keynes observed that 'it is dangerous, however, to apply to the future inductive arguments based on past experience, unless once can distinguish the broad reasons why past experience was what it was. Otherwise there is a danger of expecting results

in the future which could only follow from the special conditions which have existed in the United States ... during the past.' What were the special conditions in the past which had caused stocks to become decent long-term investments? The short answer is their cheapness. Up until the 1990s, stocks had produced a long-run real return of around 7 per cent, of which roughly half came from dividends. The market's average price-earnings ratio was little more than 14 times. It seems reasonable to conclude that stocks produced superior returns because they were not expensive relative to bonds. It should also be noted that bonds had performed especially badly in the second half of twentieth century owing to unexpectedly high levels of inflation.

By the turn of the millennium, however, the stocks of the S&P 500 were trading on a price-earnings multiple of more than 30 times and a dividend yield approaching 1 per cent. These stocks were no longer cheap relative to bonds, at least when compared with historical precedent. This should have led people to question whether the 'stocks for the long run' and 'don't bother about market timing' arguments were still valid. In fact, some commentators did question their validity. In a book published in the spring of 2000, *Valuing Wall Street*, Andrew Smithers and Stephen Wright showed that the stock market at the time of the new millennium had reached its highest ever level as measured on a replacement cost basis. Professor Robert Shiller, in his book, *Irrational Exuberance*, published at the same time, made a similar point about market valuation based on his analysis of price-earnings ratios. Several other commentators at around the same time applied a dividend discount model to the stock market and concluded that it was highly improbable that equities would outperform US government inflation-indexed bonds (TIPs) over the medium term. A few investors heeded these calls. Most would not be shaken. They were prepared to retain their faith in stocks, at any price.

Those who argued for lower equity risk premiums and for increasing the allocation of assets to stocks displayed a poor understanding of the nature of stock markets and their role in the economy. The stock market is the place where companies go to raise fresh equity capital. Market expectations affect the cost of capital for companies. When the stock market rises and companies trade at a premium to their invested capital, then there is an incentive to invest more. However, if companies in aggregate increase business investment, then competition increases and profits decline. Declining profits are likely to depress equity prices. This is another way of saying that the stock market, through its connection to activities in the real economy, reverts to the mean. Stock markets, like trees, do not grow to the sky – at some point, they topple over.

In the past, periods of high valuation in the stock market have invariably been followed by reversion to the mean. The argument that stocks had historically been underpriced failed to comprehend that by promoting a bull market, they would influence investment decisions which in the end would cause stock prices to fall. This, in fact, is what happened. Aggregate investment soared in the late 1990s, in the first year of the new millennium excess capacity emerged, corporate profits sagged and the stock market went into decline.

The arguments of the efficient market hypothesis – that the prices to be found in the stock market were best reflection of intrinsic value and that the benchmark index represented the optimal investment portfolio – were also vitiated by the actions of those

who enthusiastically embraced the nostrums of market efficiency. Stock markets can only be efficient because investors make them so. If all investors were to accept blindly that prevailing stock prices were efficient, then the stock market would necessarily become inefficient (this observation is known as the ‘Grossman-Stiglitz paradox’).

Something along these lines occurred during the 1990s. Indexation became the most popular style of investment, both for retail investors and institutional funds. Professional investors accepted mandates from clients which obliged them to stick closely to the index benchmark (when Mercury Asset Management, later renamed Merrill Lynch Investment Management, strayed too far from the benchmark in the late 1990s the firm was sued by its client, the Unilever pension fund, and settled out of court). Active investment, which aimed to assess stock prices relative to their potential risks and rewards, gave way to passive investment and closet-index tracking by professionals. The pricing inefficiencies caused by the rapid growth of indexation were exacerbated by the fact that in Europe many former state-owned companies, such as France Telecom and Deutsche Telekom, were heavily represented in the benchmark indices although relatively few of their shares were available to investors. Large companies also discovered how to stimulate demand for their stock by acquiring foreign firms in all-share deals, which thus increased their weighting in the index. Such actions often led to a ‘squeeze’ as demand from index-trackers exceeded the supply of fresh stock, thus causing the share price to soar.

The increasing influence of the public on the stock market made conditions more turbulent than they might otherwise have been. The number of private investors grew during the boom years, their access to the market facilitated and made cheaper by the arrival of online brokerages. Some internet investors and day-traders were naïve (they didn’t know the risks they were taking and that the odds were stacked against them); others enjoyed the thrill of instant gains and were prepared to take the gamble. By the mid-1990s, day-traders exerted their influence over a handful of individual stock prices. By the turn of the century, they were moving the entire technology sector, which comprised an ever increasing segment of the whole stock market. More than half the trades on the Nasdaq market in the first quarter of the new millennium originated from private investors. The situation was little different in Europe: in Germany, online traders frequented the Neuer Markt and bid the prices of technology firms to heights that made levels on the Nasdaq appear conservative (in fact, the most popular stocks on the Neuer Markt were online stock brokerages, whose value increased with each trade. Thus, the speculative dog wound up chasing its own tail.)

By handing over important asset allocation decisions to inexperienced employees, the rise of defined contribution pensions, (known as 401(k) plans in the United States), further contributed to the market irrationality. The 401 (k) investors tended to have very high allocations of equities in their portfolio. They also chased after the best-performing mutual funds, typically those funds heavy with technology stocks and over-priced mega-caps, which were managed by momentum traders.

Although in the past the valuations in the stock market have invariably reverted to the mean, the time period over which this reversion takes place is variable. A number of factors served to prolong overvaluation throughout the second half of the 1990s. They

included the gambling of day-traders and the naïve optimism of 401(k) investors, massive corporate share repurchases that took place regardless of price, and the actions of professional investors whose investment performance was judged over quarterly periods. The longer this period of indiscriminate share purchasing continued, the longer the stock market's mean reversion was delayed. By the millennium, the market had been overvalued for so long that a certain complacency had appeared.

Professional investors thus found themselves under two great constraints in the late 1990s. First, the public's indiscriminate passion for equities and its newfound appetite for day-trading was pushing up share prices to record valuation levels. Secondly, the fund management firms were increasingly constrained by mandates which limited their discretionary divergence from the index. Their clients, advised by actuaries and consultants, accepted implicitly the notion that stock markets were efficient and that a fund manager's divergence from the benchmark index constituted an 'error'. They also accepted the idea that equities invariably provided the best long-term investments, regardless of price.

When the bubble appeared in the second half of the 1990s some fund managers attempted to resist. What happened? Their portfolios underperformed, clients withdrew funds and the recalcitrant managers were, in certain well-publicised cases, dismissed. A few professional investors resisted the bubble and remained at their posts, later recouping their underperformance and preserving their clients' funds during the bear market. However, such people generally worked for small, independent investment firms. The fund managers at larger companies, especially those worked for public companies, generally submitted to the interests of their employers who viewed the investment business as being primarily about 'asset-gathering'. To resist the bubble from a business perspective of the investment firm was to destroy shareholder value. So instead of resisting, the fund management community capitulated. Professional investors turned to momentum investing, buying shares in companies which rose in price and selling those which fell. They focused on quarterly earnings-per-share, even though these figures were often distorted by management intent on boosting the stock price (one survey found that 90 percent of questions at company presentations concerned the next quarter's results). They believed they could ignore the long-term consequences of such behaviour because they only held onto shares for the briefest of periods. By the end of the century US equity mutual fund holding periods had declined to less than one year. Professional investment had degenerated into a game of pass-the-parcel.

The bubble occurred either because many professionals in the business and financial world didn't recognise it for what it was or because they put their own self-interest before the interest of their clients which they were paid to protect. If the former is the case, then we can say that their actions were irrational, since as we have seen the New Economy hypothesis was highly improbable from the outset and became less likely over time. However, if these professionals - whether they be investment bankers, analysts, senior executives, fund managers, et al - were considering their own interests above the interests of those to whom they owed a fiduciary duty, then it was clearly rational for them to ignore the bubble. By accepting uncritically the New Economy/New Paradigm hypothesis, they could remain and prosper in their jobs.

Let us consider the alternative scenario in which the professionals recognised that a bubble existed. In this case, we must imagine the investment banker refusing to participate in a potentially hot IPO because he believes the company in question doesn't have decent prospects or advising a client against a planned merger because the market's expectations of the advantages of the deal are overblown. We must imagine the telecoms executive, sitting on a fortune in stock options, who declines to build yet another fibre optic network and instead returns capital to shareholders on the grounds that there are no current investment opportunities. We must imagine the fund manager, who against the advice of the investment bank analysts, buys the shunned small capitalisation stocks of the old economy, in the knowledge that he is protecting his client's interests (whatever the clients say). We must imagine the brokerage analyst, who tells investment bank colleagues that he will not promote the stock of corporate clients, and thus rejects the prospect of a bonus from the corporate finance department's pool of profits. We must imagine the accountant, who seeing the millions being earned on Wall Street by those with less technical competence than he, turns down the opportunity of consultancy work because he wishes to avoid a potential conflict of interest. A few such people existed, but they were not fit, in the evolutionary sense, for the world as shaped by millennial market mania.

D. Conclusion: The Lessons We have Learnt

Recent events have taught us that in the financial world we fail to be instructed by the lessons of history. The current generation of investors has received a powerful inoculation against speculative fever. This should protect them for some years to come. They have also learnt, if they did not know already, that in the world of finance the validity of an idea does not hold indefinitely: Stocks do not invariably outperform bonds; sometimes it pays to time the market (when the market is overvalued); the index does not always provide the best benchmark against which to measure risk; stock markets are not efficient (in the short run they go haywire, but eventually they revert to the mean). At present, the investment community and its clients have learnt that their focus on relative performance without considering absolute risk promoted the stock market bubble and eventually caused them to suffer enormous losses. The Great Depression imparted similar lessons which were not remembered. Bear markets instruct people in the error of their ways. Bull markets provide them with the opportunity to forget.

It seems that people need to experience a bubble in order to recognise one. This does not mean, however, that we cannot take steps to hinder or prevent the repetition of certain types of behaviour characterised by the millennial market mania. Over the last couple of years there has been much discussion of corporate governance – moves to enhance the independence of directors, the reliability of accounts, and to provide greater sanctions against executive malfeasance. For the most part, I believe, these moves will do little good. The more rules that are written to control people's behaviour the more ways that are found, sooner or later, to get round them (US accounting rules for derivatives already stretch to over eight hundred pages). The main thrust of reform should be to diminish incentives for the abuse of conflicts of interest. Commenting in the early 1930s on the problems of Wall Street during the roaring twenties, Justice Harlan Fiske Stone asserted, "that when the history of the financial era which has just

drawn to a close comes to be written, most of its mistakes and its major faults will be ascribed to the failure to observe the fiduciary principle, the precept as old as Holy Writ, that ‘a man cannot serve two masters.’”

Conflicts of interest are particularly vulnerable to abuse when business relations are of a short-term nature. Game theorists have found that co-operation is more common between players when they have multiple interactions (this finding does not relate only to the affairs of man, it also holds true for many associations in the natural world). Yet business developments in recent years have discouraged long-term relationships. In the world of finance, for instance, there has been a shift from so-called ‘relationship banking’ to ‘transaction banking’ owing to deregulation initiated in the 1970s. Investment bankers promiscuously tout ideas from one company to another and receive their fees in cash. They are long gone by the time the mergers they promoted have collapsed in ruin. Indeed, promoting corporate failures may actually provide opportunities for more banking fees at some later stage. The formerly staid world of accounting has also responded to deregulation - intended to promote competition - by moving from long-term to more transactional relationships with clients. Managers who receive stock options with short vesting periods have little incentive to consider what consequences their actions might have in a decade’s time. Besides, in the age of shareholder value the tenure of chief executives in both the United States and Europe declined to around five years. Professional investors who are charged with overseeing the activities of corporate managers are similarly indifferent to distant outcomes since they rarely hold onto a stock for more than a few months. The proliferation of these short-term business associations in recent years might have been designed with the intention of encouraging capitulation the abuse conflicts of interest. The bubble depended upon such rational iniquity for its existence.

The most effective way of reducing such abuses is not by writing new rules but by finding new ways to encourage long-term relationships. Some obvious solutions suggest themselves. For instance, it might be advisable to abandon stock options which vest in three years and replace them with equity-linked incentives whose pay-off arrives over a longer period. Other solutions are less clear-cut. How do we persuade bankers and accountants enter long-term business relationships without encouraging anti-competitive practices (or is this a small price to pay?) But we should not shy from tackling these problems, since an economy that encourages the abuse of conflicts of interest is likely to suffer in the long run. And contrary to what many appear to believe, the long run is not indefinitely long.

Rethinking Asset Management: Consequences from the Pension Crisis

Dr Bernd Scherer¹
Deutsche Asset Management

Pension Crisis

The last decades saw an increasingly strong focus on equity investments by insurance companies as well as corporate pension funds. Life insurance companies shifted away from mainly taking actuarial risks (biometric, mortality, survival, ...) to increasing underwriting finance related risks (minimum rate guarantees, indexation, policy surrender option). The driving force has been the bundling of saving and insurance products to transfer the unique tax advantage insurance products still enjoy. On the corporate side, pension funds implemented more aggressive asset allocations in an attempt to reduce pension costs in an aging environment. As a consequence the cash flows to equity holders of insurance companies became more and more sensitive to interest rate movements while corporate equity holders have been increasingly affected by the poor performance of their respective pension funds. As the first three years of the 21st century saw consecutive years of negative stock market returns, this triggered large underfundings in corporate plans as well as insurance companies across the world. Falling global stock markets also had a knock on effect on insurance companies that have been most affected. Many corporate pension plans had to ask the sponsor company for capital injections (by the equity holder) in order to maintain the legally required funding status. The key question to answer is, whether this has been just an unlucky event or whether standard investment advice mainly provided by actuarial firms can still be viewed as best practice. In order to answer this question we need to review the framework investment decisions in the past have been based upon. What did incentivize pension funds and insurance companies to heavily invest into equities? Why have the risks from these investments been underestimated? Has the asset management industry been too short termite or did pension consultants put too much weight on the long run?

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Dr Scherer's current research interests focus on asset valuation, portfolio construction, strategic asset allocation and asset liability modelling. Dr Scherer holds MBA and MSc degrees from the University of Augsburg and the University of London, as well as a PhD in finance from the University of Giessen.

Too Much Focus on the Long Run

Contrary to the belief that there has been too much short termism in asset management there actually was too little. Mandates have been set with respect to 10, 20 or 30 year time horizons while practically a 30 year time horizon unravels into 30 one year reporting horizons within most regulatory environments. Investors can simply not blindfold themselves (nor can the regulator) and ignore short or intermediate investment losses in the bold hope things will get back to normal after a while. In fact the longer the time horizon the more likely it is that we will have an underfunding situation anytime up to the end of the time horizon. This probability is much higher than the probability to be underfunded at the end of the time horizon. Why is this practically important? With default effectively being path dependent the long run does matter much less than standard asset allocation studies make investors believe. Sponsors might harvest a large surplus in 30 years, but only if they survive the short term fluctuations up to then. Apart from regulatory pressure there is always a strategy reversal risk even for the most long run minded investor. Investors are often forced to abandon their long run policies as they can simply not tolerate the short term pain. What do you do if you are 30% below what you expected at time 2, even though your simulations at time 0 have shown that you will have little risk in time 10? Do nothing in good faith or acknowledge that circumstances have changed and adjust your policy allocation accordingly? The question of how often should we redo a strategic asset allocation study is closely connected to this. In a false understanding what is meant by long run policy many investors and consultants tend to believe that once a ten year strategy is fixed it should not be changed next year. With falling asset values it became apparent that this “cry and hold” approach makes little sense. The rule of thumb is that we should change our policy allocation as soon as material new information arrives. New information might come in the form of a changed investment opportunity set (due to a time varying risk premium, bond yields, ...) or as changed funding ratios. If funding status deteriorated from 130% to 101% this will have an impact on the decision makers risk tolerance as well as on the risk sharing between plan sponsors and plan members. Even if we had no problem with path dependency (which we will always have due to intermediate cash flows) equities are not less risky as the time horizon increases. It is true that the probability to fall below an initial investment falls as the time horizon lengthens. However it is equally true that the maximum possible loss also rises and that a decision maker with this objective is indifferent between very small losses and total ruin. The focus on quantile risk measures has no relation to catastrophic losses, which are especially relevant for risk averse investors. For commonly used utility functions the effects of decreasing loss probabilities together with increasing maximum loss balance out. Investing into higher yielding (and hence riskier) assets in the hope that these assets will outgrow liabilities has little relation to risk management. Instead it is based on expectations and may best be coined as “happy end investing”. Patience does not reduce risk. Often proponents of the equity cult paradigm suddenly become concerned with social welfare as a whole and ask the philosophically sounding but ill founded question: who will invest into equities and will hence provide the risk capital that is needed to generate innovation and economic growth. Again pension funds are investment vehicles that don't have a life of their own. Investment risks are always and everywhere borne by individuals and not by

institutions. It is not Ford Corporation that bears the risk of a liability mismatch in their pension fund; it is the equity investor in Ford that ultimately is an individual. This brings us to an interesting philosophical point. There will be no completely riskless position for pension funds. If everybody invests into corporate bonds and equity issuance stops, corporate bonds will become much riskier as they used to be (eventually become as risky as equity if the equity cushion vanishes). Risk and return in an economy are generated on the active side of the economic balance sheet, no matter how corporates finance themselves. This also applies to the government that needs tax revenues to service the bonds. Pensioners also have to bear the systematic risks within a society. Regulators that want to enforce a triple A rating to a pension fund (virtually no risk to pensioners of not getting paid) in times where the rating of the economy as a whole deteriorates seem to neglect that argument.

Fixed Actuarial Rates Misguide Investment Decisions

Many asset allocation studies are based on actuarial rates which are represented by a fixed actuarial rate that represents the hypothetical interest rate that equalizes the present value of the expected pension payments (by the pension provider) and the expected contributions (by policyholders). This also called the equivalence principle. Many problems arise from this calculation. Fixed discount rates reflect an arbitrary risk adjustment. They neither reflect maturity risk nor credit risk. They also decouple assets and liabilities as a fixed rate has no covariation with liabilities. However the only reason we need assets is because we have liabilities. Those who do not have liabilities do not need assets. Assuming a fixed discount rate actually solves a different problem, i.e. it will arrive at an asset only solution. This has clear implications for the risk free asset. The risk free asset in an asset only world is cash. In an asset liability world (i.e. in the real world) the risk free position is the liability mimicking asset, where long bonds or inflation linked bonds come closest. Fixed actuarial rates favour assets that show low correlation due to the decoupling of assets and liabilities. While alternative assets are risk decreasing in an asset only world due to their low correlation, they actually increase liability relative risk as low correlation in an asset liability world means a high chance that assets and liabilities drift apart. Pension funds that hedged their equity exposure with put options found out that they did on reduce risks to the degree they thought. Equities plus puts yield the best of cash or equities (minus option costs). However cash is one of the riskiest assets in an asset liability world. Let us summarize the above within a simple example. In 20 years time an investor need to pay out a nominal liability of 100. Current market rates are 5%. Actuarial rates are set below at 4% (the idea is often that hidden reserves on the liability side act as a sort of security cushion). In order to be fully funded we need to invest 45.63. But where do we invest into? Investing into a matching zero bond would guarantee the liability (in the absence of default risk) but at the same time we would face potentially large and spurious underfundings that could even trigger default. If rates increase to 8% our funding would be reduced to 56.92% even though there is no risk at all. Rolling over cash would eliminate period by period risk, but due to reinvestment risk (uncertainty about future cash rates) this carries a large long run risk. Not only does an actuarial fixed rate make little sense it also eliminates the riskless asset and hence forces institutions to either take unnecessary risks or provide unnecessary risk capital.

Accounting Focus Underestimates Risks

Accounting practices seem to have an inbuilt idea of mean reversion as many concepts are built on the idea that short run fluctuations in market values will cancel out in the long run. In order of not to let short run noise to have an “improper” impact, accounting values are often smoothed. The corridor accounting under US Gaap is just one example whereby fluctuations in the relative positions of assets and liabilities will not be addressed as long as they are within an “acceptable” corridor of 10%. Even if deviations fall outside this corridor an underfunding can be corrected via a series of annual payments designed to fill the gap over a time horizon of several years. Clearly an accounting based risk management incentivizes to invest into riskier assets, as risks from these assets are mitigated. Smoothing of accounting values effectively increases the time horizon of an investor as intermediate default is less likely. However the risk of not being able to meet obligations remains unchanged. Remember that every book value becomes a market value as soon as cash “flows”. It is certainly true that actuarial smoothening lengthens the life of a corporation (moving legal default further into the future). However this comes at the cost of much larger losses, hidden in the books during the run up of a large deficit.

Aggressive Asset Allocations Do Not Reduce Pension Costs

The common belief among corporate pension plans has been that equity investments reduce pension costs as the larger average returns of equities allows lower contribution rates than a matching fixed income investment. The extension of this argument culminates in the idea that we can discount future liabilities with the expected returns of our assets. Nothing could be more far from the truth. The value of liabilities depends solely on the liabilities. It is true that we can reduce the average pension costs by investing into riskier assets but this must come at an increased cost uncertainty. Moreover many pensions schemes involve implicit options written to the policyholder. We hence can not longer discount all cash flows with a single discount factor as we do have no guidance on how to set this discount factor (unless we calculate the value of these options). Instead we need to discount each cash flow with discount factors that reflect the riskiness of the respective cash flows. These discount factors are called stochastic discount factors (state price deflator) and will lead to the same results as the standard option pricing framework. Using state price deflators equalizes all assets. The higher return of riskier assets is balanced by its higher risk. So why do pension funds in the US still heavily invest into equities? For the same reason the very same companies still hang on to high expected returns on equity. Pension costs are calculated on the basis of planned not actual returns. As the difference between actual and planned returns can under US GAAP be hidden within the corridor (even if it falls outside the corridor the overshooting amount can be amortized over a long period) it is this accounting practice that incentivizes managers (particularly those with book profit based remuneration packages) to upwards manipulate earnings (for a short while).

Too Little Focus on the Shareholder

Standard practice in asset liability modelling is to treat insurance companies or corporates as quasi individuals that place themselves on the efficient frontier. However liabilities are from a corporate view simply future cash flows as any other cash flows. Conceptionally there is no reason to differentiate between pension promises in 50

years time and the issuance of a 50 year real (zero) bond. A corporate that issues a 100 year bond would never run a 100% equity portfolio in order to pay back the principal. However the corporate pension fund seems to be willing to engage in this exercise. The more aggressive allocations are the more risk capital needs to be provided in order to enable the company to fill potential underfundings. However this risk capital is now missing to support the corporates core business. It is hence not in the shareholders best interest to make the pension fund a profit center. The same is true for insurance companies. High equity allocations for guarantees that are mainly interest rate sensitive are not in the shareholders interest. Investors could generate this exposure themselves. Value added in an insurance company is generated by a unique franchise with customers or a superior assessment of actuarial risks, but not by something replicable by the “ordinary” investor. Insurance companies often fool themselves by wrongly arguing that they are true long term investors: This believe rests on three institutional aspects of the insurance business. Because insurance companies engage in long term contracts (that are “enforced” by making policy surrender a profitable event for the insurance company), because they often benefit from favourable accounting treatment that helps them to conceal losses, and because they belief to have access to intergenerational risk transfer, they can afford high equity allocations as the before mentioned peculiarities all help to lengthen the time horizon (survival) of an insurance company by making default a less likely and distant event. However every insurance company following this investment model will go bankrupt with probability one if we wait long enough. All that is achieved is to move default further left in the distribution with rising maximum possible losses to the policyholders.

Fair Value Framework

In contrast to the actuarial framework, the fair value framework simultaneously and consistently value assets and liabilities. It allows therefore to immediately spot any underfundings as soon as they occur. A brief example will exemplify the fair value framework and its advantage. We use the “Dutch pension deal” assuming a corporate pension fund with an initial Funding of 100%. Additional contributions are required if funding drops below 95. Liabilities are assumed to grow with the risk free rate. Pensions are assumed to be indexed. However inflation indexation is stopped if funding falls below 100. We further assume liabilities to grow with the risk free rate. The hypothetical setting is described in Table 1.

Option	Issuer	Content
Corporate Default Put	Pension Fund	<ul style="list-style-type: none"> • Corporation walks away from obligations in case of default • Problem only in simultaneous underfunding • Likely to be small for investment grade corporates
Contingent Corporate Liability	Corporate	<ul style="list-style-type: none"> • Promise to correct underfunding by additional inflows • Corporate shareholders want to keep this value low • Looses value if credit rating declines
Indexation Waiver	Pension Fund	<ul style="list-style-type: none"> • Inflation indexation is stopped if funding ratio falls below x% • Option on surplus rather than on inflation

Table 1. Summary of “Dutch pension deal”

Ignoring the corporate default put and using Black and Scholes state price deflators we can put a value on both indexation waiver and the corporate contingent liability. Using an asset allocation of 60% equities and 40% bonds we arrive at the numbers in Table 2.

Risk Sharing	Contingent Liability	Indexation Waiver	Corporate Burden
Corporate only	5.29%	–	100%
Corporate plus Pensioner	2.57%	3.78%	40.48%

Table 2. Fair value of optionalties

We see that introducing an indexation waiver more than halves the corporate burden and represents a much more fair risk sharing. Needless to say that above results are sensitive to the underlying asset allocation.

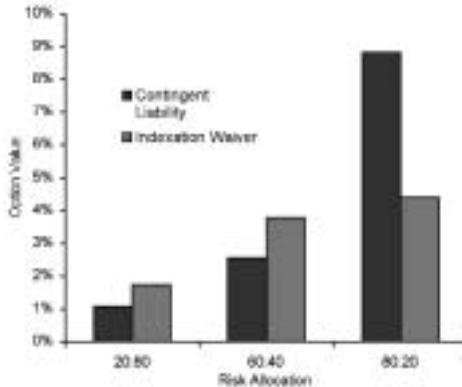


Figure 1. Risk allocation and option value

The value of the conditional corporate liability rises with the aggressiveness of the underlying asset mix. Shareholder value activists will hence prefer a less risky (preferably matching) allocation. It is interesting to see that the indexation waiver option shows little sensitivity to increased equity allocation as there is clearly an upside on this option. No other approach than the fair value approach is able to find the allocations compromise best between stakeholders interests. Note that every management decision will determine the relative position (option value) attached to both stakeholders. Only if we apply a fair value approach we will be able to assess the effects of changed asset mixes.

Conclusion

The beginning of the 21st century saw what has been dubbed “pension crisis” with equity allocations typically held by pension funds dramatically falling in value due to a dramatic fall in markets. However the core of the pension problem is not that assets went down. The problem is that assets often showed little relation to liabilities at all. This has been mainly caused by consultants who focused too much on an actuarial view on long term asset management. In the future consultants will need to take more care to establish the relative riskiness versus the long run liabilities for a given asset mix rather than focusing on asset only solutions. As a direct consequence we will see a permanent reduction in equities by institutional investors in exchange for fixed income investments (possibly corporate bonds). However asset managers need to change too. What is needed are liability benchmarks (reflecting client’s liability risk) and not broad based market benchmarks. It is not good enough to invest against a broad market fixed income index when clients liabilities show interest rate exposure equivalent to 25 years duration or more. The wish for scalable business together with an integration of the retail and institutional business made asset managers become insensitive to this issue. However asset managers not adopting will face fierce competition from investment banks (creating liability relative payments with the use of derivatives or tailored bonds issuance), while at the same time adoption is a costly process. Adoption requires investments into all parts of the investment process, starting from portfolio construction (use of derivatives to hedge out liability relative risks), risk management (measure liability relative risk) reaching to performance measurement (measuring portfolios against liability benchmarks). What is required is not a new investment paradigm focusing on a nebulous idea of what long run means but rather a rigorous adoption of key investment principles well know in academic finance.

Lessons for and from Asymmetric Asset Allocation (AAA)

Thomas Bossert
Union Investment

Union Investment Institutional provides asset management services for institutional clients. It is part of Union Asset Management Holding. Currently it ranks fourth in the German institutional market. Core competence of Union Investment Institutional is a new generation of dynamic portfolio insurance concepts called IMMUNO. The main driver of IMMUNO is an asymmetric asset allocation process. With this very special investment concept our focus has been very much on downside risk and absolute return ever since we started to apply the concept on real money in 1995. We have witnessed and managed quite demanding markets before the baisse in the stock market that started in 2000. Nevertheless this period has given us new insights and confirmed other believes in a sometimes dramatic manner.

Lesson 1: The importance of asset allocation

Brinson/Hood/Beebower have shown that more than 90% of risk in a portfolio can be attributed to asset allocation.¹ Although these results are sometimes questioned in academic literature, at least there is a fair chance that asset allocation can play a significant role when it comes to risk and return.

In addition to that asset allocation can not be avoided. You can avoid stock picking by tracking an index, but someone has to decide whether to allocate investments 100% to the local money market or 100% to the international equity market or somewhere in between. Bearing in mind the potential importance of asset allocation and the fact that it can not be avoided, institutional investors might have neglected this subject in the past, at least compared to other steps of the investment process. While some might be able to name the best three portfolio managers for Taiwanese high-tech stocks, the area of competence in asset allocation might not have been researched with such rigour.

It is often overlooked that already in the early stages of the investment process, namely during the asset-liability analysis, someone has to forecast the future performance, risk and correlation of the different asset classes. There is no way around it. Even when you use historic data to build the covariance matrix you make an implicit forecast that the past will repeat. Investors should take special care when answering the central question of who is suited best for making the asset allocation decision (the investor himself, a portfolio manager, a consultant, ...). And it should be made quite clear who has the asset allocation responsibility. If an asset manager gets an equity mandate and is benchmarked against an equity index which loses 40% while the portfolio only loses 35% this asset manager has done a good job. It was not his job to decide on whether

¹ Brinson, Gary P., L Randolph Hood and Gilbert L. Beebower: Determinants of Portfolio Performance, in: Financial Analysts Journal, July-August 1986, pp. 39 - 44.

an investment in the asset class „equity“ was a good idea. If he had been given the explicit mandate to decide on the asset allocation and he had lost 35% this would definitely have been a catastrophic result for which he bears full responsibility.

It definitively pays to look for an asset allocation specialist who gets you out of the line of fire in time. This time it was equity risk that struck. Next time it can be interest rate risk, credit risk, equity risk again, ... This specialist might be someone with superior skill, but those are hard to find (See lesson 4). Or it might be a risk allocation specialist professionally applying a disciplined investment approach. Combine a portfolio insurance concept with the lessons we have learned from Modern Portfolio Theory on where the risk is coming from and diversification and you will master the toughest of times.

Lesson 2: Constantly talk to your clients about return AND risk

A whole lot of institutional clients have an absolute return focus. But most of them were blinded by the markets during the inflation of the equity market bubble. The challenging task is to discover the client's real risk/return-profile. We have made the experience that this is sometimes very well hidden. One of the main difficulties is to help the client separate his willingness to take risks from his capability to bear those risks. Sometimes clients will tell you that they want 50% equities in their portfolio. If you remind them that this can lead to significant double-digit losses they might reply that this is absolutely intolerable and that they can not tolerate losses in any one year. A market like the one we experienced since 2000 usually brings these inconsistencies to the surface. But if you want to do your client and yourself a huge favour you want to talk about the risk-return profile before such a market starts. Once you have extracted the profile keep checking it over and over again as it is nothing but a snapshot. The profile of some clients is rather stable. Others are subject to quite frequent changes. For those a long-term strategic asset allocation is nothing but an interesting theoretical concept.

Lesson 3: Some clients will not listen ...

... no matter how hard you try.

Lesson 4: Never trust forecasts

Dynamic portfolio insurance is significantly more driven by how much risk the client can take than by forecasts. The problem with forecasts is that they rarely become reality. The following two graphs depict the result of surveys at the end of 2000 and 2001 respectively. Analysts' estimates of market ranges of the DAX for the following year were recorded. The rightmost bar is the real range of the DAX in the respective year.

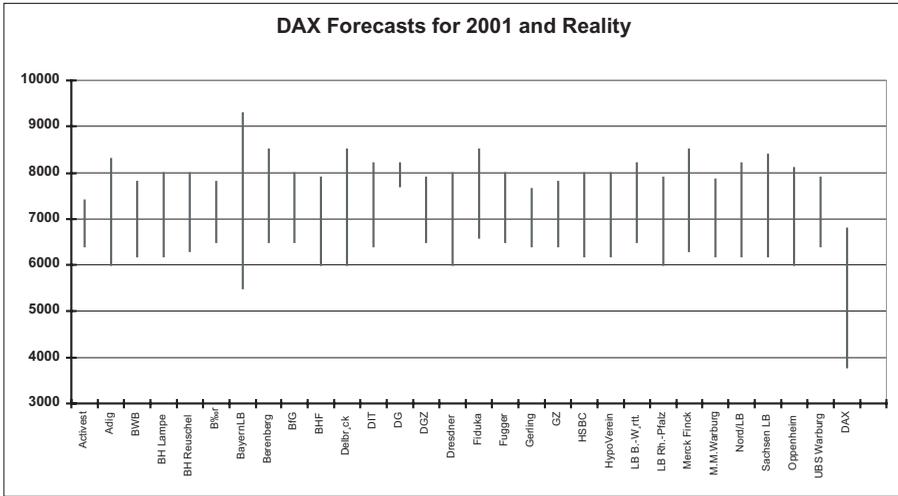


Exhibit 1

The striking point is that not one single analyst (!) had the full range of the market's downward movement in his worst case scenario (!). That is not to say that their most-likely scenario was incorrect. Even the worst case was way too optimistic. Nor does it mean that *some* of them underestimated the risk. *Not one* of them could imagine such a bad equity market performance.

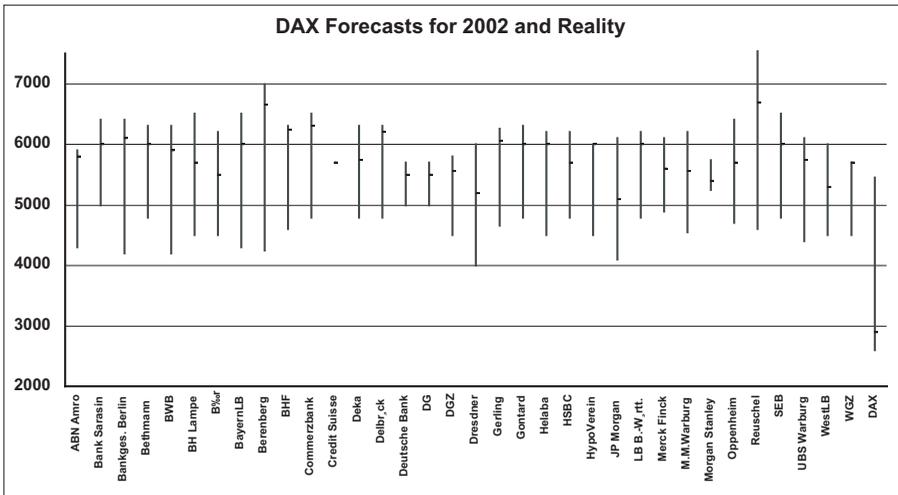


Exhibit 2

According to the „Fundamental Law of Active Management“ you only have to be right about the direction of the market in slightly above 50% of all forecasts to add value² This is to say that with a fairly low percentage of correct forecasts one can become a top performer in the industry. Which, on the other hand, means that most fail to even live up to a hit rate of slightly above chance.

When you tell prospective clients, that forecasts are risky and that your approach is to handle this forecast risk professionally, this is quite a hard road to travel. Many investors are not used to this line of thinking. Those with a high degree of sophistication will have less problems with it. Others still regard the gift of knowing where the market is going as the one and only route to investment success. A risk-based philosophy is initially regarded with suspicion. But a market environment like we have experienced in the recent past helps. Clients definitively became more open-minded.

Lesson 5: Behavioural finance is right

When forecasts in the bull market were wrong they lead to an underweight or neutral position. In a rising market this was hard because it meant that you didn't earn as much as you could have. But during the bear market an incorrect forecast resulted in an overweight or neutral position. In contrast to the opportunity losses in the bull market this meant real losses. And these were absolute losses. The last three years have proven that behavioural finance was right when it found out, that investors suffer roughly twice as much when they make real losses compared to opportunity losses.

An investment concept which focuses on avoiding losses does not only have a long-term performance appeal as it preserves the capital base and can participate in a following friendly market with more capital. By steering clear of negative performances it also boosts clients' utility. This is particularly true for clients with a high degree of risk aversion. And there are many very risk-averse investors, although many of them did not realize that they belong to this group until the baisse arrived (See lessons 2 and 3).

Lesson 6: Experience helps

We have weathered adverse markets before. Probably most helpful was 2000. This year the stock market was characterised by a whipsaw profile. For large parts of the year it was range-bound, which is a nightmare for a dynamic portfolio protection program. This can be seen when looking at mechanistic portfolio insurance techniques like the Constant Proportion Portfolio Insurance (CPPI).

² Grinold, Richard C. and Ronald N. Kahn: Active Portfolio Management, McGraw-Hill, New York, 1995

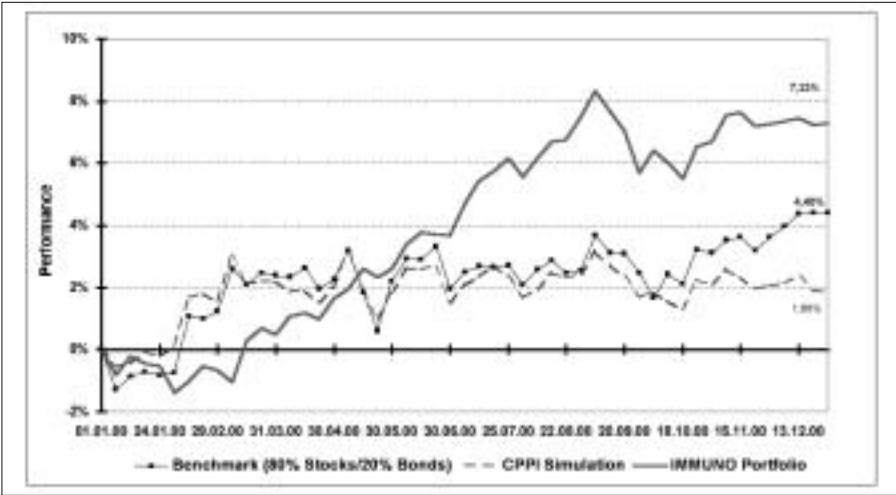


Exhibit 3

Due to the high volatility the mechanistic CPPI strategy encountered heavy insurance costs which lead to a significant underperformance compared to a 80% bond/20% equity mix.

Nevertheless, after a rather difficult start, we managed to adjust to this market and stabilize the IMMUNO-portfolio successfully. This experience, together with a couple of others in the recent past (namely the Asian crisis 1997, the LTCM turbulence one year later and 1999 with its rising interest rate) has taught us quite a couple of useful lessons. As a result, we were far from being unprepared for 2001 and 2002.

Even the most dramatic markets following the attack on the World Trade Center on September 11, 2001 left our clients' portfolios largely intact.

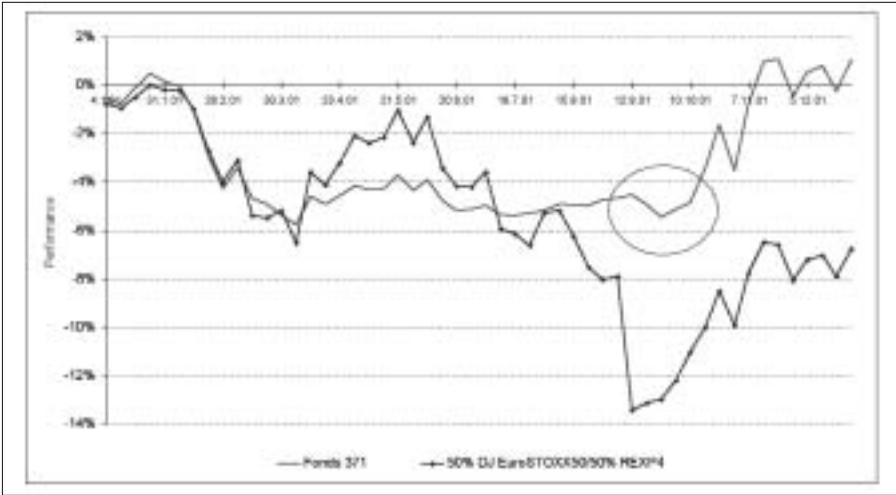


Exhibit 4

And the new lessons we have learned during these testing times will help us in the markets to come.

Lesson 7: Match your infrastructure to your business

We are in the business of controlling absolute risk for many clients who have all given us a lot of money to take care of. In fact, our responsibility goes far beyond that. In institutional business it is not our partners' own money that they have entrusted to us. They are all responsible for their investments to some supervising party.

On September 11, 2001, we had more than 100 insurance mandates running. I was out of the office a couple of hundred kilometers from my desk. While the markets were in complete disarray it took me one phone call to find out that none of our portfolios was in danger of breaching its limits and which portfolios were the most critical.

It takes a specific infrastructure to manage tailor-made portfolios in large numbers and control them even during extreme market movements. The portfolio managers have to know how large the risks in the portfolios are and where they are coming from. They need this information on the basis of real-time data coupled with a backup-system in case the primary data source runs into problems.

Lesson 8: Match your portfolio managers to your business.

No matter how good your IT is and how good you have defined your processes. Without the right people your whole infrastructure is not worth very much. For handling our complex insurance products you need portfolio managers with a very special mindset. In fact you can look for the "master of the universe" type of manager and then select the exact antitype. The modern risk allocator is well trained. He or she

will have a profound knowledge of Modern Portfolio Theory and knows how to apply it. This enables him/her to learn from the experiences he/she made and makes in the financial markets in a very special way. They will not be obsessed with the idea of finding the holy grail. They will focus on finding out where risks are currently hiding in the markets, what could trigger them, how they interact and how they are valued.

The role of institutional investors in the boom and bust

Christopher S Cheetham¹

The Bull Market

Until the ‘bust’ in 2000, many of those working in the financial services industry today had no experience whatsoever of ‘normal’ financial market conditions. During the 1980s and 1990s, we all enjoyed a fabulous bull market during which the returns on equity investment were significantly above their trend or sustainable levels.

Table 1

Real returns on major equity markets

% p.a.

	1900 – 1979	1979 – 1999
France	1.6	12.7
Germany	1.8	10.5
Italy	0.8	10.1
UK	4.2	12.2
USA	5.6	11.2

Source: ABN AMRO

Most institutional investors, along with the actuaries and consultants that advise them, have traditionally assumed that the long-term real return on equities is around 6% per annum. During the 1980s and 1990s returns were almost twice that; a quite staggering margin when compounded over a twenty-year period.

What drove this bull market? At first it was improving fundamentals and the impact this had, both on the prospects for growth and on valuations, which had become unusually depressed during the difficulties of the previous decade. The 1980s and 1990s were a period of globalisation, profound structural change and, most importantly, were an era in which the ‘free market genie’ released in the early 1980s with the triple deregulation of labour, product and financial markets, created irresistible effects on corporate and economic performance. These powerful market forces were enabled by governments which focused on monetary control, fiscal discipline and, hence, on creating the conditions for economic growth. At the same time, revolutions in a string of new technologies provided the raw material for innovation and development. The result was a twenty-year period of disinflation; low

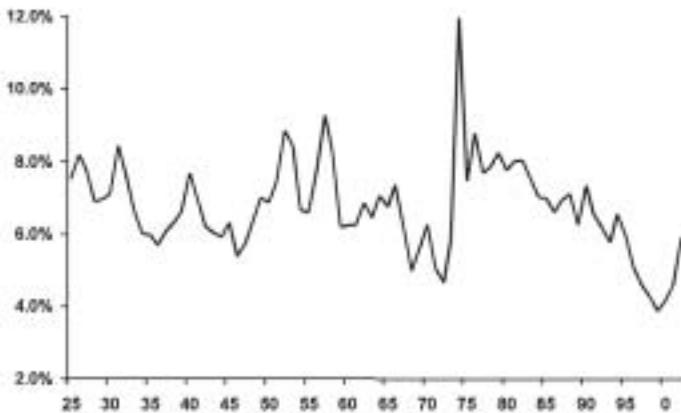
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and falling inflation, low and more stable interest rates and, at least initially, high and rising rates of return on equity. These were extraordinarily benign conditions for financial markets and they justified a fabulous bull market.

However, in the latter stages of the bull run, valuation excesses rather than a further improvement in the fundamentals were responsible for the continuing increase in stock prices. The market became increasingly expensive, volatile and, almost certainly, inefficient. Chart 1 below illustrates this point.

Chart 1

UK: implied real rate of return 1925 through end 2002



Source: AXA IM

The chart is the output from a simple valuation model of the UK equity market that we have developed at AXA Investment Managers. Based on what we judge to be sound assumptions, we have derived estimates of the long-term real return that investors might reasonably have expected each year from 1925 to the present, i.e. the series is the expected future rate of return implied by the price investors were paying. The predictive power from this simple model at the medium horizon is quite remarkable and demonstrates significant market inefficiency². It is clear that in the late 1990s the market became increasingly expensive. Moreover, this conclusion is no longer controversial. Professor Robert Shiller³ has for a long time argued that financial markets evidence excess volatility, i.e. they are more volatile than they should be when compared with the fundamentals, and this view now seems to be the accepted wisdom.

² In essence, there is clear evidence of mean reversion to a 'normal' implied real rate of return. Moreover, this occurs through changes in the price *not* through growth surprise as might be expected.

³ Irrational Exuberance, Robert Shiller, Princeton University Press, March 2000.

The role of institutional investors

John Cassidy in his recent book “dot.con”⁴, does a very good job of describing the bubble and its dynamics. However, when seen in the cold light of day, many of the behaviours observed during the later stages of the bull market are hard to reconcile with rational decision-making. As a result, we are beginning to see an increased interest in Behavioural Finance. It is clear that we all have a propensity to behavioural bias, overconfidence, illusion of control, loss aversion and so on. However, the real question is why professional, institutional investors seem unable to exploit market inefficiency, excess volatility and the behavioural biases of individuals. If they were able to do so they would make the market efficient. Isn't that their job? Are they also irrational? Poor decision-makers perhaps? Realistically, neither of these possibilities is very plausible. In fact, there are a number of reasons why, in practice, it can be very difficult for institutional investors to exploit market inefficiencies and these factors, in combination, contribute to what might be termed an ‘error of aggregation’ and lead directly to excess volatility.

Why it is difficult for institutional investors to exploit market inefficiency

The factors that can make it difficult for institutional investors to outperform can be grouped into four main areas: (a) what might be termed ‘model uncertainty’ (b) information asymmetries, real and perceived (c) the nature of Principal/Agent relationships, and (d) time frames and the related incentive structures.

(a) Model Uncertainty

The efficient market hypothesis and its close cousin, rational expectations, are, at first sight, very elegant theories. The basic idea is that investors process all available information through an agreed ‘model’ of the world to produce the ‘right’ price for all securities. Prices then move only when there is new information and, by definition, in proportion to it. There are many criticisms of the efficient market hypothesis, from practitioners and academics alike, and one critical weakness is that there is no such thing as an agreed model of the way in which security prices are determined, in practice and day in, day out. For this reason, the model with which information should be processed is uncertain and different investors have their own versions of it. Each of these models is rational in the sense that it is impossible to disprove and because the world is complex, the (mental) models that investors use are also likely to be complex. However, more importantly, investors rarely view their decision-making process with any certainty. More likely, they will be seeking to make constant improvements in the light of experience. In particular, there is a natural tendency for increased weight to be attached to things that seem to be more important at any particular time. Model uncertainty and instability begins to cause the efficient market hypothesis to break down; however, it is not model uncertainty per se that is the problem, rather it is its impact in a world where the other three factors are also present.

4 dot.con, John Cassidy, Penguin Press 2002.

(b) Information asymmetries – real and perceived

Another important assumption of the efficient market hypothesis is that all investors have the same information. However, it does not always feel that way. If prices are not moving in the direction expected, the reaction of investors is often “what do others know that I(we) don’t”. “Do I(we) have the wrong model?” These are real and understandable concerns even when all market participants have the same information, but it is worse than that because sometimes they do not. For example, at the time of the LTCM crisis, many investment managers, facing considerable uncertainty, reduced risk, particularly in their bond portfolios. The scale of the problems resulting from the failure of LTCM was not clear at the time but some market participants, most notably some of the large Wall Street banks, were perceived to be better informed than others, and because they had liquidity problems they were selling. Their *behaviour* influenced the views that others had of the *fundamentals* and discouraged long-term speculation just when it might have been most valuable. In a world of model uncertainty, information asymmetries can cause investors to switch ‘models’ or to change their behaviour at times of heightened uncertainty and volatility. Ironically, this is precisely when model *certainty* and long term speculation is most important if markets are to behave efficiently.

(c) The problem with Principal/Agent relationships

Institutional investors do not manage their own money; they manage someone else’s and they are typically required to report on the job they are doing and on the performance they have delivered on a regular basis, usually quarterly. At these meetings the managers are assessed not just on their performance but on their professionalism and credibility. There is a wonderful irony about the way in which these relationships work. Almost by definition, to be successful an institutional investor needs to be different in some way, he or she needs to depart from conventional wisdom. It is unlikely to be possible to make money by holding the same views as everybody else. However, it is often very hard to be independent. For example, during the mid to late 1990s internet fever spread like wildfire; businesses were being advised by McKinsey et al that they did not have a business strategy if they had no plan for the Internet. In these circumstances, it was hard for them to understand how the investment manager of their pension fund had missed the obvious opportunity available and had underperformed as a result. In the face of model uncertainty, possible information asymmetry, underperformance, and clients who thought their investment managers were slow to adapt to new ideas, many institutional investors found it very hard to be independent and to stick to their guns.

John Maynard Keynes summed it up beautifully as long ago as 1936.

“It is the long-term investor, he who most promotes the public interest, who will in practice come in for most criticism, wherever investment funds are managed by committees or boards or banks. For it is in the essence of his behaviour that he should be eccentric, unconventional and rash in the eyes of average opinion. If he is successful, that will only confirm the general belief in his rashness; and

if in the short run he is unsuccessful, which is very likely, he will not receive much mercy. Worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally.”

J.M. Keynes, The General Theory of Employment, Interest and Money, 1936

It is in the nature of the Principal/Agent relationships that govern institutional investment management to encourage model switching – or, to be less polite, herd-like behaviour. The use of benchmarks as the primary source of objective setting and performance measurement, whilst perfectly understandable and justifiable, simply reinforces this dynamic. For example, when Vodafone acquired Mannesman, many investment managers took the view that it made sense to increase their holding even though they believed the shares to be expensive and likely, eventually, to fall in value. The same managers became ever more inclined to invest in TMT stocks the more expensive they became. Why? Because, to be underweight in these investments without the certainty of being proved right, created significant business risks if the impact on short-term *relative* performance was serious and if the Principal took a dim view of the way his funds were being managed. Failing conventionally when managing a portfolio can sometimes lead to an acceptable outcome for an investment manager’s business.

(d) Time frames and related incentive structures

If the difficulty of acting independently is one of the keys to market inefficiency, the timeframe over which investment managers and their decisions are judged is also a major part of the story. Chart 1 on page 2 shows the implied Real Return on the UK equity market in the period 1925 to 2002. It was suggested that the underlying model has considerable predictive power at the medium horizon. However, unfortunately, it has little predictive power at short horizons and hence creates a classic dilemma. If an investment manager has model certainty (a hard thing to achieve) and the courage to be independent (so that, according to Keynes, he/she will appear rash in the eyes of average opinion), does he/she have the time to be proven correct? Moreover, is it good for business? What is the pay-off? Will both clients *and* the asset manager’s shareholders remain supportive? When clients and shareholders ask what is being done to improve performance, it is hard to say that no action is being taken even when that is the right answer. There is a tremendous pressure and incentive, because the potential rewards are significant, to find ways of generating good performance in the short term. In a world of model uncertainty, the temptation to switch to the model that seems to be working today can be overwhelming – growth to momentum to value and so on. It is no wonder that there is a tendency to herd-like behaviour.

Beating the benchmark is all that matters

When the investment management industry became more professional during the 1980s, it became clear that the performance of different managers needed to be assessed somehow, to determine which investment firms, if any, were able to outperform the market portfolio. The benchmark was born and has come to dominate the daily lives of many of those managing institutional portfolios. As already noted, the

use of benchmarks has often led investment managers, as they strive to control *relative* performance risk, to make investments in companies that they find unattractive. However, it might also be argued that a much more important consequence has been a complete neglect of the need to make assessments of absolute value. This tendency was strongly reinforced during the boom years by a rather ironic, generalised belief in market efficiency (i.e. prices are always about right) and a strong steer from consultants that market timing (i.e. ‘tactical’ asset allocation) was impossible. As a consequence, money managers focused on picking stocks, relative to one another, and stayed fully invested at all times. Some went a stage further and decided to remain sector neutral, focusing on picking the best stocks in each sector relative to one another.

A simple analogy with the residential property market in the UK will help to illustrate what happened as a result of these behaviours. When deciding on how much to spend on a new home, most people start by figuring out what they can afford and that is what they then ‘invest’. They then assume that the prices they see in Estate Agents’ windows are about right. This is the equivalent of assuming stockmarket efficiency. The next step is to decide on the type of property, number of bedrooms, to have a garden or not, whether or not being near to schools or to friends and family is important. This might be equated to an assessment of the ‘business model’. During the boom, the belief in the efficiency of the stock market was reinforced by sell side analysts reverse engineering valuations so that there was always a respected, conventional wisdom that said prices are fine, no matter how crazy they were really. In this simple analogy, in both the stockmarket and the property market, buyers now make very marginal price-versus-value assessments between similar assets.

Now suppose that there is no owner occupation of residential property and that instead the market is entirely owned by institutional investors who value houses based on a simple formula. They assess the rental value (net of costs), and the likely growth in rents (probably nominal GNP growth plus or minus a bit) and they then require the resultant yield plus growth to be greater than the yield on long term gilts by, say, 3%. The new focus is now firmly on absolute value with relative assessments of one home against another now a result of valuation, not a driver. In this world, what would happen to prices? The odds are that they would fall sharply, but what is even more certain is that there would be a prolonged period of uncertainty and volatility whilst prices adjusted to ‘normal’, justifiable levels. This is precisely the process that has been at work in the world’s stockmarkets during the last 3 years. Sell side analysts have, of course, continued to assist in the process by reverse engineering valuations downwards as prices have fallen.

The failure of institutional investors to react to the overvaluation of stockmarkets is hard to understand at first sight. However, no one asked them to. They had their benchmarks and managed their investment and business risks accordingly. In a world of model uncertainty, information asymmetries, dominated by Principal/Agent relationships and where time frames were short, it was hard for them to be independent.

A failure of corporate governance

There has been much talk about the failure of corporate governance during the bubble, particularly in the USA. However, there has perhaps been too little focus on the role of institutional investors in this failure. They were certainly guilty of behaviour 'likely to give a misleading impression' and, arguably, failed completely to communicate to the companies in which they invested both the importance of creating long-term economic value (as opposed to doing things that might move the share price in the short term) and a sense of realism about what can be expected. A company on a 4% yield that can grow its dividend at inflation plus 3% is a terrific long-term investment, but that wasn't the message received by CEOs. With institutional investors focused increasingly on trying to understand the near term dynamics of share price behaviour and on forecasting newsflow, many CEOs simply stole the Corporate Governance agenda. Often misled and unchecked by their shareholders and incentivised through stock options, many companies developed an unhealthy focus on their share price and on the factors they believed were likely to influence it. The cycle of shareholder and company behaviour that developed led inevitably to a bias towards actions with an apparent short-term pay-off, careful (rather than transparent) presentation of results and, of course, in the worst case, outright 'spin'. This was a far cry from the situation pre-bubble when, for example, changes in dividend policy were seen as clear signals of the confidence a company's management had in the *long-term* prospects for the business.

Given the factors influencing the behaviour of institutional investors, their failure in this area is, once again, not surprising but it can, nevertheless, be seen as an important part of the dynamic of the bubble economy.

What would make markets more efficient?

Institutional investors need to show more conviction and be prepared to think and act more independently. If this happens then, eventually, markets are likely to show less excess volatility and to become more efficient. How likely is this? It certainly seems reasonable to expect that professional money managers will have learned many lessons from the trauma of the last few years and will be more likely to *want* to be independent. A less dominant role for the major Investment Banks will help; they have contributed to excess volatility in a number of ways. The two examples noted in this paper concern the role of analysts in creating a conventional wisdom 'justifying' overvalued securities and the impact of aggressive, momentum orientated proprietary trading on short-term market dynamics. However, the relationship between institutional investment managers and their clients and shareholders will determine the *extent* to which their behaviour changes.

- Independent thinking and decision-making need to be encouraged not discouraged. This is hard because it means that investment managers need to be judged not relative to conventional wisdom but more analytically and professionally. Being different is good. The way an investment manager makes decisions does not need to be complicated but ideally it should be independently minded and it has to make sense.

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- Time horizons need to lengthen whilst expectations need to become more realistic. It is hard to add value and it takes time to prove that it is happening.
 - Perhaps incentive systems need to mature. What psychologists refer to as the illusion of control means that the rewards for success can exaggerate short-term good fortune and overly punish bad luck because skill, or the lack of it, is often overestimated. More measured incentive and compensation systems may help to create more measured and balanced independent behaviour.
 - With a changed approach from institutional investors the foundation, an improved communication between them and the companies in which they invest would go a long way to improve corporate governance and to align the interests of management and shareholders.

The next generation's problem

The 1980s and 1990s delivered a once-in-a-generation bull market, a period of spectacular returns, a boom in financial services and an opportunity for individuals to create substantial personal wealth. The bull market is now finished and it is a shame that it had to end in a bust, but perhaps that was inevitable. There are many lessons to be learnt from the events and revelations of the last five years or so and many of them are now being assimilated. The odds are that we are now facing a prolonged period of low returns from the financial markets, a gradual decline in volatility, steady improvements in corporate governance and what many will view as a much better balance to free market forces. However, there is little evidence to suggest that these lessons will pass to the next generation and that, at some stage it will not all happen again.

Tracking Errors

Barry Riley¹

The European equity market, as measured by the FTSE Eurotop 100 Index, peaked at 3956.53 in March 2000 and (as observed at the time of writing) bottomed out at 1509.89 in March 2003, making an aggregate three-year decline of 62 per cent. In terms of dollars, with the euro strengthening for much of the period, the fall was slightly less, but still amounted to a tremendous and disturbing display of volatility. In round figures, the stock market at the peak of the bubble became priced about twice as high as it should have been on rational assumptions, and in the TMT sectors which led the bubble the excess valuation multiple was more like four times.

To explain why equities fell so far between 2000 and 2003 we must first find an explanation for why they rose so high in the first place. The bull market had gathered pace in the mid-1990s and accelerated in 1998 and 1999. There were temporary explanations along the way, such as the anti-millennium bug injection of liquidity by the central banks in late 1999 to reduce the risk of disruption to computer systems. The bug never materialized, but the liquidity bulge fuelled the final upsurge in the equity market. However, more fundamental, long-term factors are required to explain the bubble as a whole.

Most of these are to do with the behaviour of institutional fund managers:

- They are heavily momentum-driven, and find it comfortable to chase short-term trends but become very distressed when they find that they are departing for any length of time from a consensus view.
- Some institutions, especially life insurance companies, were subject to solvency rules which encouraged more risk-taking the higher that equities went and created bigger surpluses or reserves. When the bear market arrived, however, there was forced selling.
- The dependency of fund managers on research sourced from investment banks was another significant factor introducing distortion. The technology sector was in particular overvalued to an extraordinary degree.
- Serious agency problems also developed in the relationships between investors and the executives of the companies whose shares they owned. Damaging practices included imprudent takeovers, the use of improper accounting techniques and rapid rises in executive pay and bonuses, including stock option packages.

Some more technical factors also played important, if subsidiary, roles:

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- Risk control amongst non-life investment institutions went haywire. Barra-type models measured *relative* risk against index-related benchmarks. Little attempt was made, if any, to measure *absolute* risk from the clients' point of view.
 - The indices which propped up the whole boom-and-bust sequence themselves became heavily distorted. They were calculated on the basis of full capitalization weightings even though many companies in Continental Europe only had quite small free floats, a longstanding discrepancy which became much more important with the widespread introduction of benchmarking.

The fund management industry has a lot to answer for, because it is a professional, highly-paid sector which has prided itself on the application of skill and rationality. Stock market bubbles are nothing new, but in the past it has been possible to blame them on amateur speculators. The 1995-2003 boom-bust cycle, however, was both one of the biggest in history and very much under the control of professional investors (however much publicity was given to the activities of day traders as the market approached its peak).

Academic theories about stock markets were extensively developed in the second half of the twentieth century. Dividend discount models reflected the belief that prices represent a coherent view of the future, and the efficient markets hypothesis expressed the conviction that information was widely and fairly distributed and used rationally by investors. The fund management industry supported the rationality assumptions, but was forced to downplay the efficiency element in order to make room for the incoherent claims by active portfolio managers that they were all likely to be able to beat the market.

Only as the bubble neared its climax did significant numbers of academic thinkers turn their minds towards the possibility that the markets could, at times, be seriously irrational. In fact as long ago as the 1930s John Maynard Keynes, himself a part-time professional investor, developed theories of psychological distortion. Now much work has been done on behavioural finance, to explain why markets can go mad.

Conflicts of Interest

At the heart of the distortions is the problem that institutional investors have permitted fundamental conflicts of interest to develop, opening a gulf between them and their ultimate clients.

The first of these is that the business risk of the managers has been allowed to take priority over the investment risk (and risk appetite) of the clients. In the fairly distant past it was normal for investment advisers to take balanced views across asset classes, but balanced management has been progressively abandoned. Although some UK pension fund managers have still continued to call themselves “balanced” the rise in their typical equity asset allocations to 70 or 80 per cent has made a nonsense of the description.

Managers moved towards peer group consensus allocations, and then to formal benchmarking against equity indices. The objective has been to reduce the risks of managers, these being controllable through the use of risk models. If the models are followed diligently, managers will only very rarely underperform the peer group

seriously enough to run the risk of being sacked. However, it becomes possible for the *entire peer group* to perform disastrously in unison. This is a short explanation of why the European equity market fell by 62 per cent.

The second conflict arises from the fact that institutional investors have aligned themselves with the executive manager/director class in the corporate sector. In some cases big investment management groups are themselves listed on the stock market and their leading executives are therefore infected by exactly the same “fat cat” syndrome as has become endemic in the corporate sector. Elsewhere, unlisted management firms have often sold out privately to big banks and insurance groups, obtaining very large payoffs. There was a wave of such sellouts during the late 1990s as fund managers sought to exploit the transient value created by the bull market, but made no attempt to warn clients of dangers ahead. In effect, investors were being packaged and sold off at very large capital profits. Very few asset managers in practice have regarded themselves as professional advisers and consultants placing the long-run interests of their clients first.

As a larger and larger proportion of equities has moved within institutional control the willingness of shareholders to restrain corporate executives has therefore withered away. The individual private investors who fifty years ago were capable of taking angry action against misbehaving company bosses have largely disappeared. Company executives, in an ownership vacuum, are seizing the opportunity to raid the equity of listed companies, both through ever-rising pay and bonuses and through stock option plans. The various responses – most recently, the Higgs Report in the UK – to the breakdown of corporate governance have not yet got to grips with the real cause: the absence of powerful and active shareholders willing and able to impose ownership rights.

The third of these serious conflicts has recently been causing serious repercussions on Wall Street, but has had only muted consequences so far in Europe. The dependency of investment managers on investment-bank sourced research has for many years been the source of controversy, but asset managers have been very reluctant to build up the kind of research resource internally (or pay for independent research) on a scale which would significantly raise their cost base and make them very vulnerable, because of the highly cyclical pattern of revenue flows, to bear market conditions.

Their readiness to share a resource with investment banks has, however, exposed them to serious conflicts of interest in the assessment of M & A transactions and new issues. During the bubble, analysts were regularly raising their long-term earnings per share forecasts even though corporate growth prospects were, on the whole, declining. A conspiracy of over-optimism was allowed to develop.

It is true that most fund managers apply a degree of scepticism to broker recommendations and forecasts, and the bigger management firms have developed their own research inputs. But the catastrophic collapses towards near-bankruptcy of major European companies like Marconi and Vivendi owed a great deal to the unrestrained activities of investment bankers, combined with the eagerness of senior company executives to exploit the potential value of their short-term options plans. Meanwhile the alarming TMT bubble reflected the almost complete absence of

contrarian advice. The professional investment industry was geared towards justifying a gross overvaluation of the equity market.

Technical distortions

The index problem arrived almost out of nowhere and was unrecognized for a surprisingly long time. Capitalisation-weighted arithmetic indices have been around since the 1960s and the principles of their construction were thought to be familiar and secure. But when, from the late 1980s onwards, large funds began to be benchmarked against these indices the anomalies began to be apparent.

Many substantial European listed companies have low free floats – that is, shares that are available on the open market, rather than being held out of reach by controlling families, other associated companies or governments. The free float problem was enhanced by privatizations, especially of telecom companies, notably France Télécom and Deutsche Telekom which both had free floats of less than 50 per cent during the bubble period. As big US pension funds built up large European portfolios, and attempted to track the MSCI EAFE Index closely, shortages of stock began to distort the markets on a significant scale.

Eventually investment banks began to understand the potential of these artificial shortages. It became common to float new technology stocks with very low free floats, of only 15 per cent or so. And large companies began to spin off glamorous subsidiaries for separate listings, again with small free floats. For example, Siemens spun off Infineon in 2000 with a free float of only 26 per cent.

In the UK a number of apparently glamorous technology stocks with low free floats appeared from nowhere out of the smallcap sector and were rapidly promoted into the FTSE 250 Index and then into the FTSE 100 Index. These were bubble stocks, with no earnings, which soon disappeared from the FTSE 100 as mysteriously as they had appeared.

For instance, the share price of Baltimore Technologies rose from a low point of £1.65 in November 1998 to a peak of £137.50 in March 2000, its market capitalization rising from £20m to over £5 billion in the process. Baltimore arrived in the FTSE 100 Index in March 2000 but crashed out again in December of the same year. Similarly Autonomy achieved a market capitalization of £5 billion in November 2000, being promoted to the Footsie in December but being ejected again in March 2001. By early 2003 its market value had collapsed to only £11m. A similar case was Thus Group.

Such shares rose sharply in value because, as soon as they were promoted to the Footsie (or seemed likely to be), fund managers perceived that it was risky *not* to hold them; yet with tracker funds by this time counting for some 20 per cent of the market's capitalization it was not possible for them all to obtain full weightings, let alone for all the benchmarked (but not formally indexed) funds to do the same. So the share prices were forced up to absurd levels, justifiable only to the extent that tracking errors were minimized.

In Germany huge excitement was created by the spinning-off of Siemens' semiconductor chip subsidiary Infineon, an event also carefully timed to benefit from

the peak of the bubble in March 2003. Only 26 per cent of Infineon's issued shares were made available in the initial public offering, creating an artificial shortage for institutional investors seeking to match potential index weightings, a shortage made worse by the fact that 40 per cent of the offered shares were allocated to retail investors. On the first day of trading Infineon was valued at €22 billion. In a similar way much London market attention was focused on the Dixons subsidiary Freeserve which was also promoted to the status of FTSE 100 constituent in March 2000.

A still more intense distortion arose from cross-border mergers, such as BP-Amoco in 1999 and Astra-Zeneca the same year. These deals involved big companies, with much larger weightings than were ever attained by the small technology bubble stocks. The most extreme case was that of Vodafone, which bought the German listed company Mannesmann at the very peak of the stock market bubble in March 2000. Vodafone paid in shares, greatly increasing its market capitalization, effectively transferring capitalisation from Germany to the UK: at the peak it represented 16 per cent of the FTSE 100 Index capitalization. It was plainly absurd to commit a sixth of a supposedly diversified portfolio to Vodafone; and yet, portfolio managers who owned substantially less than that found that alarm bells rang when they measured their likely tracking errors. At its peak in early 2000 the Vodafone share price reached 400p, but eventually fell to 80p in 2002. In fact the company traded solidly throughout, but its share price featured huge technical distortions which symbolized the sickness of the stock market as a whole.

Eventually fund managers began to communicate their frustrations to the index companies. The major index providers including Morgan Stanley Capital International, FTSE and Dow Jones moved to a free float weighting basis during 2000 and 2001. Stocks which had been artificially inflated in value, such as Deutsche Telekom and France Télécom, fell in price by 80 per cent or more during the ensuing bear market. This was a bubble that had to burst. Index funds were at last able to obtain full weightings, and reduce their tracking errors, but their client investors paid a heavy price.

Solvency problems

During the great bull market institutional investors that had been primarily bond-based began to stray into the equity market. These included Continental European life assurance companies, and the equity exposures of US pension funds also rose. In the UK pension funds during the late 1990s began to be exposed to a new statutory solvency test, the Minimum Funding Requirement, which included a substantial bond element in its benchmark. This reflected the increasing maturity of British pension schemes, and therefore the growing relevance of a bond-based benchmark, but nevertheless the average equity exposure of UK pension funds only declined from a peak of 81 per cent in 1993 to 75 per cent by the end of 1999. Meanwhile life assurance companies in the UK continued to commit well over 50 per cent of their "with profits" or balanced funds to equities.

The solvency dilemma was that as the bull market proceeded life and pension institutions would build up greater surpluses over and above their minimum or guaranteed liabilities, and would therefore have a greater margin for exposure to risky assets. The bubble, in this respect, was self-inflating. However, the reverse side of this position-taking was that if the stock market were to decline sharply the surpluses

would shrink and solvency tests would become much more demanding. This would be true, at any rate, if assets and liabilities were mismatched; it would not happen with equity mutual funds, which represent a full-matched exposure to equities, although on the other hand mutual funds suffer the disadvantage that their investors can decide to withdraw assets on a short-term basis without substantial penalties.

During 2002 these solvency problems began to assume great significance. The statistics on such asset disposals by life and pension funds are almost non-existent in the short run, but it would appear that there was a substantial wave of unloading of equities by Continental insurance companies in the early summer of 2002, and a further wave of forced selling by UK life companies in the first quarter of 2003. On the other hand, European pension funds did not appear to dispose of substantial volumes of equities during this latter phase of the three-year bear market, although their financial distress became apparent in the UK because of information revealed by sponsoring companies under the new FRS 17 accounting standard.

The degree of future exposure of UK pension funds to equities was called into serious doubt in the spring of 2002 when consulting actuaries began to switch their focus to liability-based benchmarks composed entirely of bonds. During the bull market of the late 1990s, in contrast, the actuaries had pursued asset-based benchmarks focused on what at that period was regarded as the optimum combination of risk and return, and which supported equity weighting of up to 80 per cent. These judgements during the bull market proved to be deeply flawed because the overvaluation of equities at the time was not properly taken into account.

Institutional solvency measures had the effect of intensifying the stock market bubble, and later of creating forced selling which exaggerated the scale of the subsequent collapse. In both the positive and negative circumstances of the boom and bust, respectively, institutions were dominated by recent investment returns and not by fundamental valuations.

Lessons for the future

- Institutional investors must focus on the absolute valuations of different asset classes and pay much less attention (if any) to relative risk models
- Investment institutions should withdraw from the listed stock market and structure their organizations so that they are clearly committed first and foremost to the interests of clients
- As a consequence, institutions must be prepared to invest much more in independent investment research
- Professional investors must also be prepared to develop close relationships with listed companies for the long term, rather than just trade stocks on the secondary market
- The crisis of corporate governance can only be resolved if professional investors are prepared to exercise ownership functions
- Solvency tests for life companies and pension funds need to be based on the more precise matching of assets and liabilities, to avoid the pressure for forced selling (and at other periods, herd buying)

Trust me, I'm your analyst

Philip Augar¹

“Can I ever trust my analyst again?” It’s a question that many fund managers asked after the Millennium Crash. With analysts recommending stocks in public that they described as rubbish in private and allocations of hot new issues being spun to the investment bankers’ favourite CEOs, fund managers could be forgiven for doubting the integrity of all concerned.

Under fire from the press and the regulators as well as from angry investors, the sell side had to admit that in the bull market euphoria, professional standards had slipped. Corrective action initially focussed on the firms and individuals who had left their fingerprints at the scene. Next came new rules. Research will no longer report to investment banking, analysts will not to be compensated directly for corporate finance business and there will be greater disclosure of conflict of interest. Everyone promises to do better next time.

But will they? Although these reforms, together with increased vigilance from regulators and compliance departments, will curtail the influence of investment banking, it is easy to imagine malpractice recurring. Time will pass, market confidence will rebuild and greed will take over from fear. Brokers and bankers will become more optimistic and sober judgement will be replaced by infectious enthusiasm. Fearful of missing out on a rising market, fund managers will want to believe them. The conditions will again exist for corners to be cut and standards to slip.

To help prevent this from happening, fund managers need to reassess the murky role that brokers’ research has come to play in the investment management business. They need to be clearer what they want from research and then to break the link between research and execution. This means paying cash for research, a radical step that would have consequences for the size and structure of many broking and asset management firms. Whilst such upheaval might be painful in the short term, by establishing research as a stand alone cash service it could be priced efficiently and fund managers could be sure of getting objective advice.

One reason that research emerged as the fault line in The Millennium Crash is that the present system grew up before sales, trading and research became so closely intertwined and before investment banking became mixed up with broking. In the ensuing scramble, research lost its mission as well as its integrity. Some of us would prefer to see the integrated structure completely disassembled but this seems unlikely in the short term. Reform must therefore focus on making the present system work better.

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The bear market is doing some of the required work already by causing brokers to lay off analysts. The huge research departments that grew up during the long bull market were wasteful of resources on the buy and sell sides. Reduced income from sales, trading and investment banking has caused brokers to examine their cost base and redundancies in research have been an inevitable consequence.

This will bring some benefits to fund managers. The noise in the system that comes from too much research impairs investment decision making. Large amounts of time are spent fielding brokers' calls and visits and handling brokers' reports. Quality thinking time is reduced as a result. If active fund management is to deliver the superior returns it needs to justify its existence, those working in it need to devote their full attention to performing. They cannot afford to be distracted by noise and when it comes to brokers' research, there is a case for believing that "less is more".

But not all research is bad and not all analysts are in the pocket of investment banking. Brokers' analysts do have a role to play in the investment process and learning how to identify and use good research can help fund managers to outperform.

Fund managers' first step must be to define their requirements. Opinion on this will vary. Some fund managers dismiss brokers' research as mere public relations blurb, its only value being as an indicator of market sentiment: "I take the same attitude to broking research as I do to holiday brochures. It gives me a general idea of what is available and where other people are likely to go but I don't rely on it to make my decision."

This is a minority view but it says something about the research industry's low standing that it finds some support. More commonly fund managers value four elements in research: the depth of knowledge the analyst shows; the quality of written material in terms of content and clarity; the frequency of follow-up, both written and verbal; and the accuracy of recommendations and earnings forecasts.

The order in which these four elements are listed is not accidental. Most fund managers look to their brokers for business analysis first and stock recommendations last. "Stock picking" one of them says "is my job. The broker might like to think that they influence it, but it's not true. Because I get input from all round the market I am much better placed than they are to time an investment decision. What I want from the broker is the information and the analysis to help me reach my decision."

Fund managers then need to use their definition of good research as a benchmark. They need to explain their requirements to their brokers and monitor the service against those needs. Once they have measured the quality of input against the defined criteria, fund managers are in a position to reward those firms that supply the right product. Brokers that fall short of the benchmark should not get paid and would either have to improve or fall by the wayside.

Many fund management houses believe that they operate such a system but do not do so in practice. Brokers have become highly skilled at manipulating the monitoring systems that their clients have put in place. The major brokers have specialist departments whose sole purpose is to navigate their clients' systems. It has become

difficult for clients to separate marketing and salesmanship from fundamentals for brokers spend a great deal of time and money in cultivating good relationships with fund managers. If they value research at all, fund management houses need to be rigorous in ensuring that their process is not derailed by broker marketing. Broker entertainment needs to be monitored and there needs to be a strong internal audit of research quality. A robust system rigorously enforced is the fund management industry's first line of defence against poor research.

The second line of defence is to decide how much research is really worth and then to pay cash for it. The widespread practice of paying for research through business flow creates confusion. Trading desks have the difficult task of balancing best execution with paying for research and there is an inexact match between expected and actual reward. Worse still, the link between research and execution provides an incentive for action oriented advice. It encourages analysts to come up with dramatic stories that are designed to produce business for their firm: "tabloid stock broking" was how the great Retail analyst John Richards contemptuously described it. Much brokers' research is closer to advertising than independent analysis. To use house buying as an analogy, it is more akin to the estate agent's brochure than the surveyor's report.

This could be avoided if research and execution were unbundled and research became a service for which cash was paid. This idea is unpopular with brokers because they suspect that investors would not put a high enough value on research to justify the current number of analysts or their remuneration. If that were the case, recent retrenchment would have further to go. So be it: that's how the market economy works.

Fund managers do not like the idea much either because they would have to pay the research bills or try to pass them on to their end clients. Again, so be it. The clients-pension funds, policy holders and savers- of an industry which has been tainted by conflict of interest, cross-subsidy and obfuscation deserve to know what they are paying for and how much. Fund management firms might have to restructure to absorb the costs of paying cash for research but change is overdue and it is unlikely that their end clients would have to pay more.

Rewarding good research and discouraging bad is vital if active fund management is to have a healthy future. The business will not flourish if decision making is clogged up by brokers' noise. Linking research to execution contributes to this and encourages portfolio churn. The post bubble reforms may have provided some checks and balances against the investment bankers but still more radical change is required if truly independent research is to be achieved. The resulting clarity would do much to restore the industry's reputation and viability.

Memories of a U.S. Money Manager

Gordon M. Marchand, CPA, CFA, CIC¹
Sustainable Growth Advisers, LP

The “Perfect Storm,” the title of a book written by Sebastian Junger that was later made into a movie, chronicled the statistically improbable confluence of conditions that came together to form a once-in-a-century storm that struck the New England seaboard in October 1991 with such force that it whipped up a series of gigantic waves cresting upwards of a hundred feet. This year another statistically improbable confluence of conditions came together in the mid-western US to spawn a tornado of a magnitude and fury never before experienced by humankind. In order to record the event, meteorologists found it necessary to define a new top category on the Fujita Tornado Intensity Scale and then awarded this monster the first ever “F6” rating.

Question: So what do extreme weather patterns and extreme stock market conditions have in common? Answer: A rare confluence of events and circumstances that can result in statistically improbable and unpredictable behavior. If the stock market rise recorded in the late 1990’s were measured on the Fujita Scale, it would certainly have been an “F6.” Like the gathering storm, the real story is the circumstances leading up to the unprecedented speculative valuations characterized as the “boom.” The “bust” that has played out over the past three years is merely symbolic of the storm’s passing, marked by a gradual return to normalcy as reflected in a renewed focus on company fundamentals and traditional valuation methodologies. While I do make mention of some of the painful circumstances associated with the bust, I thought it more meaningful to explore and provide an interpretation of some of those events and conditions that set the stage for – and then fueled – the boom. It is here that I believe valuable lessons can be learned (and frankly, it’s more fun to write and read about a gathering storm than its passing).

Because not all indexes, stocks and companies are created equal, I think it important to clarify where the boom and bust largely manifested itself. For the sake of brevity, I will focus on the NASDAQ composite, a stock market index dominated by companies that fall into two sectors: technology and telecommunications. Recognizable companies listed on the NASDAQ include Microsoft (MSFT), Intel (INTX), Dell (DELL), Cisco (CSCO), JDS Uniphase (JDSU), Oracle (ORCL), Amazon.com (AMZN), and Worldcom (WCOM). The NASDAQ began its rapid rise on October 8, 1998 when it closed at 1,419. It peaked at about a 5,050 level on March 10, 2000 and bottomed at around 1,120 on October 7, 2002. The 17-month boom yielded a 256%

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return. The 31-month bust resulted in a loss of 78%. Performance return calculations can be misleading. At first blush it may appear that up 256% trumps down 78%. Not so. Had you invested in the NASDAQ through an index fund as it began its rise in late 1998 and had the fortitude to hold on to your investment through its bottoming in late 2002, you would have been disappointed to learn you would have been down 21%, a painful but not tragic result.

It is also important to bear in mind that the NASDAQ composite also included companies that fared very well during this period such as Starbucks (SBUX). Unfortunately, most investor money poured into NASDAQ-type technology companies near the peak, so many investors bore losses akin to 80% to 90% and more where margin arrangements were used. The New York Stock Exchange composite index did not fare particularly well during this period either with listed companies that included AOL and Corning, but nothing compared to the wreckage on the NASDAQ. It is of interest to note that during the boom period, the New York Stock Exchange was rumored to have aggressively marketed to both Microsoft and Intel the merits of transferring their listings from the NASDAQ to the NYSE. Adding credence to the rumor, the NYSE had reserved the coveted single letter ticker symbols “M” and “I” for their eventual use. The prevailing market psychology was truly that technology was “the place to be.”

Setting the Stage, Assembling the Cast of Characters

What were some of the conditions and events that made the environment so ripe for a stock market boom in the U.S.? For starters – a “goldilocks” economy, lowering of trade barriers, relative global peace, low cost and abundant capital, loose regulatory environment, generally “flawed” accounting principles and auditing practices, projected federal and state budget surpluses, rapid rise of the Internet, Y2K, advent of online trading coupled with deeply discounted trading commissions and liberal margin debt terms, tremendous advances in broadband telecommunications, stock options for all, and self-directed 401k pension plans. All of this was topped off by a wave of euphoric entrepreneurialism that overtook individuals and businesses alike on a scale not seen since the great California gold rush.

As for our cast of characters that played significant roles in this epic event – including individual investors, professional money managers, plan sponsors, mutual fund companies, “*dependent*” auditors, consultants, investment bankers, sell side analysts, venture capitalists, publicly traded companies, stock exchanges, regulators, and the Federal Reserve – the Perfect Storm Award for the party most responsible for the boom goes to . . . the financial media!

Let’s now explore how some of these factors and forces converged to fuel the late 1990’s speculative stock market boom that began in the U.S. and quickly traversed the Atlantic.

The Financial Media

Leading off with our award winner . . .

Prior to the boom, about the only meaningful televised source of investment news in the U.S. was “Wall Street Week with Louis Rukeyser.” The program could be seen Friday evenings on a fledgling network comprised of not-for-profit public broadcasting stations. The show was produced in Maryland on a shoe-string budget; nonetheless, it was a timely, high quality program with a small, but fiercely loyal viewership largely made up of older, well-educated males of substantial financial means. The format was simple; the gentlemanly Mr. Rukeyser would invite financial professionals (*i.e.* portfolio managers, analysts, economists) to join him on his program for a casual discussion of issues affecting the economy and the stock market. Guests were treated in a civil manner and often afforded a reasonable opportunity to share their views and tastefully tout their investment product or service. A professional acquaintance of mine who managed a relatively small but solidly performing mutual fund appeared on the show about ten years ago. Within three weeks of the show’s airing, his fund’s assets had more than doubled. According to my acquaintance, Mr. Rukeyser has earned a permanent spot on his Christmas card list. The message is clear – the media can cause capital to move in a big way, and fast.

During the boom we had financial news networks broadcasting live over satellite and cable networks 24 hours daily, 7 days a week. CNBC, CNNfn, MSNBC, and Bloomberg could be heard running in the background in offices and homes alike. Lou Rukeyser was displaced by another Lou, Lou Dobbs at CNNfn. Even the gentle Mr. Rukeyser ultimately moved his program to CNBC to complement its team of celebrity commentators – Ron Insana, Maria Bartiromo, and Mark Hanes. While Mayor Mike Bloomberg now reigns supreme over New York City, the financial news network bearing his name provides continuous market coverage spanning the globe. No TV? No problem. You could get your financial fix from the radio. New York cab drivers became self-taught stock market mavens, freely dispensing stock recommendations to their passengers. No radio? Again, no problem. Just pick up one of the many business magazines or newspapers that could be found on any newsstand. The *Wall Street Journal* had become a popular read even among high school students. To drive the point home, here are a few headlines from the cover pages of some top-selling business magazines that appeared on newsstands during late 1999 and early 2000:

- “Get Rich.Com” – *Time Magazine*
- “Smart Investing for the Internet Age, Where to Invest” – *Business Week*
- “Tech Stocks, Everyone’s Getting Rich! Here’s how to get your share” – *Money Magazine*
- “The 10 Stocks for the Next Decade” – *SmartMoney* (by the way, the 10 stocks included the likes of AOL, Broadcom, Worldcom, Nortel, and Nokia that experienced an average loss of 60% between 10/22/99 and 6/30/02)

At the office, the Internet provided convenient broadband access to the many market-oriented web sites to catch late breaking news, analyze stock reports, check market prices, and hit the market chat rooms. The media not only reported the upbeat news on business and the stock market, but also took it to the next level by effectively promoting it through all channels of mass communications. By late 1999,

viewers/listeners/readers were addicted to market news and, to some degree, brainwashed into believing that one could not lose money investing in the stocks of the great “new economy.” Coincident with the Dow Jones Industrials Average crossing the 10,000 milestone for the first time, a new book entitled *Dow 36,000: The New Strategy for Profiting From the Coming Rise in the Stock Market* hit the book shelves. The book, co-authored by James Glassman and Dr. Kevin Hassett, was widely acclaimed by experts in the field and afforded much media attention. For investors, amateur and professional alike, this book provided the needed rationale for abandoning traditional investment valuation disciplines. After all, 36,000 represented the promise of another 260% return.

Each uptick on the NASDAQ was accompanied by a corresponding uptick in the level of euphoria gripping the investing public. By late 1999, just about everyone was exposed to the stock market in some way, be it a brokerage account, mutual fund investment, IRA, self-directed 401k plan or company stock options. The “*general public*” became synonymous with the “*investing public*”; everyone had skin in the game.

Another important role served by the media was to make virtual celebrities out of newly minted billionaires from the world of corporate America – there was Bill at Microsoft, Michael at Dell, Andy at Intel, Steve at AOL, Jeff at Amazon, John at Cisco, Larry at Oracle. We all came to know them on a first name basis. In a country where most adults cannot name the vice president of the United States, by year-end 1999 nearly all adults, as well as most children, could match the names of corporate chieftains with their respective companies. Hollywood actors and professional athletes were forced to compete for media attention with these corporate idols. Something fundamental in the public’s psyche had changed.

Clearly the financial media helped inflate the bubble. What mystifies me is the deafening silence from the American trial lawyers during this bust. This was a case ripe for class action status with trillions of real dollars lost by tens of millions of people. It’s indisputable that every one of these prospective plaintiffs watched television, listened to the radio, and read publications by the financial press. **The claim:** a clear case of mass addiction, possibly brainwashing. **The motive:** higher Nielsen ratings and the advertising dollars that follow them. **Damages to award:** recovery of market losses sustained, which are easily quantified. It should not be difficult to prove to a Mississippi jury that the financial media was at least partly to blame. Instead our lawyers diddled their valuable time away with asbestos and tobacco cases; more recently they’ve set their sights on “fat” food restaurants. It appears that a golden opportunity to take our financial media to task has been lost.

The Economy in the Late 90’s

The state of the economy has been closely and positively correlated with changes in levels of the stock market. The economic outlook could not have been better in the late 1990’s. GDP in the U.S. grew at 4.3% in 1998 and 4.1% in 1999, significantly above the 25-year average of 2.9%. Unemployment stood at 4.5% in 1998, declining further to 4.2% in 1999 (the 25-year average was 6.3%). Inflation was well under control at 1.6% for 1998 and 2.2% for 1999 (25-average of 4.4%). Prior to this period

most economists believed that less than 6% unemployment could not coexist without inflation because supporters of the Phillips Curve said so. With interest rates relatively low, businesses borrowed extensively to finance capital spending. Productivity gains made possible through the introduction of technology were credited with explaining the incongruous situation of full employment without a hint of inflation. This full-employment, efficiently running economic machine also began to produce government federal and state budget surpluses due to higher than expected income tax receipts. What could possibly go wrong with Alan Greenspan serving as Fed Chairman and Robert Rubin as Secretary of the Treasury? After all, Greenspan had demonstrated his ability to fine tune the economy by nimbly working the levers governing monetary policy and Rubin had just rescued Mexico from financial disaster.

The “Sell Side” Analyst Community

(With apologies to the Christmas jingle: Rudolf the Red-Nosed Reindeer)

You know Meeker and Becker and Noto and Sherlund,
Blodget and Quattrone and Phillips and Cohen,
But do you recall the most *infamous* analyst of all . . .

Per the financial press, it appears to have been Jack Grubman, the telecom analyst who covered AT&T. Aside from the fame and the sudden spike in personal income, it must have been difficult for a star tech analyst during the boom to deal with all the inherent conflicts.

Sell side analysts are employed by brokerage firms purportedly to provide unbiased research coverage on companies they cover. The brokerage firms make available the proprietary research developed by their analysts to their investment management firm clients (also known as the “buy side”) in exchange for the high volume of trading commissions the buy side firms transact through their institutional trading desks. Most brokerage firms also have a significant retail business overseen by their legions of broker representatives. One trend that occurred in the late 1990’s was that brokerage firms made their proprietary research generally available to their retail brokers who in turn pushed it on their retail client base in the hopes of generating some additional trading commissions. While the “buy side” had traditionally been skeptical of “sell side” research and would make limited use of it, the retail brokerage force and their unsophisticated individual clients – to their detriment – relied heavily on this research and opinions expressed.

Another trend during this period that caused an inherent conflict of interest to rear its ugly head was a large increase in public offerings of stocks and bonds as well as a record level of merger and acquisition activity. Most brokerage firms quickly built up their investment banking departments to capitalize on this trend. Serving as lead underwriter on a big equity offering could generate tens of millions of dollars in fees for the lucky firm. A public company typically awarded this business to large brokerage firms that employed respected analysts guaranteed to issue a positive report on the company’s prospects and then unload the securities offering on that firm’s institutional and retail client base. Needless to say, tremendous pressure was placed on

analysts by their firms to produce glowing reports. From all accounts, analysts who did the bidding of their investment banking departments were exceedingly well rewarded.

Even if a brokerage firm was not in the investment banking business, the research analyst still had a significant challenge to their objectivity. Many public companies tended to shun those sell side analysts that did not issue positive research reports on their companies.

As a result of recent investigations into analyst conflicts, select email traffic between analysts and public companies have been revealed publicly. A study of these back-and-forth communications sheds light on the surprisingly intimate relationship that often develops between an analyst and the public companies they are researching. It would appear that many analysts conducted themselves more like employees of those companies they were assigned to cover.

Analysts need open access to company managements in order to do their jobs properly. In a number of cases, the price of access was loss of objectivity on the part of the conflicted analyst resulting in the dissemination of biased research reports to the unwary reader/investor.

The “Buy Side” Community

Whereas the “sell side” brokerage community mentioned above is analogous to a store, someplace you go to buy stocks you need and return those you don’t; the “buy side” could be thought of as shoppers in search of a good stock deal. The “buy side” consists of professional stock pickers, customers of the sell side. These institutional investment advisers and mutual fund companies manage investment portfolios for their clientele and shareholders according to their varied investment approaches and philosophies. As professional money managers, the buy side has long recognized the conflicts surrounding sell side research. The buy side does receive and analyze sell side research reports, but takes care to separate fact from opinion (*i.e.* fact from *fiction*). Traditionally, the sell side also has sponsored investor conferences for their buy side clientele featuring presentations by the executive management teams of public companies. Attendance at these conferences provided the buy side with ready access to company managements.

Institutional investment advisers were under great pressure from their institutional clients (*i.e.* pension plans, foundations, endowment funds managed for colleges, corporations, municipalities, and unions) and their *consultants* during the late 1990’s not to underperform their benchmarks. Without significant equity exposure to the tech and telecom sectors, it was thought difficult to deliver good relative performance results. Yielding to client and consultant pressure, most investment managers altered their investment approaches, jumped on the tech bandwagon late in the game, and began in a big way to sell “old economy” stocks using the proceeds to buy “new economy” stocks. This action drove down the price of “old economy” stocks and further fueled the rise in “new economy” stocks. The “old economy” investment managers that held steadfast to their traditional investment disciplines were first punished by poor performance returns then jolted by client resignations. I know of one Texas-based “value” manager that lost so much client business during this period

they elected to exit the investment management business entirely. Even the billionaire sage of Omaha, Warren Buffet himself, was heavily criticized for being stuck in the old economy. Shares of his investment holding company, Berkshire Hathaway, tumbled during this period.

In the mutual fund business, marketing, sales, and distribution capability have received much greater emphasis than the investment management function. A disconnect has developed between what mutual fund investors really want and what mutual fund companies seek to provide. Commissioned mutual fund wholesalers often get paid better than the portfolio managers that manage the funds they sell. Wholesalers spend the bulk of their time wining and dining high producing account representatives at the offices of national and regional brokerage firms. The pressure on wholesalers to sell is high. Prior to the late 1990's, expectations for portfolio managers were set at a relatively low level of difficulty – just meet or slightly exceed the fund's performance benchmark. Thus, a portfolio manager for a large cap growth fund merely had to match the performance of the Russell 1000 Growth Index. Since the universe of companies that made up the Russell 1000 Growth Index were well known and did not change very often, a portfolio manager only had to buy a statistical sampling of companies that were reflective of the Index (about 60 - 100 companies) and benchmark performance was almost assured.

When mutual fund sponsors witnessed the wave of new assets that hit aggressive growth funds run by their competitor Janus during 1999, they created new funds and instructed their portfolio managers to do the same thing as the Janus managers. In order to fuel mutual fund share sales, fund companies placed increasing pressure on portfolio managers to generate top-tier performance. If a portfolio manager's fund was awarded five stars from Morningstar, that manager became coveted and richly rewarded. In order to please and reap the financial rewards, portfolio managers took to investing heavily in tech and telecom companies that further fueled the already rich valuations in these two sectors. All the increased risks were ultimately borne by fund shareholders.

Consultant Community

Institutional investors such as pension plans, foundations, and endowment funds retain consultants to assist them with portfolio manager selection, manager evaluation, and asset allocation. Some of the better-known consulting firms in the U.S. are the Frank Russell Company, Callan Associates, Cambridge Associates, and Wilshire Associates. The consultant serves as an intermediary between the investment manager and the institutional investor, similar to the role played by a sports agent retained by a professional athlete. From the perspective of an investment manager, the first order of business a recently retained consultant undertakes when retained by an institutional investor is a recommendation to replace all current investment managers by a new, consultant-recommended manager line-up. Finally, the consultant continuously evaluates appointed managers against established performance benchmarks. For an investment manager, continuously meeting or slightly beating the benchmark is the only worthy goal. Poor absolute performance is tolerated as long as it's close to the benchmark. Unfortunately, managers generating superior absolute performance may be punished even when the results are much better than the benchmark based on the rationale that the

manager must have strayed from its articulated style to generate such good numbers. As a result of these perverse circumstances, investment managers, fearful of the consultant's wrath, set about achieving the goal of delivering benchmark-like performance during the big tech/telecom run-up of 1999 and 2000. Growth managers felt pressured to chase the rich valuations in the tech/telecom sector that came to dominate the growth stock benchmarks thereby fueling the rise in these two sectors even further. The technology and telecom sectors grew to comprise 40% of the capitalization-weighted S&P 500 Index. When the tech/telecom stocks plunged beginning in early 2000, so did the portfolio values of nearly all institutional investors. The last few years have been difficult for consultants as they have been slapped around by their institutional clients for having sold them on the concept of allocating and managing money strictly according to benchmarks. At a conference I recently attended, the chairman of a major consulting firm revealed that assessing managers strictly according to benchmarks has been abandoned. Their firm now expects investment managers to beat the benchmark *and* produce positive performance results. What a novel idea!

A Tale of Woe – Individual Investors and “Day Traders”

All great stock market moves, both up and down, are ultimately driven by the collective societal emotions of fear and greed. When fear or greed seep into an investment decision, objectivity goes out the window. Professional money managers generally keep these extreme emotions in check by adhering to time-tested investment disciplines and processes that are learned and fine-tuned as a result of years of training and experience. A factor that made this bubble unique is the degree to which even professional money managers threw caution to the wind. The class of investor most impacted by the late 1990's boom were individual investors, also known as “day traders” in their purest form. Legions of newly indoctrinated day traders – armed with the deadly combination of discount brokerage accounts, online trading access, margin arrangements, and investment newsletter subscriptions – committed the closest thing to financial suicide imaginable.

To illustrate using a real life example, let me relate the tragic story of a close friend who had approached me for advice during this period. To conceal his true identity, I will refer to him simply as Jack. Jack is a moderately successful golf professional in his early 50's, college-educated and happily married with two children. He had always lived well below his financial means and had the discipline to systematically set aside savings for long-term investment. Those savings were placed under the discretion of a New York City based investment adviser who, employing a conservative approach, helped grow the capital at good rates of return over many years. By late 1998 he had accumulated a retirement nest egg valued in excess of \$1 million dollars (U.S.). It was then that Jack had become smitten with the dot.com fever that began sweeping the country.

Sometime in early 1999, Jack terminated his investment adviser as he felt the adviser was much too conservative for this “new economy.” At about this time he mentioned to me that if he could just increase the value of his nest egg by another 15% he could afford to take early retirement and pursue his dream of participating full time on the Senior Golf Tour. Jack transferred all his hard-earned savings to a couple of discount brokerage accounts and began actively trading his own portfolio online. His typical

day consisted of hibernating in his pro shop, scouring investment newsletters for new ideas, and logging on to financial web sites and chat rooms, with CNBC always running in the background.

He began calling me several times a week to solicit my investment opinions. I was especially impressed with how knowledgeable Jack had become regarding tech investing in such a short period of time. As Jack eventually learned, knowledge is no substitute for good judgment.

Jack and I entered into an informal arrangement, I provided him with objective investment counsel and he gave me golf lessons. The fatal flaw in our quid pro quo was that Jack would routinely disregard the advice I would provide, quite often doing just the opposite of what was suggested. Unlike Jack, I precisely followed the expert advice he rendered. I credit Jack with lowering my golf handicap from a USGA "16" at year-end 1998 to about a "9" today.

By late 2000, Jack had lost so much money managing his own capital that he decided to return his capital to professional management, a decision I strongly encouraged. Unfortunately, he selected a small advisory firm specializing in technology investments. The value of his portfolio proceeded to decline even faster under this new tech manager. After about six months, Jack terminated this adviser and decided to try his hand again at managing his own money. Based on his accumulated losses in tech investments, he made the judgment that "high quality" tech had finally bottomed and invested accordingly.

Jack called me one last time in late 2001 for advice. He wanted to know whether or not he should employ margin debt to double up on his tech holdings. I provided him with the best counsel I could under the circumstances; he ignored it, and now his nest egg is empty.

The epilogue: I met Jack for dinner recently. He mentioned that even though he had lost just about everything financially, he curiously finds himself at peace. Jack overcame his seduction by, and obsession with, the stock market, comparing his four-year experience playing the market to that of an addicted gambler. On any given day Jack can now be found on the practice range giving golf lessons (largely out of financial necessity). Financial security aside, for him and millions of others like him, life is returning to a state of normalcy.

Y2K

During the mid 1990's, a little known economist, Dr. Ed Yardeni, began writing and speaking about the tremendous upheaval he believed would be brought about as a result of the calendar change from 1999 to 2000. His thesis was that older, legacy-type computer systems would operate improperly, or cease to operate entirely, in reaction to the calendar change and that would wreak havoc around the globe. As the date approached, fear gripped many, particularly those in government. Dr. Yardeni had given testimony to U.S. Congressional leaders with particular emphasis on the dire consequences if immediate actions were not taken. Fearing Dr. Yardeni was right, legislators took swift and extreme measures to avert, or at least minimize the impending disaster.

Marching orders were issued to all U.S. regulatory authorities to assess areas of exposure immediately and blanket authority was given to address the crisis. Essentially, regulators issued proclamations that exposed public companies in the U.S. to virtually unlimited civil liability for failure to take appropriate measures in preparing for the calendar change. Regulators placed a special emphasis on the financial service sector (stock exchanges, banks, brokerage firms, insurance companies, mutual fund organizations, and investment firms). Every organization was required to develop a Y2K plan and successfully implement it. Failure meant incurring the wrath of regulators or, even worse, unlimited exposure to civil liability. American trial lawyers had made extensive preparations to pounce early and hard on the noncompliant.

The fear of regulatory and civil liability caused organizations to overhaul their data processing operations. Mainframe-based legacy systems were replaced on a massive scale with state-of-the-art networked computer systems operating off-the-shelf applications that were Y2K compliant. Business and government opened their checkbooks to pay for these extensive system upgrades. Technology companies like Microsoft, Intel, Cisco, Dell and IBM were all big beneficiaries of this spike in capital spending as they sold the products and services that helped companies become Y2K compliant. During 1998 and 1999, the revenues and earnings of many technology companies soared, causing their stock prices to do the same.

As year 2000 approached, Federal Reserve Chairman Greenspan was concerned that there might be a run on banks due to the public's fear of the negative case articulated by Dr. Yardeni and others. His monetary response was to rapidly flood the economy with liquidity in anticipation of a potential fear-induced liquidity squeeze. Much of the excess liquidity made its way into the stock market fueling the rise even further. With none of Yardeni's dire predictions coming to pass, early in 2000 the Federal Reserve acted to rapidly withdraw the excess liquidity creating what has been referred to as the "Y2K hangover." Many economists believe this rapid liquidity removal contributed to the bust.

Generally "*Flawed*" Accounting Principles and Auditor "*Dependence*"

Accounting standards have been slow to change and often fail to measure accurately the true economics underlying transactions. The managements of many public companies have abused their discretion in applying accounting principles fairly and a few unscrupulous management groups have committed outright fraud. Public accounting firms have been shown to lack independence in the conduct of their audits. The combination of these factors has yielded financial information on public companies that cannot be relied on by the investing public.

One area receiving increasing attention where accounting and financial reporting standards have failed the shareholder but greatly enriched company management is stock options. In the U.S., under Generally Accepted Accounting Principles ("GAAP"), public companies are not required to expense stock options. During the 1990's, the managements of largely technology and telecom companies lavished stock options on themselves and employees as their companies often lacked the cash to compensate them at levels they thought appropriate. It was a virtuous winning cycle

for these management teams. First, using stock options instead of cash compensation allowed the companies to direct more cash to finance the growth of the business. Second, as stock options did not have to be expensed under GAAP, their companies reported better financial results. Third, better financial results led to higher stock prices. Fourth, higher stock prices created in-the-money options for these executives that could be converted into low-basis, high-value stock. Fifth, the low-basis stock could then be sold by the corporate executives to the investing public and receive preferential tax treatment on the gain. The executives benefited handsomely and the company benefited from higher earnings and executive retention. The only losers were company shareholders who effectively financed the stock option plans through the erosion of their ownership interest in the company. Stock options systematically and in stealth fashion transfer ownership of the company from shareholders to company management.

Another trend that fueled the rise in stock prices was when companies publicized nonstandard and misleading financial results. Unofficial income measures such as pro-forma earnings, core earnings, cash earnings, operating income, and EBITDA were substituted for standard GAAP reported earnings. The substitution of these new “home-cooked” measures of company performance encouraged company managements to de-emphasize material negative factors such as massive restructuring charges thereby yielding a mirage of positive business trends. With company management holding loads of company stock and stock options, there was far too much temptation for executives to mislead the investing public. P/E ratio expansion via the reporting of above consensus earnings results had become the most important goal at many public companies.

Independent auditors had compromised their independence. All the big public accounting firms had thriving consulting practices that served as their engines of growth. Accounting firms began pricing their auditing service at low profit margins (and even at a loss) in order to cross-sell their high margin consulting and tax planning services to their corporate audit clients. Audit partners were under tremendous pressure to please company management in order to preserve and expand the profitable consulting practices. Conflicts of this nature were bound to lead to disaster. The most recent disaster is that venerable institution, Arthur Andersen, imploding as a result of attempting to cover up a massive corporate fraud at one of their public company audit clients, Enron. At the time, Enron was a big consulting client of Andersen.

Regulators

The prime regulator of the stock market and all its moving parts in the U.S. is the Securities & Exchange Commission. The SEC directly regulates all public companies, the stock exchanges they trade on, brokerage firms, investment managers, mutual fund companies, and self-regulatory organizations like the National Association of Security Dealers (NASD). At the time of tech/Internet boom, the SEC was dramatically underfunded and thus lacking in its ability to fulfill its mandate of maintaining orderly markets and protecting investors. Although the SEC has the authority to inspect, investigate, assess fines and civil penalties, and issue cease-and-desist orders, it lacks

the real big stick – the authority to prosecute criminals directly. Instead, the SEC must turn to the U.S. Department of Justice (DOJ), another underfunded agency, to put lawbreakers in prison. Given its lack of resources, the SEC rarely happens upon criminal activity; when it does, it must turn over all the evidence of wrongdoing to the DOJ. Lack of cooperation between federal agencies is legendary. These circumstances are not lost on company managements that engage in fraudulent activities. Wherever the prospects of getting rich are high, the risks of being caught are low and being sentenced to prison even lower, fraud will be committed. While corporate criminals may be greedy, they are not irrational.

Final Thoughts

There are many more reasons than covered in this piece that would further explain the stock market boom of the late 1990's. My goal was to provide the reader some of the major factors and contributors to the boom from the perspective of a professional money manager. While lessons will be learned from this most recent boom/bust, those lessons will soon be forgotten and totally lost on succeeding generations of investors. It is a certainty there will be another speculative stock market boom followed by a bust. Predicting where and when the next boom/bust will manifest itself is akin to predicting the next big hurricane or tornado. However, here are some obvious warning signs to look for:

- Rapid rise in the value of securities related to a particular security type (stock, bond, etc.), a particular company industry or sector, or geographic region
- Media hype supporting and justifying the price rise
- Wall Street rapidly rolling out products that purport to capture the superior performance in this area
- Conventional wisdom to be challenged and traditional valuation disciplines to be questioned
- Lemming-like behavior exhibited by amateur investors supported by all of the above

Myths and realities in corporate governance: What asset managers need to know

Paul Coombes¹
McKinsey & Company

Two conventional wisdoms dominate discussion about corporate governance today. The first of these is that the essence of the governance problem lies in the boardroom. In the aftermath of a series of spectacular corporate failures and scandals beginning with Enron, the critical weakness of governance arrangements is felt to be the performance of directors who have engaged in behaviour that has been a mix of weakness, credulity, selfishness and sometimes outright fraud. The second conventional wisdom is that the primary locus of the governance problem - the worst offender - is the United States. It is there that the corporate catastrophes have been most prevalent. It is also in the US that the excesses of personal greed in the boardroom are seen by critics to have had the most powerful corrosive effect on the workings of the economic system and the future prospects for market based capitalism.

These two views about corporate governance have now acquired the status of unchallengeable myths. As such, it is time that they were subject to more disciplined scrutiny. For in fact the story about the evolution of corporate governance in recent years is, I shall argue, far more subtle and wide ranging. And it has a direct bearing on the role and changing responsibilities of asset managers.

Putting the governance debate in proper perspective

Memories are short, and the current obsession with governance failures in the US overlooks an important reality. Since the late 1980's, over forty countries have introduced new rules and codes of practice on corporate governance. This is a worldwide phenomenon and we need to be clear about the underlying driving forces which have spurred not only advanced economies right across Europe but also emerging markets such as Brazil, Russia, India and China to embark on typically quite radical programs to reform the way that corporate activity is disciplined. The impetus for this huge burst of reforming activity has been globalisation, with its double-edged impact: first, the rapid globalisation of corporate activity through the growth of multinationals and the opening up of previously protected economies. Second, the globalisation of asset management which has greatly intensified the demand for reliable information on corporate performance of quoted companies around the world, presented in as standard and consistent a way as possible.

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International agencies such as the World Bank, the OECD and the UN have been at the forefront of efforts to enhance governance standards worldwide. The goal has been to reduce the cost of capital, and thereby from a public policy perspective to enhance prospects for economic growth. The OECD's principles of corporate governance correspondingly focus on four clear goals: the accountability of boards and management; accurate and insightful disclosure of performance; fair treatment of all shareholders, including minorities where dominant shareholding blocs are prevalent; and responsible behaviour to the broader set of stakeholders and other parties affected by a corporation's activities.

It is against this broader context that we now need to examine the conventional wisdom on governance. The starting point is to have a clear analytic framework, and I shall first lay this out. Then we need to look at the current agenda of reform as it affects the workings of corporations themselves. The next critical step is to examine the emerging institutional agenda, and the implications for different participants, ranging from investment analysts and fund managers, through to trustees and ultimate owners, together with other players such as the investment consultants.

Finally, in the light of this, we need to examine whether indeed the US is the prime example of a corporate governance system that has gone wrong, or whether in fact the conventional wisdom is dangerously misguided.

How to think about governance: a high level framework

Everyone is clear that corporate governance is about boards and their interaction with management. The heart of the governance problem is frequently stated as the "agency" problem: how to ensure that agents behave in a way that is appropriately aligned with the interests of owners. This is the corporate context of governance, and of course in addition to the details of board structures and processes and the appropriate design of management incentives, the second aspect of this is corporate reporting, including audit, and shareholder rights, especially the fair treatment of minorities. But this is only a part of the complete governance system.

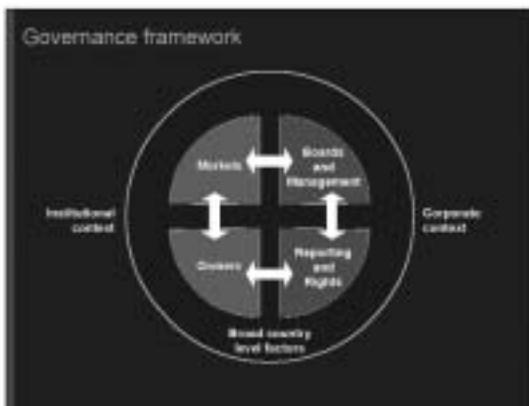


Exhibit 1

The second important dimension is the institutional context. This includes the role of analysts, fund managers, investment consultants, trustees and beneficiaries, as the “ownership” dimension. It also includes the workings of the markets, specifically the effectiveness of the primary market, especially for new ventures, as well as the depth and liquidity of the secondary markets and the extent of the market for corporate control. It is this institutional context, taken as a whole, which exerts a pattern of discipline on individual corporations that is far more powerful in some countries than in others.

What is the importance of this institutional discipline? In part, it is indeed to act as a check on boards and managers behaving in a greedy or fraudulent manner. But from an economist’s perspective and a public policy standpoint, a far more fundamental goal is to help ensure that over time capital is allocated to areas of highest opportunity. This naturally implies that governance arrangements should help facilitate the re-allocation of capital away from sunset to sunrise industries. Governance systems that can be regarded as working well are those that accomplish this task efficiently.

The third component of the governance framework is the outer ring in our exhibit which includes the legal, social and cultural framework in which corporate activity takes place. This framework differs significantly across countries in terms of the support it provides to the whole market system and to investors’ interests. Where property rights are insecure, even a good board may only offer modest protection to shareholders.

Applying this high- level, admittedly simplistic, framework, we can see that today investors are encountering three different types of governance debate. In emerging markets, the underlying governance problem is frequently the lack of adequate legal, social and administrative foundations for markets to work effectively. In much of Continental Europe, by contrast, the critical question is how far an internally consistent set of governance arrangements designed to protect the interests of dominant shareholding blocs needs to be modified to meet the expectations of cross-border, typically Anglo- American, institutional investment funds. This is not just a question of board structures, or information disclosure, but also a question about the role of markets in reallocating capital from failing firms to growing ones. The third governance debate, now at an intensified level in the US following the scandals and the resulting Sarbanes-Oxley legislation, is about the role of boards and the adequacy of monitoring processes. Here the risk is that heavy-handed, hard wired legislation may stifle entrepreneurial risk taking.

The corporate agenda for governance reform

Despite these differences by region, two priorities for governance reform within corporations now command widespread global acceptance. These are firstly, the need for much greater transparency and disclosure of corporate performance; and secondly, the requirement for a much higher standard of boardroom professionalism than has historically been seen, even in advanced markets. These priorities are underscored by the focus of recent reform efforts in the US. These include not only the Sarbanes-Oxley legislation but also revisions to the NYSE listing rules and proposals from bodies such as the Conference Board. Such initiatives are paralleled by significant efforts

in Europe, notably the Cromme Code in Germany, the Bouton reports in France and the Higgs review in the UK. In the recent Investor Opinion Survey that McKinsey conducted in Spring 2002, more timely, accurate disclosure, more independent boards and more effective board processes were cited by a large sample of leading institutional investors as the specific reform priorities they would most like to see.

In our experience, the boards and management of leading multinationals acknowledge these priorities. They do however express two strong concerns. First, they want the market to recognise that there is no such thing as “the one true figure” of corporate performance. Corporate reporting, however diligently undertaken, will always involve real questions of judgment about the appropriate way to record profits and asset values. In today’s world, the huge importance of intangibles makes this judgment more complex than ever. Their second concern is that investors, along with regulators and the general public, are simply developing quite unrealistic notions of what an independent non-executive can achieve, however hard he or she works, in the course of the 20-25 days per year that board members are typically expected to dedicate to their board responsibilities. In that time they cannot possibly monitor every detail of significant corporate activity. Indeed, attempts to micro-manage and nail down executives through aggressive monitoring processes could well create an adversarial boardroom atmosphere, undermine entrepreneurial initiatives and stifle risk taking - the very reverse of what investors should be looking for. They believe that their primary focus - and that of investors too - should be on getting the major corporate events right - and by that, they typically mean first, the appointment, review, and periodic replacement of the chief executive; secondly, large scale investments and asset disposals that reshape the portfolio; and thirdly, mergers and acquisitions.

The institutional agenda for governance reform

Healthy corporate governance requires engaged investors. Currently, however, the institutional investor community falls short and now faces its own agenda for reform.

The point of initial responsibility is the investment analyst community. Some of the criticisms about the conflicts of interest where analysts have divided loyalties to corporate finance departments as well as institutional clients have been well aired. In the most notable cases on Wall Street, fines have been levied and remedial reforms put in place. But in a way the more fundamental issue for analysts is rethinking the very nature of the analytic task. Far too much effort has for example been directed at estimating the next set of quarterly earnings, resulting in an increasingly sterile minuet with management with everyone having an interest in showing an apparent smooth trend of successive earnings increases, even when the underlying economic reality has been more choppy. Far too little attention, by contrast, has typically been directed at really understanding the driving forces of corporate performance and the real dynamics of each company’s distinct business model. There are honourable and impressive exceptions, of course, but too much analysis has appeared perfunctory. The most common shortcoming has been an unwillingness to get to grips with the realities of managerial life. This is exemplified in a persistent faith in the existence of “imperial chief executives” as corporate heroes who single-handedly turn round corporations. It is also manifest in a general, profound underestimation of the sheer

difficulty of securing long term sustainable change. With governance now beginning to feature as an element of investment analysis, and with many new governance rating services now being marketed, corporate board members are also concerned about the risks of box-ticking by analysts who do not have either enough experience or indeed interest in exploring why a company that faces the requirement to “comply or explain” may indeed choose the second option.

Third party fund managers, too, face new challenges on governance questions. Collectively fund managers state that corporate governance is a consideration of broadly equal weight with financial issues such as profit performance and growth potential, according to McKinsey’s second Investor Opinion Survey in 2002, and around 60 percent of active managers assert that governance considerations would lead them at times to avoid certain companies or reduce their weighting. Such concerns might focus on doubts about the quality of boardroom processes or of financial disclosure. Alternatively, they might reflect real anxieties about the substance of strategy. In either case, the traditional response of simply selling the shares or doing nothing is for many such managers an unavailable strategy. They are locked in, either formally or informally as closet indexers. In this situation, the case for greater activist engagement with companies seems clear, and is now being encouraged by regulators, keen to remind fund managers of their fiduciary duties to ultimate owners and beneficiaries.

A lead in these matters is now being aggressively undertaken by the largest public sector US pension funds such as Calpers and TIA A-CREF, with significant programs of activist intervention. In Europe, Hermes, the activist arm of the BT Pension Fund, the largest such fund in the UK, is taking a pioneering course. Last year it published its ten so-called “Hermes Principles”, designed to spell out what investors expect of public companies in terms how explicitly they should describe their own business model and corporate goals.



Exhibit 2

If more fund managers were to press for similar clarity the quality of dialogue between investors and companies would be greatly enhanced. Needless to say, however, more sceptical perspectives are well in evidence. As Tom Jones, head of fund management and private banking at Citigroup recently stated in the Financial Times, “I’ve got to say that I’ve got higher priorities. I’m not a do-gooder. I want to do what I get paid for, and shareholder activism is not what I get paid for.” As of now, a majority of fund managers almost certainly think the same way. The arguments for what economists term “rational apathy” are extensive and, for many managers, compelling.

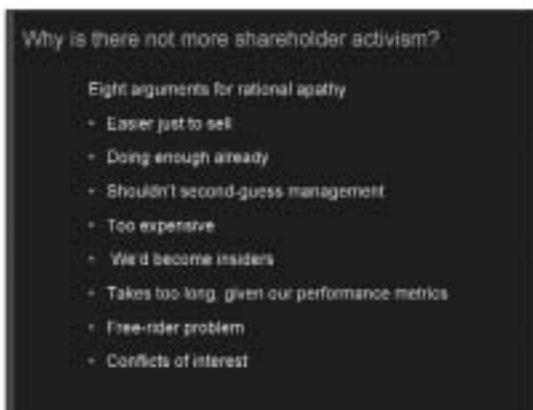


Exhibit 3

Nevertheless, the pressures on fund managers and indeed trustees to clarify their policies on activist intervention and responsible engagement with companies are growing. Public opinion appears to be enlarging its focus from an exclusive preoccupation with corporations to the scrutiny of investing institutions and their advisers. Activism is of course potentially expensive, but disregarding stewardship responsibilities runs the risk of regulatory intervention. It is with this risk clearly in mind that the International Corporate Governance Network (ICGN) - a global club of institutional investors- tabled for its discussion at its annual meeting in late July, 2003 a proposed policy statement on the governance practices that institutional investors should impose on themselves in respect of their responsibilities to their trustees and owners. These include specific areas of accountability such as specifying the mode of governance monitoring that an institution undertakes, providing summaries of voting records and details in contentious cases, together with explanations of actions taken, listing resources dedicated to governance, and explaining potential conflicts of interest and how these would be handled. It is clear that trustees, together with investment consultants, will increasingly need to spell out their own policies and practices in this area in the mandates that they are giving.

Challenging the governance myths

The first piece of conventional wisdom to be challenged, I argued earlier, was the notion that governance failures were essentially about the role of boards. Adopting a more integrated view of the governance system, as set out above, leads to the different conclusion that in fact a broad agenda of reforms is necessary, encompassing both corporate actions and major initiatives on the part of participants in the institutional investment process. No one actor is singularly responsible, either for earlier shortcomings, or for needed changes. But now let me turn to the second myth, that it is the US that somehow encapsulates all the worst ingredients of governance failure. It is here that we need to retain our objectivity and think clearly about what we are looking for from a corporate governance system.

If we refer back to the OECD Principles, mentioned at the outset, the US scores highly in comparative terms. Transparency and disclosure of corporate performance is in general far more extensive than anywhere else. In terms of shareholder rights, and the protection of minorities, it offers strong protection. On the question of broader responsibilities, the US offers litigation possibilities to any potentially aggrieved constituencies that are almost certainly the equal of those to be found elsewhere. And in terms of accountability of boards and managers, the sheer resilience of the US corporate governance system is demonstrated in the nature of the rapid political and regulatory response to the particular corporate scandals that unfolded in the wake of the corporate scandals and failures. This is a governance system with strong self-healing capabilities.

But the US governance story is more thought provoking still. If, as I argued earlier, the goal of a governance system is to facilitate the reallocation of capital from sunset to sunrise industries, then the US system has in fact performed remarkably well since the 1980's. Since that period, looking at comparative stock market performance at five year intervals, it has -even allowing for recent setbacks- outperformed others. And if we look in terms of comparative GDP growth, the story in the real economy is similarly strong.

Comparative stock returns to 12/02, by country

Base	US	UK	France	DE	Japan
1/1/82	1222%	1223%	1567%	595%	90%
1/1/87	436%	290%	236%	93%	-37%
1/1/92	164%	121%	147%	64%	-42%
1/1/97	28%	11%	47%	55%	-38%
1/1/01	-32%	-32%	-45%	-53%	-34%

Source: Kaplan and Reishus (2003) from MSCI Indices

Exhibit 4

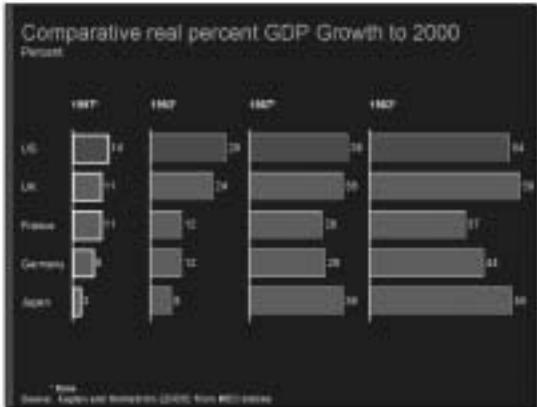


Exhibit 5

On these powerful measures, it would be a seriously misguided to regard US corporate governance arrangements as having undermined economic performance - a fact which institutional investors should be clear about.

Why then is there a visceral belief among so many commentators that there is something deeply flawed about the US corporate governance system? The core concern is not, at heart, about economic efficiency, but about excessive executive remuneration. But while it is clear that there were some egregious examples of selfish behaviour, quite apart from instances of fraud, and while it is also clear that board remuneration committees need to operate in a far more disciplined and professional

way, the overall performance of the economic system does not appear to have been harmed by this, and indeed a significant increase in levels of executive remuneration may have been part of the price to be paid to accelerate the huge reallocation of economic resources that occurred within the US economy in the 1990's. If this is the case, then it is important that the message is well understood by investing institutions. Of course, they must press for enhanced board professionalism and they should be willing to engage in activist intervention where persistent failures of professionalism are evident. Equally, it is important that institutional investors should be able to articulate clearly and persuasively themselves the merits of governance systems that facilitate the shifting of assets from losing, slow growth industries to faster growing businesses with higher potential. The challenge for institutional investors operating in the contemporary climate of Europe is to help show that this is a process that will bring benefit not just to shareholders, but to society as a whole.

The Betrayal of Capitalism¹

Felix G. Rohatyn²

During my nearly four years as ambassador to France I frequently gave a speech I called “Popular Capitalism in America” to audiences throughout France. This is a subject of intense interest to the French and to most other Europeans, who envy us our high rates of growth and low unemployment but who often believe that the price we pay for these benefits is an inadequate social safety net, a tolerance for speculation, and unacceptable inequality in wealth and income. They also see the American system as one that inflicts high levels of poverty and unemployment on developing countries by the harsh stabilization measures required by the IMF and other Western-directed financial institutions. I made this speech to dispel some of these notions and to encourage reforms in European countries in matters such as taxes, investment, and employment. These, I argued, would, to our mutual benefit, align our systems more closely.

In doing so, I defended our economic model as one that could deliver more jobs, and more wealth, to a higher proportion of citizens than any other system so far invented. A major component of this system is its ability to include increasing numbers of working Americans in the ownership of US companies through IRAs, pension funds, broad-based stock options, and other vehicles for investment and savings.

I agreed with, and cited, Federal Reserve chairman Alan Greenspan’s statement that “modern market forces must be coupled with advanced financial regulatory systems, a sophisticated legal architecture, and a culture supportive of the rule of law.” After forty years on Wall Street I had no doubt that, despite occasional glitches, our economy met Greenspan’s requirements.

However, as I regularly traveled back to America between 1997 and 2001 there were developments in our financial system that deeply troubled me. The increase in speculative behavior in the stock markets was astonishing. In 1998, as a result of reckless speculation by its managers, the giant hedge fund Long Term Capital Management went bankrupt and, in doing so, threatened the financial system itself. The New York Federal Reserve organized a group of banks and investment houses to rescue the company at a cost of several billion dollars. The sharp rise in dot-com stocks came soon after, together with relentless publicity campaigns to push the markets higher and higher. TV ads of on-line brokers urged everybody to buy stocks and trade them day by day. So-called independent analysts made fantastic claims about their favorite stocks in hopes of generating investment-banking business for their

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firms. These claims were often supported by creative accounting concepts such as “pro forma earnings”--a management-created fiction intended to show strong results by excluding a variety of charges and losses and one that was implicitly approved by supposedly independent auditors. A large part of the stock market was becoming a branch of show business, and it was driving the economy instead of the other way around.

The financial regulators--whether in the Treasury Department, the Federal Reserve, the SEC, or other agencies--were either unwilling or unable to check this behavior. The then chairman of the SEC, Arthur Levitt, tried to adopt rules that would prevent the more obvious of the conflicts of interest that were widespread among auditors. He was blocked from doing so when the accounting industry lobbied members of Congress to oppose his initiative. The Federal Reserve could have raised the margin requirements for stocks listed on the NASDAQ, which would have sent a powerful signal to the rampant speculation on that market and somewhat limited the damage caused by it. The Federal Reserve chose not to do so.

When the inevitable happened and the bubble burst, \$4 trillion of market value evaporated, much of it in high-tech stocks. Half of all American families own listed stocks, and as more and more middle-income Americans saw their savings disappear, and company after company went bankrupt and thousands were laid off, I began asking myself whether I could make that speech again. Was our popular capitalism in fact providing both for the creation of wealth and for regulation that would protect the public and encourage high standards of corporate governance? Alan Greenspan's belief in the effectiveness of responsibly regulated market forces clearly was not being matched by reality.

The events surrounding the bankruptcy of Enron go beyond the sordid situation of Enron itself and raise the larger question of the integrity of our financial markets. That integrity must be maintained to protect our own investors, to finance economic growth, and to maintain the flow of foreign investment. As of the end of 2001 about 15 percent of all shares listed on the New York Stock Exchange and the NASDAQ were foreign-owned. They had a value of approximately \$2 trillion. We must keep in mind that we require about \$1 billion per day of capital inflows to finance our trade deficit. A decrease in foreign investment would have seriously damaging effects on the securities markets, the stability of the dollar, and the economy generally. The last thing we should tolerate is a loss of confidence in our capital markets.

While it is too early to make definitive judgments, recent events suggest that our regulatory system is failing. Enron, one of America's Fortune 50 public companies, reporting over \$100 billion in sales and almost \$1 billion in earnings, melted into bankruptcy during a period of six months, with a loss of \$90 billion in market value. As many did not realize, Enron was not only a supplier of energy but a major financier of dealings in energy, and eventually in other commodities as well. In carrying out its trading operations, the company organized more than a thousand financial partnerships and other entities, some involving Enron executives, whose losses were not fully disclosed to the public, and these losses ultimately caused huge write-downs in earnings and assets. Parts of the company's record in its dealings in the commodity futures called derivatives and in other risky financial operations appear to have been

deliberately concealed and the company's overall financial position was misrepresented. Enron's management and auditors knew about these matters but did not make them public.

Nor in many cases, apparently, were they obliged to. The derivatives market had been deregulated in December 2000 by the Commodity Futures Modernization Act. Although Enron was in effect a financial institution, it had, for a considerable period, no legal obligation to submit some of its important financial operations to regulators for scrutiny; and no state or federal agency was responsible for regulating some of its most important transactions. The company's accounting firm, for its part, has now admitted destroying documents. Most troubling of all, Enron's senior executives and board members sold over \$1 billion of Enron stock while many of the company's 25,000 employees lost much of their savings, which, trusting the company's assurances, they had invested in Enron-managed 401(k) retirement plans.

In a single six-month period one of America's leading companies became the symbol of the defects in American capitalism claimed by its critics. And Enron's failure is only the latest in a series of events that have cast a shadow on the integrity of our markets and the efficacy of the regulators over the past few years. If we allow continued abuse of our securities markets, one of the basic functions of our system will be destroyed. As Congress examines the fate of Enron's stockholders, creditors, and employees, it should bear in mind the other abuses of the system that, over the last few years, have caused immense harm.

In 1932, the congressional hearings conducted by Ferdinand Pecora of New York started a major process of reform of our financial system. As a result a regulatory structure was created which, until recently, has served us well, although such episodes as the savings-and-loan debacle required strong government action. Serious reforms again are needed, particularly to ensure that accounting firms will henceforth act honestly and responsibly. The securities laws require full disclosure; the accounting firms must ensure that their clients' profits, losses, and assets are disclosed accurately and coherently. The current self-regulation of the accounting industry should be closely scrutinized, and, if necessary, abolished and replaced by a new system of controls. At present, five accounting firms have a virtual monopoly on the audits of most of the US companies listed on the stock markets, a highly unusual level of concentration for any industry.

These firms had enough political power to prevent former SEC chairman Arthur Levitt from adopting rules that would prohibit the conflicts of interest inherent in the present system, in which accounting firms often audit the accounts of a company while also acting as its paid financial consultant. For the accounting industry to rely on a system of "peer review," by which the major accounting firms are responsible for reviewing one another's work, is evidently unsatisfactory. During the forty years or so that I have served on the boards of directors, and often on the audit committees, of a variety of companies, I do not recall a single instance when a negative peer review was brought to the attention of an audit committee. During this period, the technology of finance and the creation of innumerable derivatives and other new financial instruments (and the problems that resulted) certainly warranted a different approach. Just who should

regulate the auditors is an important question for Congress to debate, but there is no question that a new system of regulation is necessary.

Harvey Pitt, the new chairman of the SEC, believes in creating a new agency that will establish more stringent accounting standards but would address neither of the two central issues: the need for a governmental review mechanism that is independent of leading accounting firms, and the need to eliminate the conflict of interest between auditing a firm's accounts and acting as its financial consultant. Arthur Levitt strongly dissents from Pitt's view, and considers the issue of independence to be fundamental. They are both right: accounting standards have to be dealt with more effectively but so do conflicts of interest. (Increased fees for basic audit services would help to offset the loss of income from consulting.) The SEC has considerable powers in these matters, and if more extensive powers are needed, Congress can provide them, as well as the budgets to enable the SEC staff to deal with them.

One possibility worth considering for any new regulatory system would be a requirement that companies periodically change their accounting firms, for example every five years. This would be expensive and somewhat cumbersome, but in addition to keeping auditors on their toes, since their work will be subject to scrutiny, it might also generate greater competition in the industry by encouraging new accounting firms to enter it. We should bear in mind that the crucial accounting functions for any companies must be carried out by its own internal auditing and will depend on the strength of its internal controls. (Internal auditors should be company employees with no recent affiliation with the company's outside auditors.) In a new system the continuity of these internal functions would be maintained while outside auditors would come and go.

Potential conflicts of interest, of course, are not limited to the work of auditors; there is a lot of blame to be shared. To cite only a few other examples, questions have also been raised about the objectivity of securities analysts who are pursuing investment banking business; about the way investment banks allocate underwritings of hot new issues among their clients; and about the activities of banks, following the repeal of the Glass-Steagall Act, in acting simultaneously as lenders, underwriters, financial advisors, and principal investors in some transactions.

American popular capitalism is a highly sophisticated system that needs sophisticated regulation--whether in finance or in other fields. The government itself does not seem to have acted illegally in the Enron case; it is the government's failure to anticipate and prevent what happened that is the problem. Unless we take the regulatory and legislative steps required to prevent a recurrence of these events, American market capitalism will run increasing risks and be seen as defective here and abroad. That could have deeply serious consequences not only for our domestic economy but for the world economy as well. Enron's failure was a failure of particular people and institutions but it was above all, part of a general failure to maintain the ethical standards that are, in my view, fundamental to the American economic system. Without respect for those standards, popular capitalism cannot survive.

From tulips to dotcoms: What can we learn from financial disasters?

Howard Davies¹

These are very uncertain times in securities markets. In early 2003 we have seen some remarkable price movements, with the FTSE index frequently moving up or down by as much as 5% in a day: the swings have been even wider on some continental European exchanges.

It is hard now to interpret these movements, and perhaps it is better not to try: at a time of war most traditional explanations of price changes are likely to be dominated by shifts in sentiment about the course of the campaign, and changing assessments of the likely duration and consequences.

So to make any meaningful observations about market behaviour we need to look at a rather longer period, and set these highly unusual circumstances aside.

In fact, forgetting the last few weeks for a moment, the evidence does not yet strongly suggest that there has been a secular uptrend in volatility. Volatility is, in itself, volatile, but until '97 was less in the 1990s than in the '70s or '80s. Since 1997 volatility has been historically high in telecoms and technology stocks. And across all sectors it has been very high since the summer of 2002. But it is too soon to say that a new long-term trend has been set. What has been remarkable about the last three years has been the steady fall in prices. Indeed in percentage terms the pace of the fall accelerated in 2002, the third year of the bear market.

We have not seen three continuous year of falling price since the 1930s – an unhappy fact which is well known to private shareholders, and any holders of unit trusts or investments trusts. And the sheer scale of the drop is now quite remarkable. The FTSE 100 peaked at 6950 on 30 December 1999. The index has recently been oscillating around 3500, a fall of about 45 per cent. This puts the early 21st Century bear market – together with its reciprocal the late 20th Century bull market – squarely in the ranks of the great market bubbles of all time, along with Dutch tulips, the South Sea Company and the Wall Street Crash. Over £700bn billion has been wiped off share values in the UK during the period, a sum amounting to 73% of GDP. It is true that in the great crash of 1929-32 the Dow Jones index fell by 85%, almost twice as much as in the last three years, but the comparison is not too far-fetched, particularly when one considers that the capitalisation of the equity market today represents a larger proportion of GDP than it did in the 1930s.

¹ Sir Howard Davies was Chairman of the Financial Services Authority until September 2003, leaving to become Director of the London School of Economics. He was previously Deputy Governor of the Bank of England, Director General of the Confederation of British Industry, and Controller of the Audit Commission.

The economic consequences of the market fall have, of course, been quite different this time. There has been no large jump in unemployment, and no collapse in consumer confidence – though some traders have had to put their Ferraris up for sale, reminiscent of the famous Wall Street photographs from the time of large black limos with \$100 stickers on the windscreen. The reasons for the different economic impact undoubtedly include the powerful offsetting impact on household wealth of the rise in house prices, a more benign global environment and more accommodating monetary policy, both here and especially in the US.

As a regulator my day to day concern is more with the financial sector impact of the fall. That impact has been particularly strongly felt by the life insurance industry, which was very heavily exposed to equities at the peak of the boom. On average, UK life companies held around 60 per cent of their assets in the stock market at the end of the last century. The focus of our effort has been on trying to mitigate the adverse consequences and to help life companies to stay afloat through very choppy waters.

Here, however I reflect on what recent experience and recent research tells us about the causes of speculative asset price bubbles. I will focus on equity market bubbles, though much of what I say could also be relevant to the housing market.

It would be heroic to think that we could develop our understanding to the point of being able to forecast the next outbreak of mad tulip disease, but we should nonetheless do what we can to help spot danger signs. That is particularly important now that the FSA has a statutory duty to promote public understanding of the financial system, linked to its parallel objective of maintaining confidence in the UK's markets. It is also important because market collapses usually bring in their train calls for more regulation – and this one is no exception. Those calls need to be sceptically assessed against the background of an analysis of what went wrong and why. We should not react in haste, or without forethought. There is no market situation so bad that it could not be made a bit worse by an ill-targeted regulatory intervention.

But before wallowing in our current difficulties, let me reflect a little on some past episodes, which have been more extensively researched – particularly in recent years when Bubble research has become understandably more popular. Indeed there is something of bull market in speculative research just now. What does this research tell us about the cause of bubbles, and how we should react to them?

The locus classicus of financial bubbles is the Dutch tulip mania of 1634-37. We all know the outline of the story. A single bulb of *Semper Augustus* traded at a few florins in 1634, rose to 2,000 in January 1637, to 6,390 in February 1637, before collapsing to 1/10 of a florin, at which price it traded for the next century or more.

We all know the outline of the story – even if not the exact prices – but is the conventional interpretation correct? In 'Famous First Bubbles', published a couple of years ago, Peter Garber argues that the tulip mania was not quite so manic as the traditional accounts would have us believe.² In the first place, there was some

² Garber, P M, *Famous First Bubbles: The Fundamentals of Early Manias*. MIT Press, 2000

economic rationality at work. There was a fashion among wealthy women in Paris for wearing tulips. Particularly high prices were paid for flowers with mosaic colour patterns which were grown from bulbs suffering from a rare virus. This may be irrationality, but not necessarily financial irrationality. Young women today wear ‘distressed’ (i.e. ripped) t-shirts retailing for upwards of £100. That is their choice.

Garber has also found that all the inferences about the Dutch tulip boom were drawn from a very small set of prices taken at random times, and were not representative of the movement of the market as a whole. Furthermore, the principal source for most accounts of the episode is a pamphlet published in 1841 by a man called Charles Mackay, who mounted a moralistic attack against excessive speculation and called for greater Government regulation of the financial markets of the time.³

So, Garber argues, that “the tulipmania episode... is simply a rhetorical device used to put forward an argument... the existence of tulipmania proves that markets are crazy. A curious disturbance in a particular modern market can then be attributed to crazy behaviour, so perhaps the market needs to be more severely regulated!”

For my part, I rather regret the debunking of tulipmania. It was rather appealing to think of stolid Dutch merchants losing their heads. Fortunately, for the romantics, even Garber accepts that there was some form of speculative bubble. But his work is an admirable corrective to other more hysterical accounts.

What of the South Sea Bubble? Is that a myth, too? Not quite, I think, though the story delivers a lesson which may not be quite the one we learnt at school.

Again, the facts are simple enough on the surface. The share price of the South Sea Company opened at around £120 per £100 par value in January 1720. It reached £950 in July before collapsing to £290 in October. Most of the ‘assets’ of the company were found to be loans and instalments due from subscribers to the stock. One of the big losers was Isaac Newton, who subsequently wrote, ‘I can calculate the motions of the heavenly bodies but not the madness of people’.

There was undoubtedly some sharp practice involved. And many unfortunates lost a lot of money at the hands of unscrupulous speculators. Some Government response was clearly justified, and indeed the South Sea Company itself was initially in favour of legislation, as it saw other companies climbing on the bandwagon. We often observe that phenomenon today.

Unfortunately, the regulatory response – the Bubble Act of 1727 – was in the sledgehammer category. Rather than focusing on the specific scam perpetrated by the South Sea Company it prohibited any chartered joint stock company from engaging in activities outside those authorised in its original charter. The combined effort of the bubble itself, and the resultant legislation, led to a reaction against joint stock companies that lasted for over 100 years, putting back the development of one of the most powerful motors of economic growth and wealth creation.

³ Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds*, 1841

Fast forward 200 years to New York in 1929. Here we find a more authentic crash. Though it is worth recalling that the so-called fundamentals did offer some support for the dramatic rise in stock prices though in the 1920s on the back of the post-war economic boom, and many economists at the time argued that the bull market was fully justified. New technologies – the wireless, the car – were expanding dramatically, promising an exponential rise in sales and corporate profits.

In retrospect, however, the 1929 rise was clearly hugely overdone, sustained in large part by trading on margin. The Fed tried to curb margin lending by raising interest rates and the crash, when it came, was dramatic: a 24% fall in two days, followed by a 12% rebound on the third day, but then on downhill until the low of June 1932. The index did not reach its pre-crash high again until November 1954, some 25 years later. A cautionary observation in today's market.

One sidelight on the Wall Street crash which has some relevance today is the story of the Shenandoah corporation launched by Goldman Sachs. It was what we today would call a leveraged investment trust. It crashed dramatically. One of the investors who lost his money in Shenandoah was Groucho Marx who observed 'I lost \$250,000. I would have lost more, but that was all I had'.

The experience led in due course to the regulation of closed-end funds, as investment trusts are called in the US, something which the Treasury Select Committee recommended here in January, following our own unhappy experience with split-capital trusts in this downturn.

The crash also led to the Securities Act 1934 and the creation of the Securities and Exchange Commission, the forerunner of stock market regulators everywhere. We did not have our own version of the SEC until 1988, with the birth of the SIB, and indeed self-regulation of the UK market did not finally expire until December 2001, when the FSA assumed its full responsibilities.

Was the creation of the SEC a mistake, along with the Bubble Act? Too early to say, might be the prudent answer. More seriously, I doubt that the US markets would have been able to rebuild confidence without it. And there are few these days who maintain that the markets would be better off without insider dealing legislation, or rules on price transparency – though just the other day the Wall Street Journal carried an article in praise of insider trading as an efficient price discovery mechanism.

This historical digression is not, I think, an academic indulgence. The parallels with today's experience are suggestive. The late 20th century bubble is similar to that of the 1920s in a number of ways. There was a significant technological shock from the Internet, for example, the wireless of the 90s one might say. New companies appeared quickly to prosper on the back of these new technologies. Both decades also showed a similar fascination with the cult of the equity, and in both cases margin trading grew dramatically as credit was available and cheap.

So should we have seen it coming? Perhaps so – and some did. I recall some powerful contemporary analysis of corporate profits which showed that stock prices at the late 90s level were unsustainable. Indeed I was something of a Cassandra myself in 1999 – but then I am paid to retail caution and prudence: it is our core business at

the FSA. No-one, or at least too few people, paid any attention to analysis of the fundamentals. Why not? What causes bubbles to continue to inflate, even when the prices seem to have become detached from rationality?

Alan Greenspan reflected on this question last year. ‘Bubbles’ he argued ‘are often precipitated by the perception of real improvements in the productivity and underlying profitability of the corporate economy. But, as history attests, investors then too often exaggerate the extent of the improvement in economic fundamentals. So he went on, ‘bubbles thus appear to primarily reflect exuberance on the part of investors in pricing financial assets’.⁴

Another commentator, De Bondt, in a very recent book entitled ‘Asset Price Bubbles’, puts the same point rather more bluntly. He claims that Enron, and related collapses, show that, in his words, ‘many investors are financially illiterate’.⁵

Robert Shiller, author of a book called ‘Irrational Exuberance’ – a reference to Alan Greenspan’s now famous comment, takes a different tack. He accepts that there has been a speculative bubble, based on ‘less-than-perfectly-rational behaviour’. But the judgement errors involved are not so much foolish, they are “more the kind of error in some of Shakespeare’s tragic figures”.

He argues that the essence of a speculative bubble is a sort of feedback, from price increases, to increased investor enthusiasm, to increased demand and hence further price increases. ‘The high demand for the asset is generated by the public memory of high past returns and the optimism those high returns generate for the future’. Oddly, perhaps, once an upward price spiral is established, it is reinforced by what is now referred to as conservatism bias. That is not, as you might think, an irrational impulse to vote Tory, rather an observed reluctance by investors to respond to new information, if it appears to contradict accepted wisdom.

Shiller brings these observations together into a single thought – that ‘investors have over-confidence in a complex culture of intuitive judgements about expected future price changes, and an excessive willingness to act on these judgements’. He also makes essentially the same point rather more simply by quoting Julius Caesar: “Men willingly believe what they wish”.

And he argues, perhaps more controversially, that the ‘prudent person’ rule which underlies much of our corpus of law and guidance underlying the responsibilities of investment managers, tends to tell fiduciaries to follow conventional wisdom. Furthermore, the news media play a prominent role in reinforcing that conventional wisdom. Certainly, it is easier to find articles puffing dotcom companies in the newspapers of the late 90s than it is to find coverage of the sceptics and nay-sayers.

⁴ Remarks by Chairman Alan Greenspan, *Economic volatility*, At a symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 30, 2002

⁵ William C. Hunter, George G. Kaufman, Michael Pomerleau, *Asset Price Bubbles: The Implications for Monetary Regulatory and International Policies*, 2003

These psychological explanations of asset price bubbles do not obviously point to any conventional regulatory response. So why is it that over the last three years there has been a flurry of regulatory initiatives, especially in the United States, which have undoubtedly been stimulated by the excesses of the dotcom boom? Are we, the authorities, barking up the wrong rulebook?

Not entirely, I think, though close observers have noticed that the FSA has barked less than some other regulators in the last year or two, and has eschewed dramatic changes. We have not banned short-selling, or outlawed hedge funds, or brought criminal prosecutions against auditors – all courses of actions commended to us at various times.

In the first place, it is crucial to analyse carefully what went wrong, and which elements of the failure might be susceptible to regulatory action.

My view is that to the extent that the bubble was a classic case of overshooting, driven largely by psychological factors, there is little we can do about it. Except, and this is a big except, we should redouble our efforts to ensure that small investors are aware of the risks they run with unhedged, and especially leveraged investments in equities. That was the main mischief in split capital investment trusts and in precipice bonds and the like.

Just as importantly, major firms and their intermediaries must learn not to push unsophisticated, modestly wealthy investors into those investments. Some will soon understand the adverse consequences for them of doing so.

There is also, clearly, a category of firms which played the game with a cavalier disregard for the rules, and where the appropriate response seems likely to involve tons of bricks, and a great height. Enron suggests itself as a candidate. But there are other horrible corporate collapses where the problems seem to lie with mistaken corporate strategies, rather than fraud or deception. I cannot see a regulatory solution to that. We cannot be the timekeepers of a race in which all must win prizes. As Gore Vidal remarked: 'it is not enough to succeed in life: others must fail'.

There is, however, another category of regulatory response which may be appropriate. We can see that a number of the checks and balances which are supposed to ensure that investors have access to good quality, unbiased information, were found wanting. We have seen cases of compliant auditors, too influenced by the economics of their client relationships and too little concerned with the public interest dimension of their role. It is clear, too, that investment bank analysts were evidently influenced by the relationships their broking or corporate finance colleagues had with the companies on whose prospects they were commenting, and were therefore insufficiently objective. Both these factors contributed to the bubble.

So firmer rules on audit independence, and on the management of conflicts of interest in investment banks, are certainly required. Here in the UK, they are in hand.

What else? Some argue for measures to control short-selling and dampen volatility. Yet markets with short-selling controls have fallen as far as those without. So while more transparency may be useful, direct controls are unlikely to be.

There are proposals, too, here and elsewhere, for corporate governance reform. Strengthening the role of audit committees looks important, to provide an effective client for an independent auditor. And boards need an adequate quota of independent directors. Other proposals seem only loosely related to the phenomenon of asset price bubbles, so must find their justification elsewhere. Indeed we should be cautious in this area. Enron had a Chairman and a CEO, and a powerful-looking audit committee. It is a cliché to say that behaviour is more important than structures or processes. But not all clichés are false.

This may seem a relatively thin regulatory agenda, in response to the destruction of wealth on the scale we have seen. A sum totalling almost 70% of GDP has 'disappeared', after all. Perhaps the answer lies in that calculation. For a good while, I believe, investors will be hard to enthuse about the prospects for equities. They are right to be cautious. But any attempt to institutionalise that caution, except for small investors who cannot afford the losses they have incurred, and who should have never been invited to the party in the way they were, could well be a cure worse than the disease.

Benjamin Graham, the Human Brain, and the Bubble

Jason Zweig¹
Money Magazine

At the peak of every boom and in the trough of every bust, Benjamin Graham's immortal warning is validated yet again: "The investor's chief problem -- and even his worst enemy -- is likely to be himself."² Indeed, the distinguishing characteristic of the growth-stock bubble of the late 1990s was that the Internet made it so easy for investors to pick their own pockets, instead of paying someone else to do it for them.

Disintermediation -- the bypassing of middlemen like bankers and "full-service" brokers -- had been underway for decades. But it reached near-perfection in the bubble years. Discount brokers like Charles Schwab arose in the 1970s, then mushroomed in the 1990s, enabling investors to cut out the traditional (and more costly) face-to-face relationship offered by firms like Merrill Lynch and Smith Barney. Index funds, run by faceless machines, dispensed with the notion of hiring a "superstar" to pick stocks. Mocking the very idea that professional portfolio management was worth having in the first place, popular websites like the Motley Fool incessantly pointed out that more than 90% of all U.S. stock funds had underperformed the Standard & Poor's 500 index in the late 1990s.

Online trading firms went further, blowing the traditional brokerage model to bits. With no physical branch offices, no in-house research, no investment banking, and no brokers, they had only one thing to offer their customers: the ability to trade at will, without the counterweight of any second opinion or expert advice. Once, that degree of freedom might have frightened investors. But the new Internet brokerages cleverly fostered what psychologists call "the illusion of control" -- the belief that you are at your safest in an automobile when *you* are the driver. Investors were encouraged to believe that the magnitude of their portfolio's return would be directly proportional to the amount of attention they paid to it -- and that professional advice would reduce their return. "If you're broker's so smart," heckled an advertisement from an online trading firm, "how come he's not rich?" Another brokerage advertisement featured a photo of a dazed-looking chimpanzee and the headline "Chimp beats Wall Street wizard for second straight year." The text of the advertisement continued: "And you're worried about investing on your own? You shouldn't be. Just click on e*Trade and see how easy investing online really is."³

¹ Jason Zweig, a columnist at *Money Magazine* in New York, is the editor of the revised edition of Benjamin Graham's *The Intelligent Investor* (HarperCollins, 2003)

² Benjamin Graham, *The Intelligent Investor*, updated edition revised by Jason Zweig (HarperCollins, 2003), p. 8

³ Advertisement for e*Trade, *SmartMoney* magazine, July 1998, p. 11

Easy, indeed: a televised advertisement for Ameritrade showed two suburban housewives coming into the house after jogging. One trotted over to her computer, clicked the mouse, and burred, "I think I just made \$1,700!"

For years, Peter Lynch, the renowned manager of the Fidelity Magellan fund, had been urging investors to "buy what you know." His notion was that amateur investors, merely through their normal consumption of products and services, could get a special insight into which companies would grow fastest in future. Lynch claimed, for instance, that he bought Taco Bell partly because he liked the food and Consolidated Foods (now Sara Lee Corp.) because his wife liked L'eggs pantyhose.

The internet took this principle, which was already intuitively appealing to individual investors, and made it seem irresistible. A small investor back in 1999 who was interested in reading a book about day trading would naturally go online to search for, and buy, the book at www.amazon.com. Then, after reading it, he might log back on and begin trading on www.schwab.com. Among the stocks he most likely would have bought first were Amazon.com and Charles Schwab Corp. So there he was: using the Internet to learn about buying Internet stocks over the Internet. Better yet, it worked - - and "I did it all myself!" Never before had the Peter Lynch Principle seemed so seductive -- and successful.

Next, our online trader found that he was not alone. Psychologist Marvin Zuckerman at the University of Delaware has written about a form of risk called "sensation-seeking" behavior. This kind of risk -- people daring each other to push past the boundaries of normally acceptable behavior -- is largely a group phenomenon (as anyone who has ever been a teenager knows perfectly well). People will do things in a social group that they would never dream of doing in isolation. And the new online traders who posted their ideas in online bulletin boards like RagingBull.com egged each other on as individual investors had never before been able to do. Until the advent of the Internet, there was simply no such thing as a network or support group for risk-crazed retail traders. Now, quite suddenly, there was -- and with every gain each of them scored, they goaded the other members of the group on to take even more risk. Comments like "PRICE IS NO OBJECT" and "BUY THE NEXT MICROSOFT BEFORE IT'S TOO LATE" and "I'LL BE ABLE TO RETIRE NEXT WEEK" became commonplace.

What's more, this kind of network was inherently self-selecting: the most aggressive bulls tended to post the loudest and the most often, making their success seem characteristic of the group as a whole. Base rates alone -- in a rising market, winning stock trades are everywhere -- made these people seem "right." Even though they rarely offered any logical analysis to justify their stock picks, performance claims like "UP 579% IN FOUR MONTHS" gave these online stock touts an almost hypnotic power.

And the public was urged to hurry. "EVERY SECOND COUNTS," went the slogan of Fidelity's discount brokerage -- implying that investors could somehow achieve their long-term goals by engaging in short-term behavior.

Thanks to the wonders of electronic technology, stocks became visual objects, almost living organisms: for the first time in financial history, you could buy a stock and track

its price movements in real time, following along on your computer monitor as it twitched and ticked its way up. You could watch your wealth grow before your very eyes -- another manifestation of the illusion of control. As Kathy Levinson, the president of e*Trade, told *The New York Times* in late 1998: "There's more confidence and comfort when you can see your stock and watch it move."

But something else was going on here. Not long ago, an individual investor could track stock prices only by telephoning her broker, visiting a brokerage office that had a stock ticker, or waiting to read the stock-market listings in the next morning's newspaper. No longer was an entire day's activity summed up in a stupefyingly dull single line of numbers in a newspaper like "40.43 +.15 47.63 30.00 0.6 23.5 1959." Instead, in the 1990s, stock pricing went real-time: animated, visual, and ever-changing. A rising stock generated a warm green arrow; a falling stock flared onto the screen as a scalding red arrow. Every trade showed up as another tick on the day's rising or falling line of prices; every few ticks appeared to generate a "trend."

By using technology to turn investing into a video game -- lines snaking up and down a glowing screen, arrows pulsating in garish hues of red and green -- the online brokerages were tapping into fundamental forces at work in the human brain.

In 1972, Benjamin Graham wrote: "The speculative public is incorrigible. In financial terms it cannot count beyond 3. It will buy anything, at any price, if there seems to be some 'action' in progress."⁴

In a stunning confirmation of his argument, the latest neuroscientific research has shown that Graham was not just metaphorically but literally correct that speculators "cannot count beyond 3." The human brain is, in fact, hard-wired to work in just this way: pattern recognition and prediction are a biological imperative.

Scott Huettel, a neuropsychologist at Duke University, recently demonstrated that the anterior cingulate, a region in the central frontal area of the brain, automatically anticipates another repetition after a stimulus occurs only twice in a row. In other words, when a stock price rises on two consecutive ticks, an investor's brain will intuitively expect the next trade to be an uptick as well.

This process -- which I have christened "the prediction addiction" -- is one of the most basic characteristics of the human condition.⁵ Automatic, involuntary, and virtually uncontrollable, it is the underlying neural basis of the old expression, "Three's a trend." Years ago, when most individual investors could obtain stock prices only once daily, it took a minimum of three days for the "I get it" effect to kick in. But now, with most websites updating stock prices every 20 seconds, investors readily believed

⁴ Graham, *op. cit.*, pp. 436-437

⁵ The emerging field of financial neuroscience (or „neuroeconomics“) is surveyed in Jason Zweig, „Are You Wired for Wealth?“ *Money Magazine*, October, 2002, pp. 74-83, also available online at:

http://money.cnn.com/2002/09/25/pf/investing/agenda_brain_short/index.htm

that they had spotted sustainable trends as often as once a minute. No wonder stocks like Puma Technology saw their entire share base turn over every six days.⁶

Another neuroscientific finding bolsters Graham's case. Teams of brain researchers around the world, led by Wolfram Schultz at Cambridge and Read Montague at Baylor in Houston, Texas, have shown that the release of dopamine, the brain chemical that gives you a "natural high," is triggered by financial gains. The less likely or predictable the gain is, the more dopamine is released and the longer it lasts within the brain. Why do investors and gamblers love taking low-probability bets with high potential payoffs? Because, if those bets do pay off, they produce an actual physiological change -- a massive release of dopamine that floods the brain with a soft euphoria. Experiments using magnetic resonance imaging [MRI] technology have found an uncanny similarity between the brains of people who have successfully predicted financial gains and the brains of people who are addicted to morphine or cocaine. After a few successful predictions of financial gain, speculators literally become addicted to the release of dopamine within their own brains. Once a few trades pay off, they cannot stop the craving for another "fix" of profits -- any more than an alcoholic or a drug abuser can stop craving the bottle or the needle.

A losing stock trade, however, sets off an entirely different response in the human brain. No one put it better than Barbra Streisand, the Hollywood-diva-turned-day-trader, who told FORTUNE Magazine in 1999: "I'm Taurus the bull, so I react to red. If I see red [on a market display screen], I sell my stocks quickly."⁷

Neuroscientists have shown that the amygdala, a structure deep in the forward lower area of the brain, reacts almost instantaneously to stimuli that can signal danger. The amygdala is the kernel of hot, fast emotions like fear and anger -- the seat of the "fight or flight" response. Evolution developed the amygdala to be the early warning system of the human brain, the elemental circuitry that first alerts us to the presence of physical risk. Vivid sights and sounds -- clanging bells, hollering voices, waving arms, or menacing colors -- set off the amygdala. If a fire alarm goes off in your office building, you will break out in a sweat and your heart will begin racing -- even as your "conscious mind" tells you it is probably a false alarm. Using MRI scans, leading brain researchers including Jordan Grafman at the National Institutes of Health and Hans Breiter of Harvard Medical School have shown that the more frequently people are told they are losing money, the more active their amygdala becomes. There can be no doubt that online trading, by displaying stock prices in a dynamic visual format that can directly activate the fear center of the brain, made losing money more viscerally painful than it had ever been before. Once the arrows turned red, investors could not help but panic. And the red arrows were everywhere: on their computer screens and financial television programmes in pubs and restaurants, bars and barbershops, brokerage offices and taxicabs. Investors no longer had the option of simply not opening the newspaper. Technology had turned financial losses into an inescapable, ambient presence.

⁶ Graham, *op. cit.*, p. 38

⁷ *Ibid.*, p. 39

What would Graham advise us in the aftermath of the bubble? I think he would warn us that harsh regulation creates a dangerous illusion that the markets have now been made safe for investors. No reform can ever eradicate the certainty that investors will, sooner or later, get carried away first with their own greed and then with their own fear. Human nature is immutable. Whether we like it or not, the financial future will suffer regular outbreaks of booms and busts. Like the bubonic plague, SARS, or swine flu, we shall never be able to predict exactly when they will arrive or just when they will end. All we can know is that they will remain inevitable as long as markets themselves exist.

The only legitimate response of the investment advisory firm, in the face of these facts, is to ensure that it gets no blood on its hands. Asset managers must take a public stand when market valuations go to extremes -- warning their clients against excessive enthusiasm at the top and patiently encouraging clients at the bottom. They should ensure that none of their portfolios are ever marketed on the basis of short-term performance. They should close their "hottest" portfolios precisely when they are hottest, lest a flood of new cash swamp their performance. They should communicate continuously, forthrightly, and as personally as possible with all of their clients in order to build an enduring emotional bond that can survive the next boom and the ensuing bust.

Long-term survival is most certain for the asset-management firms that can look back, with 20/20 hindsight, and establish with a clear conscience that they conducted themselves with perfect honor -- no matter how extreme the market's mood swings may have become.

The role of the unconscious in the dot.com bubble: a psychoanalytic perspective¹

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Abstract

Existing models of investor and market behaviour provide very partial explanations for dot.com mania. This paper argues a fuller explanation may be possible through an understanding of unconscious psychic reality. Psychoanalytic theory stresses the primary role of affect and emotion. Drawing on it we propose a theory of dot.com stock valuation based on the idea these stocks were so desired because they were perceived as very specially endowed and so able to trigger powerful unconscious infantile phantasies. We support this thesis with data taken from accounts of events at the time. Our analysis suggests psychoanalytic theory has the potential to help us understand stock valuations and investor behaviour more generally.

Figure 1: The Dow Jones Internet Index



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1. Introduction

The meteoric rise in the prices of Internet stocks followed by their equally spectacular fall is a dramatic example of a stockmarket bubble. Figure 1 shows how the Dow Jones Internet Index rose by no less than 600% in the eighteen months from October 1st 1998, when it was launched, to March 9th 2000, when it peaked which compares with only a 20% increase in the Dow Jones Composite. The index then halved by mid-April and by the first anniversary of its peak was down by 85%.⁴

No complex theory is required to understand why anyone wishes to possess what he or she thinks is a very valued object at a bargain price nor is one required to understand the motivation to dispose of an object that is felt likely to fall in value. But how can stock prices vary to the extent that what is so highly valued at one moment is so unwanted at another?

Existing theories in economics and finance based on “rational” models of investor and market behaviour are insufficient to explain such dramatic asset pricing volatility. Our purpose in this paper is to argue that, to reach a fuller explanation, we need to draw on additional tools that can be garnered from the psychoanalytic theory of *unconscious psychic reality*.⁵

Over many months during dot.com mania Internet sector stocks became so desirable to possess that investor valuations of them were sustained despite their values being extraordinarily out of line with any underlying reality which was well known at the time. Any adequate theory must account for how prices could remain so high so tenaciously - particularly given the lack of any prospects of earning profits for the foreseeable future in most cases, and, more generally, the extent of readily available sceptical analysis and comment.

We hypothesise that the main explanation for what happened to investors during the dot.com bubble is that as a group they became caught up *emotionally* in their buying and selling activity in a complex and layered way. In fact Internet stocks became subjectively mentally represented in a widespread way as what we will describe as

⁴ A typical example of dot.com stock is Priceline.com, an Internet company where people can name their price for airline tickets. This had been in business for less than a year losing three times its \$35m revenues and was employing fewer than 200 people at the time of its IPO, March 30th 1999. Its stock rose by 330% on its first day of trading, closing at \$69 and valuing the company at almost \$10bn, more than the market capitalisation of United Airlines, Continental Airlines and Northwest Airlines combined. A few weeks later its stock reached \$150, at which point this tiny company was worth more than the entire US airline industry. Two years later its stock was trading at less than \$2 and its entire market capitalisation would not have covered the cost of the Boeing 747s (Cassidy, 2002, prologue). The price trajectories of most other Internet stocks were very similar.

⁵ Psychic (or psychical) reality is “a term often used by Freud to designate whatever in the subject’s psyche presents a consistency and resistance comparable to those displayed by material reality; fundamentally, what is involved here is unconscious desire and its associated phantasies” (Laplanche and Pontalis, 1973: 363).

infantile “phantastic” objects and this had very considerable consequences for the pricing of dot.com stocks.⁶

In the next section we provide an overview of our theory of unconscious mental representations. We then test this against what actually happened to dot.com valuations during this period in terms of five phases of market pricing. The paper concludes with a brief overview of the potential for a psychoanalytic understanding of the role of the unconscious in investor behaviour to assist us more generally in explaining market pricing and associated issues in investment.

2. A Psychoanalytic Theory of Mental Objects

The starting point for our thesis is that in psychic reality Internet stock certificates became more than unusually highly desirable. In conveying ownership of a dot.com company they became, in a compelling and hard to resist way, a particular type of “phantastic object” for investors; one felt able, magically, to be capable of transforming an individual from a normal kind of existence into a superman or superwoman. This transformation corresponds to one psychoanalysts suggest is wished for in early human mental development, and by being retained unconsciously is never entirely given up.⁷

Our reasons for thinking it useful to understand the valuation process in the case of Internet stocks in terms of a theory of unconscious mental representation rest on examining what might have been happening in psychic reality in five different phases of the dot.com affair.

⁶ What exactly we mean by a “phantastic” object is subtle and will be developed later, but we have in mind an object of perception whose qualities are primarily determined by an individual’s unconscious beliefs or phantasies. The term “*phantasy*” is a technical one implying the existence of organised unconscious ideation – “an imaginary scene in which the subject is a protagonist, representing the fulfilment of a wish (in the last analysis, an unconscious wish) in a manner that is distorted to a greater or lesser extent by defensive processes” (Laplanche and Pontalis, 1973: 314). It is, therefore, a technical term more specific than the commonly used word “fantasy” which tends to denote notions of whimsy or eccentricity. In psychoanalytic thinking unconscious phantasies are the driving force of all significant human subjective experience.

⁷ The reader who has observed small children will probably concur that most of them want to change from feeling small, powerless and frequently frustrated by those on whom they depend into feeling magically and all-powerfully big and strong and possessed of endless supplies of satisfaction. Still more strongly, infants (who cannot yet speak) appear to wish to be transformed from being greedy, needy and dependent into the object of their greed, their mother or parts of her body that they desire. In coming to terms with reality during development such wishes create guilt and anxiety or become felt as childish and shameful. They are gradually and painfully more or less given up, or at least their unrealistic aspects are made unconscious, a process aided by actual mental and physical maturation, learning, social rules, and real achievement of greater capacity. From this point of view we are suggesting that owning Internet stocks can be considered to represent, in the unconscious mind of investors, achieving the desired and never given up possession of the most long desired and imagined infantile objects, the highly charged and totally satisfying objects of the infant’s early stages of psychic emotional development, ownership of which in unconscious phantasy convey a blissful state of omnipotence and omniscience.

First, we propose that Internet stocks were quite easily represented in the minds of investors as alluring phantastic objects because this is how they seem to have struck those who publicised their existence, as they emerged into public view in the first “boom” phase of the bubble.

Second, we think that as “phantastic objects” they stimulated a headlong euphoric craze in the second phase of the bubble because they had a particular power to stimulate further compulsive behaviour driven by unconscious intergenerational as well as intragenerational rivalry.

Third, and crucially, we consider they could remain for many months tenaciously valued in a contrarian way (i.e the more the company was losing the higher its share price), despite growing evidence that this might be foolish, because when the normal valuation criteria of material reality are applied to phantastic objects they are not necessarily salient, due to the specific ways phantasy representations are maintained in psychic reality.

Fourth, we think the value of Internet stock values crashed overnight, not just because everyone was selling them, but because they had gone so absurdly high that once the contrarian logic holding the price up was no longer underpinned by their unconscious status as revered phantastic objects, Internet stocks became hated and despised objects, actually being experienced as having let down their owners and potentially stigmatising them.

Fifth and finally, once widely disposed of in the terminal phase, Internet stock can be seen as lost phantastic objects, which create psychic pain, which is hard to bear. A consequence is that investors may have wished to forget all about their previous “phantasies” and not wish to be reminded of them. This may create prejudice against valuing the sector rationally subsequently with implications for companies remaining in this sector and for learning from the experience. It is in fact our personal beliefs that the current lack of confidence in world stock markets may be causally linked to the outcome of dot.com mania.

3. Phase 1: Emerging to be viewed

Prior to the Netscape launch in August 1995, which began the dot.com boom, very few people had previously invested in Internet stocks or even known about them. However, Netscape’s share price rose over 100% on its offer price by the close of the first day’s trading valuing it at \$2.2bn, or about as much as General Dynamics, the giant defence contractor. Its shares changed hands almost three times on average during the day; the launch and the news of the success of the launch somehow captured the public imagination and in consequence everyone involved with the IPO had immediately become enormously rich.

The Netscape IPO and its huge success propelled the owners of Internet stock into the public gaze and seems to have created an exciting spectacle containing a particularly alluring new object. Certainly what happened created great media interest and a heady emotional climate.

The new powers associated with Internet companies were certainly the subject of further public claims of a particular significant type: they seemed to transform ordinary and more limited reality. For example, two weeks after the Netscape IPO *Forbes* (August 28, 1995) anointed Marc Andreessen, Netscape's founder, as the new Bill Gates and claimed that the Internet would "displace both the telephone and the telephone over the next five years or so." These comments supported and were supported by what was happening to stock prices. Four months after Netscape's launch its stock price was six times its offer price, valuing the company at \$6.5bn.

Internet companies were new and appeared to offer superior ways of doing business. With their prices rising spectacularly they were hailed as part of a new economy whereas non-internet businesses were on the way out. "Old" ways of doing business then tended to be dismissed in an excited and contemptuous manner.

For instance, *Time* (July 20, 1998) offered a headline above a cover picture of Jerry Yang, the founder of Yahoo!: "Kiss Your Mall Goodbye: Online Shopping Is Faster, Cheaper and Better." (Cassidy, 2002, p. 172) Similarly, an article in *Business Week* commenting on Amazon.com's 1998 results pointed out: "Amazon's fourth-quarter sales nearly quadrupled over 1997, and compared to that, *Sears is dead*" (italics added).

Still more astonishingly Rufus Griscom, the cofounder of Nerve.com in a *New York* cover story on Silicon Valley's "Early True Believers" was quoted as saying: It's incredibly powerful to feel you are one of seventeen people who really understand the world." (Quoted in *New York* magazine, March 6, 2000; Cassidy, 2002, p. 276) Such a comment illustrates the world of power and plenty dot.com entrepreneurs were depicted to inhabit. Being left out, not knowing, having to wait, develop, or learn, normal reality was not for them!

As it was reported and played out in the financial press, television and general media, the progress of dot.com businesses became an exciting spectacle, with the companies' executives presented as supernatural stars.⁸ This attention seems likely to have amplified exponentially the psychological desirability of Internet stock by exhibiting them so tantalisingly and so openly: they became phantastic objects – super, new, exhibitable, not to mention enriching.

Our argument is that in phantasy the Internet stock boom meant to many that anyone could now be publicly possessed of what could be imagined as the "Real Thing". In psychoanalytic terms this means much more than just becoming potentially wealthy. By holding stock in these companies investors perhaps felt themselves actually endowed with the qualities of their inventors, part of a magic circle of people who were "in" on the new. In this and other ways possessing stock was like possessing the

⁸ Such as Marc Andreessen of Netscape appearing barefoot on the cover of *Time* (February 19, 1996) with the associated article portraying him as a modest tycoon-cum-superman with whom ordinary investors could identify.

primary phantastic objects of childhood.⁹ The sense one possesses a “phantastic object” would make an investor (in phantasy) into the sort of person all desired to be. In this way such possession would be felt, actually, to reverse the many slights of childhood and turn the unconsciously never-forgotten experience of being a powerless and dependent infant into the mental phantasy of the all-powerful big man (or woman) who can do anything¹⁰

4. Phase 2: The rush to possess: introducing intergenerational and intragenerational rivalry

Altogether between August 1995 and October 1998 there were another 69 dot.com IPOs with the Nasdaq increasing in line with the Dow Jones, both up by around 75% over this period. This “boom” stage of the bubble was characterised by the entrenchment of the idea that the US economy was being transformed by information technology and, in particular, the Internet. The old rules of economics no longer applied and that in these new types of investment traditional earnings-driven valuation methods could not be used.¹¹

As ownership of Internet stocks multiplied and the sector became more prominent the belief that such companies not only used a new technology but also were part of something “phantastic” called the “new economy” which was organised along different rules and principles than the old took stronger hold. From a psychoanalytic point of view might these claims and the associated level of emotional excitement signal a state of Oedipal triumph and a perverse reversal of generational difference?¹²

Of course, as in the emotional state described as mania the process fed on its own momentum. While it was in full swing, optimism about further dot.com stock price rises stimulated demand so raising prices and increasing the level of excitement. Normal checks on investor excesses were somehow overcome during the dot.com

⁹ Psychoanalytic theory proposes that a baby fed by mother actually feels it is mother or even her breast. The realisation things are otherwise is painful and a long process not necessarily completed into adulthood. See for example Klein (1940).

¹⁰ The psychoanalytic approach to subjective experience concentrates on feelings as operating mentally separately from cognition. One may “feel” one has “it” while retaining perfectly clear cognitive capacities, which if salient would allow one to see this is a gross exaggeration.

¹¹ For example, see the series of articles, by Michael Mandel, *Business Week* economics editor, arguing that the new ways in which computers could be used could lead to good times “for the foreseeable future.” (Cassidy, 2002, pp. 155-156)

¹² The Oedipus Complex, so named after the ancient Greek play Oedipus Rex, refers to an “organized body of loving and hostile wishes the child experiences towards its parents.” (Laplanche and Pontalis, 1973: 282) It plays a fundamental part in the structuring of the personality, and in the orientation of desire as well as in the conscious and unconscious ambivalent relationships between the generations.

euphoria. The usual stigma or doubt associated with very excited or particularly risky investor behaviour seemed not only to be ignored but actually to be ridiculed.¹³

From a psychoanalytic perspective this emphasis on the “new” would surely have intensified the allure of Internet stock as “phantastic objects” and encouraged what would normally be considered perverse or dangerous practices. The new entrepreneurs were manifestly young and apparently also subject to different rules – unveiling a kind of adolescent paradise and stimulating the unconscious processes surrounding the rivalry that exists between generations: the desire of the young to rival their parents and the fear of the parents at being left behind. Whereas children tend to feel left out of what the parents are doing (the primal scene)¹⁴ it now seemed the parents might envy and feel left out by their children, a powerful dynamic normally restricted to the phantasies of children. This impression of a reversal of generations seems to have been accentuated by the reaction of various authorities. At this time if the object of speculation had anything to do with the Internet the underlying situation was apparently so exciting it could not be defined as speculation at all. Moreover, one of the most influential public proponents of the Internet New Economy doctrine was Alan Greenspan, chairman of the Federal Reserve Bank, which seems likely to have lent authoritative and perhaps moral legitimation to these new ways of thinking.¹⁵ There was no super-ego to check this headlong rush to possess Internet stock which turned into a stampede.¹⁶ Everyone had to become associated with the Internet in almost any way: the euphoric stage of the boom in which it seems nobody could afford to be left out. Those who did not join in lost out on the gains that others were making and in the case of fund managers and analysts under-performed and so were at risk of losing their jobs.

Between October 1998, when Dow Jones launched the Dow Jones Internet Index, and the end of March 2000 no fewer than 325 Internet IPOs took place, or an average of 18 a month compared with under 2 a month over the previous three years. We have already noted in figure 1 the dramatic increase in dot.com valuations over this period which was exactly twice as great as the broader based Nasdaq technology index.

Companies were now coming to the market with business models that by normal rules might have seemed completely implausible. Significantly, although this was being

¹³ See below.

¹⁴ The imagined highly charged scene of sexual intercourse between the parents from which the child is usually excluded (Laplanche and Pontalis, 1973: 335). This scene is also the unconscious mental template for all experience of “spectacles”, whether as participant or spectator.

¹⁵ “Alan Greenspan will go down in the history books as the Fed chairman who oversaw the greatest speculative boom and bust that the US has ever seenHe wasn’t the only person responsible for the Internet bubble but his actions encouraged and prolonged the speculative mania.” (“A saint or a sucker”, *The Financial Times*, March 2/3, 2002, p. 10)

¹⁶ The psychoanalytic concept of the Super-Ego as an internal source of control over untrammelled and dangerous desire and based on the capacity to internalise parental figures is implicit here (Laplanche and Pontalis, 1973: 435).

made explicit in offer documents, it did not dampen enthusiasm. A particularly striking example is given by Cassidy (2002 pp. 204-5), who discusses Healtheon, which planned to outdo what had defeated many before: “fix the US health care system.” Despite meeting scepticism and considerable adverse publicity when trading started on February 10th 1999, the stock closed at four times its offer price, valuing Healtheon at more than \$2bn.

In fact, looked at with the benefit of hindsight many, if not most, of the companies formed and brought to the market at this time were ideas or concepts which amounted to little more than clever names. At the time, however, under the influence, we suggest, of an experience of encountering “phantastic objects” and faced with offer documents which did not anticipate profits for a considerable length of time, analysts were faced with a problem. They had the unexciting or even depressing option to regard them as worthless or had to find some way to value them that would, as the boom and then euphoria progressed, justify the market’s valuations and show the prices paid by investors were reasonable. As a result analysts concentrated not on such concrete “old economy” measures as earnings and revenues but on new concepts such as “mind share” and “market share” which were to be quantified in terms of “website traffic”.¹⁷

In this way, valuation in the dot.com bubble was based on unconscious identification and possession of a phantastic object: it was, therefore, at bottom, based on an emotional sense of Internet stock value and its capacity to transform the investor not on a cognitive calculation of likely return. In this heady atmosphere justifications of valuation procedures turn into rationalisations of idealised wishes.

5. Phase 3: Keeping stock values high: the stage of defence

“Phantastic objects” are too fantastic to be so in material reality. We know that in psychic reality, however, there is no particular difficulty about being able to carry on life dominated by imaginary or “phantastic” beliefs for quite extended periods of time.

There were many occasions during the dot.com bubble when commentators did in fact question the assumptions and expectations implicit in the pricing of Internet stocks and, especially when these were associated with negative gyrations in prices, such articles provided opportunities for those involved to reflect. But they did not. When doubt was expressed there is clear evidence it was ignored or even denigrated. For instance, On April 15, 1996 *Fortune* published a cover story “How Crazy is this Market?” arguing a “confidence-shattering crash” was inevitable at some point and, 15 months later, in 1997, with the Dow 2,000 points higher, it ran another sceptical cover story. *The Economist* (April 18, 1998) and the *Financial Times* (April 22, 1998) questioned what was happening and describing the US as experiencing a serious asset price bubble called on Alan Greenspan to take action. But in response to the *Financial*

¹⁷ “...we believe that we have entered a new valuation zone. ... (the Internet) has all introduced a brave new world for valuation methodologies”. (Mary Meeker, *US and the Americas Investment Research*, Morgan Stanley Dean Witter, September 16 1997, p. 1, quoted in Cassidy, 2002, p. 164)

Times the *New York Times* published an editorial defending the nation's *amour propre* and dot.com valuations (April 29, 1998) and *Newsweek* dismissively poked fun at *The Economist* article (May 11, 1998).

A year later, *The Economist* (January 30 1999, "Why Internet shares will fall") was again quite explicit about Internet companies: "...however exciting the Internet may be, retail and content companies will never make enough money to justify today's share prices*Once normal valuations fly out of the window, there are no reference points.*" (italics added)

In fact analysts and other commentators dismissed sceptical claims with contempt and kept advising investors to keep buying. Comparing the dot.com market with tulip mania, Mary Meeker wrote: "The difference is that real values are being created. Tulip bulbs would not fundamentally change the way the companies do business." (Cassidy, 2002, p. 217) Henry Blodget was still more effusive: "The overall Internet stock phenomenon may well be a 'bubble' but in at least one respect it is very different from other bubbles: there are great fundamental reasons to own these stocks....The companies underneath are (1) growing amazingly quickly, and (2) threatening the status quo in multiple sectors of the economyWith these types of investments, we would also argue that the 'real' risk is not losing some money – it is missing a much bigger upside." (Henry Blodget, *Internet/Electronic Commerce Report*, Merrill Lynch, March 9, 1999)

Of course, the emotional cost of realising one may have made a mistake becomes greater as realisation promises more of a fall. Realisation threatens to release many feelings. At first these may only be noticeable in the form of increasing anxiety but also perhaps signified by particularly spectacular spurts of optimistic assessments or an increasingly strident tone of dismissal such as those just mentioned.

In summary, while the market was in the grip of the pursuit of the phantastic object twin factors seemed to have operated to continue to propel it up. On the one hand it was driven by infectious excitement. On the other, specific defences against perception in the form of denial (pretending what we don't want to acknowledge is not happening) or splitting (the disassociation of mutually inconsistent and potentially undesirable ideas) were operating to attack and prevent awareness of more material reality.¹⁸ It is a clinical maxim in the psychoanalytic consulting room that awareness of being just ordinary in an excited manic state is unwelcome to the point of being terrifying. It is felt to threaten a complete depressive collapse and panic. Such knowledge threatens the loss of the phantastic object as well as anxiety about what has been done in the frantic effort to possess it. If the bubble bursts there will be pain in the form of loss, humiliation and shame.

In the euphoric stage of the bubble these potentially painful feelings and anything or anyone stirring them up were quite literally to be hated. It is this hatred that lead to the manic contempt and dismissal of sceptical analysts or commentators who were felt to

¹⁸ For a discussion of the psychoanalytic ideas of denial and splitting see e.g. Rycroft (1968).

be seeking to deny the value of the phantastic object structure and trying to spoil the party in the process. Such a process is clearly inimical to thought.

6. Phase 4: The collapse: panic and loss

The actual event that appeared finally to prick the bubble was a long article in *Barrons* on March 18 2000, 9 days after the Dow Jones Internet Index all-time high, entitled “Burning up”. The conclusion was that at least a quarter of dot.com companies would run out of cash within a year.¹⁹

The realisation, when it finally occurs, that a phantastic object is not what it was felt to be creates panic and other undesirable feelings that all of us have experienced much earlier in life and have had to work hard psychically to overcome. Such sensations may include a shameful feeling one has been metaphorically soiling one’s hands. The immediate emotional consequence for many investors would be that they will feel compelled to wash their hands of their situation and to try to get rid of the now defiled objects (dot.com stocks) as quickly as possible.

The rapidity of the collapse in the Internet index after the bursting of the bubble is exactly consistent with these expectations – the phantastic object no longer has its previous meaning and there is no other logic to hold the market up. Continuing to own dot.com stocks becomes a source of embarrassment and those publicly involved with the sector seem to become sullied by the association.

Insofar as repressing any memory of one’s excited possession is impossible in the face of stark material reality, there is likely to be shame and guilt, with the desire to find someone else to blame for the losses and the associated painful bad feelings engendered. The combination of the desire to dump and the anger about feeling let down generates helplessness, shame and guilt and particularly hatred of the object that let one down. We believe this kind of scenario explains the emotional tone of the very negative and dismissive “wise after the event” comments occurring after the collapse of the dot.com bubble.

Whereas at the height of the bubble no one seemed to take much notice of adverse comment, once the bubble was burst no one seemed to take much notice of good news either. Thus, after the crash Internet companies found it hard to raise money and the fantasy that it was possible to make easy money by buying and selling pieces of paper was seen as just that. Activity turned to blame.²⁰ Spotting the next dot.com to go bankrupt became a popular spectator sport with websites encouraging users to submit predictions for the next dot.com failure.

¹⁹ It does not seem to us possible to predict the moment when such triggers happen but such mental states do have something of the quality of the dizziness we all experience as we feel exposed to being too far above the ground.

²⁰ The \$1.4bn global settlement extracted by US regulators from 10 leading Wall Street investment banks in April 2003 for their excesses in the technology boom and continuing associated blame for heavy investor losses, can be viewed in this light.

7. Phase 5: Learning from experience

Freud and later psychoanalysts have argued that unconscious impulses, taking the form of attempts to enact phantasy, are part of everyone's reality. If we do not defensively evade the reality of these impulses, we will eventually confront their consequences, and experience the fear and the guilt, which necessarily follow from them. It seems likely that the dot.com investor holding shares at the time of the fall, inevitably, through the unconscious greedy pursuit of the phantastic object and the surrounding beliefs of becoming and overthrowing the established order of reality, would, when the bubble burst, face unconscious shame and guilt, revealed when the consequences of his or her actions become losses.

One reaction to such a situation is to feel persecuted. If such anxieties predominate, it will be difficult to face reality except by seeking to project the blame and to persecute and take revenge on someone else. A second reaction is "depressive": to accept the experience of loss and to give up the "phantastic" dream.²¹ If feelings of loss can be tolerated and understood then mourning can take place which although ushering in very painful experiences, allows the development of new capacities. Overvalued "phantastic" beliefs can be relinquished by being mourned as lost objects, which involves a drive to make reparation. In this way, if the experience is not eviscerated, growth and learning is made possible.

Psychoanalytical theory, therefore, suggests that it is important when the consequences of the kind of overvaluation process that took place in the dot.com affair are revealed, that they should be "worked through" so that they can be learned from, leading to modification of subsequent investor behaviour.²² It is in fact an important guiding principle of the proper functioning of capital markets that investors should learn from experience – in finance theory it is through learning that the market remains efficient. Thus any barriers to doing so really matter.

If a lesson is not learned there is the danger of both repetition and ongoing effects. In this context, we believe viewing Internet stocks as "phantastic objects" and all this connotes, can help us focus on some of the compulsive difficulties that result so we can deal with them appropriately in the future. Unless this is done the feeling of being cheated by reality may fester and so create the conditions for a new search driven unconsciously by the desire to undo the humiliation, guilt, shame and hurt – to clear one's name or to get back at and take revenge on those who are felt to have cheated one of one's prize.

It is, as yet, too early to say how far investors and their advisors have reacted to the dot.com experience by learning from experience. There are some worrying signs. The primary activity at present appears to be an attempt to lie low, to avoid responsibility for the extent to which the whole market was implicated and to try to place the blame on a few against whom revenge is being taken. The stream of ongoing investor class

²¹ These ideas were developed in depth by Melanie Klein (1940).

²² See Laplanche and Pontalis (1973: 488).

actions in the US courts against investment banks and Internet analysts illustrates this point. Seeking to persecute others and to root out corruption in such a semi-moral crusade has all the hallmarks of trying to wash one's own hands for getting caught up in what in retrospect was a frightening, shaming and damaging experience for all but a few.

8. Conclusion

The thesis we have set out and the quotations we have used to support it make, we suggest, a preliminary case for the value of the concept of unconscious psychic reality in understanding one set of market events. Our research work focuses on the dot.com bubble but very likely also applies to the wider technology bubble that more or less accompanied it and has many of the same features. The question also arises as to how far the current depression in world markets is a consequence of the emotional roller-coaster investors have recently lived through: a traumatic experience of the world gone manic and even a bit mad. These and other questions need further more in-depth exploration.

While the dot.com experience may be a particularly dramatic example of how stock valuations can be driven more by emotion than cognition, our analysis also supports the more general case that the subtle and complex way emotions determine psychic reality will be of ongoing use in understanding all investor behaviour. It has long been recognised that markets are driven by greed and fear; we believe the psychoanalytic theory of psychic reality provides a complex systematic model with which to begin to investigate and more systematically understand and apprehend these phenomena.

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Appendices

« Une crise qui offre des opportunités pour rebondir »¹

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Depuis trois ans, les marchés financiers traversent une crise qui interpelle pratiquement tous les acteurs économiques. Il a donc été bien naturel qu'en France le régulateur, en l'occurrence le Conseil des Marchés Financiers (CMF) dans son rôle de gardien de la stabilité et de l'intégrité des marchés, ait cherché à en identifier et en analyser les facteurs sous-jacents dans un document de consultation, publié en décembre 2002 et intitulé « L'augmentation de la volatilité du marché des actions »². Ce document était toutefois centré en priorité sur l'analyse de la volatilité historique des marchés actions et passait en revue les facteurs susceptibles d'être à l'origine d'une volatilité supposée croissante. La plupart du temps, il avançait des hypothèses sur le rôle que jouent dans ce phénomène certains produits (dérivés, fonds garantis, *hedge funds*...) ou pratiques de marché (ventes à découvert, rachats d'actions...) sans pour autant trancher sur leurs effets bénéfiques ou pervers. Si ce rapport a permis de lancer le débat, en revanche, il n'abordait qu'à la marge, ou pas du tout, les problèmes de structure et de gouvernance des marchés, dont le comportement et la nature des investisseurs institutionnels... Surtout, l'impact des politiques monétaire et macro-économique sur la volatilité et, plus important encore, sur la stabilité des marchés financiers et l'économie n'était pas du tout pris en compte.

L'AFG a souhaité contribuer au débat en publiant un Recueil de textes qui avait à l'origine pour ambition de rassembler les opinions et réactions à la lecture du rapport du CMF d'une vingtaine de personnalités du monde académique et financier français³. Nous avons pu constater qu'en dépit de la diversité des opinions exprimées – peu surprenante tant le sujet est complexe –, des points de convergence ressortent clairement. Les auteurs ont pris position non seulement d'une manière plus ou moins affirmée sur certains points traités dans le rapport du régulateur, mais souvent ont abordé d'autres thèmes absents de ce rapport et dont le pouvoir explicatif leur semblait essentiel pour comprendre la crise actuelle et, de manière plus générale, les problèmes liés à la (in)stabilité des marchés financiers en relation avec l'économie réelle.

¹ Les auteurs remercient Olivier Davanne, ainsi que tous les contributeurs au Recueil d'opinions sur la volatilité publié par l'AFG, dont les réflexions et débats ont permis d'inspirer cette note. Nous remercions également Pierre Bollon, Délégué Général de l'AFG, pour sa lecture et remarques constructives. Les erreurs ou omissions restent les nôtres.

² www.cmf-france.org/.../docpdf/rapports/RA200201.pdf

³ Recueil d'opinions sur la volatilité du marché des actions, AFG, Juin 2003 (www.afg-asffi.com/afg/fr/publication/index.html).

Nous estimons que toutes ces réflexions constituent un premier pas dans le débat sur l'augmentation supposée de la volatilité observée ces dernières années⁴, mais qu'elles devraient surtout permettre de mieux comprendre les conditions de liquidité et d'équilibre des marchés. Il s'agit, en tout état de cause, d'un sujet techniquement difficile et qui a fait l'objet depuis très longtemps d'une abondante littérature théorique et empirique, notamment aux Etats-Unis.

* * *

L'origine de l'instabilité des valorisations, mais aussi les coûts de la volatilité, eux-mêmes très incertains, constituent des sujets de débat. On peut notamment avancer que la volatilité à très court terme n'a que peu d'importance si les mouvements de prix sont rapidement corrigés. De plus, l'efficacité d'un système financier ne peut pas être jugée à la seule aune de la stabilité du prix des actifs. La question de qui porte le risque, c'est-à-dire de sa bonne mutualisation, paraît au moins aussi importante. On peut soutenir, notamment, que la volatilité récente – et ce malgré les apparences - est le reflet d'une souplesse qui participe *in fine* à l'efficacité et à la solidité du système. Toute discussion sur la volatilité gagne ainsi à être resituée dans le contexte plus large du rôle de la sphère financière, et plus particulièrement de l'interrelation de celle-ci avec l'économie réelle. C'est ce qui semble se dégager des opinions recueillies en France auprès des experts, professionnels de la finance et chercheurs en économie et finance. Dans les développements ci-après, nous reprenons à notre compte certaines de ces idées.

1. Que l'analyse porte sur des indices français, européens ou américains, les auteurs montrent de manière quasi unanime qu'il n'y a **pas de tendance claire à l'augmentation structurelle de la volatilité** sur les marchés d'actions, mais en revanche une situation particulière depuis environ 3 ans avec l'apparition de pics importants de volatilité. Ce constat fait, quelle responsabilité faut-il accorder, dans les évolutions des dernières années, aux facteurs conjoncturels relativement aux facteurs structurels ?
2. Parmi les **facteurs conjoncturels ou fondamentaux** susceptibles d'expliquer la crise, on peut mettre en avant, notamment, l'éclatement – salutaire à notre avis - de la bulle « nouvelle économie », l'endettement excessif de certaines grandes entreprises, la crise de confiance dans les informations financières - provoquée par les affaires du type Enron, WorldCom... Ces facteurs conjoncturels étant identifiés, on peut par ailleurs affirmer, à juste titre, que plus qu'une crise due à l'excès de volatilité, il s'agit surtout d'une crise due à l'excès d'endettement et de valorisation, d'où la formation de bulles⁵. D'une certaine manière, cet emballement de la volatilité a coïncidé avec les pics d'aversion pour le risque typiques d'une fuite vers la sécurité qu'on ne rencontre que lors des grandes vagues de déflation d'actifs et des menaces de

⁴ Au moment où nous écrivons ces lignes, la volatilité s'inscrit en baisse.

⁵ O. Garnier, « Excès d'endettement et de valorisation plutôt qu'excès de volatilité », Recueil d'opinions sur la volatilité du marché des actions, AFG, Juin 2003, pp. 31-35.

dépression « à la japonaise » qu'elles portent en germe⁶. Les grandes incertitudes liées aussi bien à la géopolitique qu'aux menaces déflationnistes, avec en toile de fond une instabilité macro-économique accrue, occupent une place de choix parmi les facteurs fondamentaux⁷.

3. Quant aux **facteurs structurels ou techniques** (du moins dans la conception du rapport du CMF) ayant trait aux différents types d'innovations financières, qu'il s'agisse de produits ou de pratiques de marché (gestion alternative et ventes à découvert, développement des dérivés de crédit, croissance du marché des obligations convertibles et des fonds à capital garanti...), les opinions des experts sont formelles et, à quelques nuances près, presque unanimes : les techniques et les produits ne peuvent être par eux-mêmes facteurs de déséquilibre⁸. Au contraire, certaines innovations correspondent à un développement des arbitrages entre marchés qui accroissent la liquidité globale de ceux-ci, ce qui tend plutôt à en réduire la volatilité. L'argument d'une hausse de volatilité due aux innovations financières ne semble pas, en tout état de cause, reposer sur une base empirique, et encore moins théorique, réellement solide.
4. En revanche, le rôle et la responsabilité des différents acteurs agissant sur les marchés financiers, plus particulièrement les investisseurs institutionnels, semblent poser problème. En effet, les analyses sont plus ou moins concordantes concernant le **comportement des investisseurs institutionnels** (tels les sociétés d'assurance-vie, les fonds de pension...), qui, à notre sens principalement par le jeu des contraintes comptables et réglementaires qu'ils subissent – mais aussi en partie à cause du suivisme et du manque de vision à long terme dont un certain nombre d'entre eux ont fait preuve - se sont souvent trouvés confrontés à l'obligation de liquider prématurément une partie de leurs actifs, alors même que leurs engagements restaient inchangés. Dans le contexte d'une baisse (d'ampleur exceptionnelle) des marchés d'actions, il est avéré que cela a eu pour résultat de priver les marchés de leurs principaux pourvoyeurs de liquidité structurelle. Ainsi, le **renforcement des investisseurs institutionnels**, et l'adaptation de la réglementation qui leur est applicable, par

⁶ F.-X. Chevallier, « Les mystères d'une volatilité débridée, ou le rêve brisé d'un bonheur économique perdu », *ibidem*, pp. 23-27.

⁷ Pour certains auteurs, ces deux derniers facteurs suffisent largement à eux seuls à expliquer l'extrême nervosité des marchés. En analysant l'évolution du Dow Jones depuis 1946, Zajdenweber conclut que « c'est l'arrivée d'informations discontinues, notamment sur la politique monétaire et les taux d'intérêt », et leur anticipation par les agents économiques, « qui est à l'origine du regroupement des variations de grande amplitude des indices boursiers » (Cf. EAMA, *Boom and Bust*, septembre 2003).

⁸ Plusieurs auteurs reconnaissent, toutefois, que ces innovations peuvent devenir déstabilisantes en situation de stress ou de crise, ce qui plaide pour une régulation plus souple et adaptée aux conditions du marché. Concernant les périodes d'embellie boursière, une leçon à tirer de cette crise pourrait être le renforcement des moyens dont disposent aujourd'hui les autorités de supervision et de régulation afin de mieux contrôler la capacité des agents à assumer les risques en cas de retournement.

nature des « agents longs », apparaît – surtout en Europe continentale - comme une nécessité *sine qua non*. N'oublions pas que la plupart des marchés d'Europe continentale, dont celui de la France, à ce jour handicapés dans ce domaine, ont connu une volatilité bien supérieure à celle des Etats-Unis. Il serait donc vain d'envisager des mesures de régulation sans se soucier au préalable de créer les conditions **pour lutter contre le « court termisme » ambiant**. Cela passe forcément par la création, ou le renforcement le cas échéant, des véhicules à horizon de placement long (émergence de fonds de pensions renforcement de l'épargne salariale...), par l'atténuation – et non la généralisation - du *marked to market*... Il faut, en définitive, que se mette en place une « gouvernance » des marchés qui permette aux investisseurs et aux gérants, le « *buy side* », de jouer pleinement son rôle. Ce serait une manière de trouver un contrepoids efficace au tropisme « *sell side* » des marchés – et de l'information - du fait du poids démesuré des émetteurs, des courtiers et des banques d'investissement.

5. **La volatilité**, qui est la « matière première » d'une bonne partie des activités de marché, **assure une fonction de contrepartie pour couvrir les risques croissants de l'économie réelle**. Vouloir la diminuer ne doit constituer en aucune façon un objectif exclusif, ni même prioritaire, pour le régulateur. **La volatilité est un révélateur d'autres problèmes** (Cf. points 2 à 4). Elle est la conséquence plus que la cause de l'instabilité des marchés financiers et de l'économie réelle. Rappelons que l'instauration et le maintien d'un climat de confiance sont les meilleures antidotes contre la volatilité excessive...
6. **C'est la volatilité résiduelle qu'il faudrait réduire**, celle justement que les agents ne peuvent pas compenser, notamment du fait de **marchés trop incomplets**⁹. En effet, si les innovations financières mettent à la disposition des agents un outil supplémentaire de couverture du risque, permettant ainsi un fonctionnement plus efficace de l'économie, alors leur présence est très probablement bénéfique, quels que soient leurs effets sur la volatilité. En d'autres termes, l'arbre ne doit pas cacher la forêt, et les considérations techniques sur les effets de volatilité occulter l'essentiel, à savoir la capacité des marchés à répondre de façon aussi efficace que possible aux besoins de l'économie¹⁰.
7. Certaines analyses en cours attirent l'attention sur **la consolidation de la gouvernance et la transparence des marchés**, idée à laquelle nous adhérons totalement. En effet, compte tenu du rôle accru que les marchés financiers

⁹ Cette complétion des marchés devrait permettre d'accroître la profondeur et la liquidité des marchés financiers, et donc contribuer à une offre/demande plus importante de titres. Ceci revient concrètement à mettre à la disposition des entreprises des flux de capital plus importants que ceux d'aujourd'hui. Cette « disponibilité » de capitaux en provenance des futurs fonds de retraite en Europe continentale devra avoir toutefois pour contrepartie un suivi de près de la gouvernance des entreprises dans lesquels ces capitaux seront investis.

¹⁰ P.-A. Chiappori, « Gestion Alternative, quelle réglementation ? », in Gestion alternative – Recueil d'opinions, AFG, juillet 2002 (www.afg-asffi.com/afg/fr/publication/index.html).

jouent - en tant que véhicules de diversification et agents de transferts de risques - dans le financement de l'économie, et du fait des masses énormes de capitaux qui leur sont confiés, les différents acteurs devront montrer leur sens des responsabilités, contrepartie de la confiance dont ils sont les dépositaires. Pour cela, et afin de réduire au minimum les conflits d'intérêt pouvant subsister, ils doivent poursuivre leurs efforts en matière d'autorégulation, de déontologie et de discipline, pour la protection efficace des marchés et surtout des investisseurs. Toujours est-il, certains économistes se montrent plutôt réservés concernant l'efficacité et la portée des règles générales en matière de gouvernement d'entreprise, notamment du fait de l'existence de conflits d'intérêt – ou relations agent/principal - difficilement contournables et inhérents entre autres aux *compensation incentives* en place qui « déterminent » largement le comportement des acteurs aussi bien de la gestion que des autres métiers de la finance (analystes financiers, *investment banks*, consultants, agences de notation...). D'autres économistes, s'inspirant de la théorie des jeux, proposent une vision positive qui prône non pas la disparition des conflits d'intérêt mais plutôt leur atténuation moyennant un jeu coopératif fondé sur la diversification accrue des interactions entre les agents.

8. Un consensus se dessine autour de l'idée qu'**un meilleur fonctionnement des marchés** – c'est-à-dire des marchés où la prise de risque peut se faire en toute transparence - suppose une information plus fiable et plus transparente à tous les niveaux (émetteurs, intermédiaires, investisseurs, régulateurs, responsables politiques...), ainsi que des règles claires, précises et strictes qui permettent de l'établir et de la contrôler.
9. En attendant, il **ne faut pas chercher à empêcher à tout prix l'ajustement des cours boursiers** – si aberrants qu'ils paraissent - ou les restructurations économiques qui en découlent. En effet, si par moments on a pu craindre l'extension du syndrome japonais (sur longue période, stagnation de l'économie et déflation généralisée du prix des actifs réels et financiers) aux économies occidentales, les corrections subies sur les marchés actions qui ont exercé un rôle de *clearing* sur l'économie réelle devraient leur redonner du tonus pour repartir sur des bases plus saines. Bien que théorique, le mécanisme schumpeterien classique de « destruction créative », puis de retour progressif à la tendance, est là pour nous rappeler deux faits : d'une part, qu'il est illusoire de vouloir s'affranchir complètement des cycles économiques et, d'autre part, que les marchés, bien que constituant le carburant des économies, ne peuvent pas faire abstraction de la capacité d'absorption de celles-ci. La tension extrême entre les fondamentaux et les anticipations, voire le plus souvent les croyances démesurées des agents conduisent tôt ou tard à la formation de bulles, puis à l'assèchement de la liquidité sur les marchés, quand l'effondrement du coût du capital finit par entraîner celui des anticipations de rentabilité. L'essentiel est que le phénomène reste sous contrôle.
10. La reconnaissance du rôle et de l'**impact de la politique macro-économique et monétaire**, et plus exactement de la politique tout court, **sur l'évolution des marchés** (actions, obligations, taux de change...) **et de l'économie**, devrait - si

celle-ci devait faire l'objet d'une analyse approfondie -, relativiser les procès d'intention dont souffrent aujourd'hui les innovations financières souvent montrées du doigt avec facilité comme étant les responsables – primaires - de la déstabilisation non seulement des marchés eux-mêmes, mais aussi, par voie de conséquence, de l'économie dans son ensemble. En effet, la volonté de limiter la volatilité des marchés financiers – pour autant qu'elle soit possible et souhaitable - suppose à l'évidence une attention accrue des autorités financières et monétaires, notamment à la manière dont les marchés sont organisés et aux comportements de ceux qu'y interviennent. Mais cet objectif de stabilisation des marchés « ne pourra être pleinement atteint que si ces mêmes autorités s'efforcent aussi de limiter les grandes fluctuations des variables de l'inflation et de la croissance »¹¹.

* * *

A la lumière des réflexions en cours, et compte tenu de la complexité des problèmes liés à la volatilité, la liquidité et, de manière encore plus importante à la stabilité des marchés, nous continuons de souscrire à la constatation faite aussi bien en France que chez la plupart de nos collègues européens et américains, selon laquelle prendre des mesures au niveau national ou régional, sans tenir compte de ce que feront les autres places financières, pourrait avoir des conséquences dommageables durables pour l'industrie financière, notamment en termes de distorsions de concurrence et d'attractivité.

Enfin, pour quelque peu dédramatiser les événements vécus ces trois dernières années et pour essayer de nous doter d'une vision plus optimiste, permettant de consolider nos acquis, notons que la crise amorcée en 2000 s'est produite à l'issue du cycle de croissance le plus long de l'après guerre et que, même en laissant de côté l'effet de marché, les patrimoines des ménages n'avaient jamais atteint de tels niveaux... L'amélioration croissante du capital humain constitue en outre un atout hautement positif qui vient renforcer notre optimisme dans la capacité de nos sociétés et économies de marché à rebondir et à retrouver le chemin de la croissance.

¹¹ Cf. A. Brender, « Volatilité financière et politiques macroéconomiques », Recueil d'opinions sur la volatilité du marché des actions, AFG, Juin 2003, pp. 20-22. Les observations de cette note s'inspirent de l'ouvrage intitulé « Les marchés et la croissance », A. Brender et F. Pisani, Paris, Economica 2001.

Volatilité excessive ou économie réelle incertaine ? Impact des hypothèses probabilistes dans l'appréciation de la volatilité boursière¹

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1. La question de l'efficacité informationnelle des marchés

1.1. Justesse du prix et efficacité informationnelle d'un marché

On peut aborder la question de la volatilité boursière à partir de celle de l'efficacité informationnelle des marchés de capitaux (en langue anglaise « efficient market hypothesis »). C'est-à-dire de la qualité de l'outil « marché » à transmettre aux acteurs sociaux une information sur la valeur intrinsèque des sociétés. Ce n'est pas un hasard si, deux ans après le krach de 1987, des articles publiés dans des revues professionnelles étaient intitulés « La déficience des marchés efficients »³ et « L'efficacité des marchés semblait une idée juste – jusqu'au krach boursier »⁴ : la question de l'évaluation des sociétés (le juste prix des actifs) et celle de l'efficacité informationnelle sont indissociables. En d'autres termes, la notion économique d'efficacité informationnelle d'un marché se trouve au centre du problème de la volatilité boursière.

La notion d'efficacité informationnelle d'un marché est une question relativement complexe si l'on veut l'analyser dans tous ses aspects théoriques et pratiques. On se contentera ici d'en indiquer l'intuition principale⁵. De manière très générale, un marché boursier est dit informationnellement efficace s'il transforme correctement de l'information en argent. La définition classique est plus précise : un marché boursier est dit informationnellement efficace si, par rapport à toute l'information disponible, les prix de marché sont de bons estimateurs de la valeur intrinsèque des sociétés, en tant qu'ils reflètent pleinement toute l'information disponible et pertinente, c'est-à-dire « les perspectives de développement à long terme des activités concernées »⁶. Le

¹ Le but de cet article est de faire apparaître l'importance de la forme probabiliste des aléas de l'économie dite « réelle » dans le débat sur la volatilité boursière.

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³ *Revue Banque*, n° 497, septembre 1989, pp. 827-834.

⁴ *Business Week*, 22 février 1988, pp. 38-39.

⁵ Pour une perspective historico-épistémologique sur les contenus sémantiques de la notion d'efficacité informationnelle des marchés et leur évolution, voir Walter [1996a, 2003].

⁶ Ce qui nécessite l'usage d'un modèle d'évaluation : voir plus bas.

graphique n°1 illustre le principe de l'efficacité informationnelle des marchés : l'économie dite « réelle » se laisse contempler, comme à travers un verre non déformant, dans le prix de marché coté.

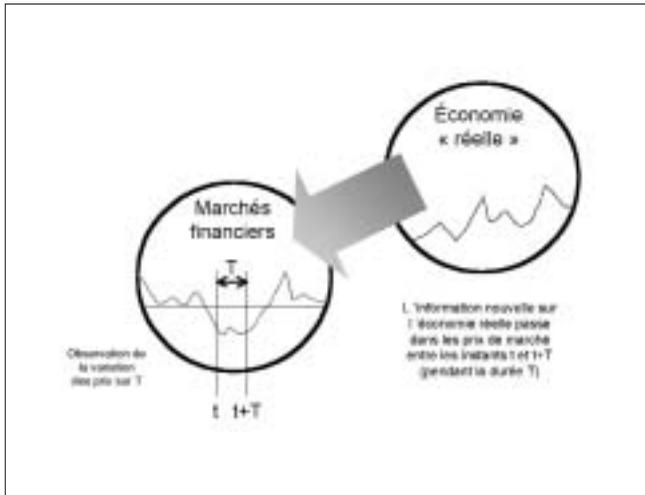


Figure n°1 : *L'efficacité informationnelle des marchés*

L'économie réelle passe dans les prix de marché par la propriété d'efficacité informationnelle : le marché est efficace en ce qu'il transforme correctement de l'information en argent.

La notion d'information est ici centrale. Comment l'information passe-t-elle dans les prix ? Pour que le prix d'équilibre reflète bien la valeur de l'entreprise, il est nécessaire que des opérateurs informés sur cette valeur interviennent en nombre suffisant, en conduisant le prix de marché vers sa valeur théorique (on dit que les opérateurs informés « arbitrent » le marché). L'action des opérateurs informés est donc essentielle : l'efficacité informationnelle des marchés repose en pratique sur la réalisation d'arbitrages par des acteurs qui s'informent sur les conditions de l'économie réelle. Ceci illustre l'importance de l'information financière dans la formation du juste prix, et fait apparaître combien la crise de confiance actuelle sur l'information est dangereuse. De nombreux travaux de recherche théorique ont mis en évidence l'importance, pour l'efficacité d'un marché, de la confiance dans la qualité de l'information (le prix de marché ne peut pas gérer simultanément la rareté et la qualité), et les professionnels ont attiré l'attention du grand public sur le rôle central de cette confiance dont l'absence conduit à la défiance généralisée et à la disparition des marchés.

Mais, pour évaluer correctement les sociétés, il est nécessaire que les opérateurs disposent d'un modèle d'évaluation des actifs financiers, et s'accordent sur l'usage de

ce modèle. Il apparaît qu'un *consensus de modélisation* est logé au cœur de l'efficacité informationnelle du marché, et que le modèle d'évaluation est la cause formelle de l'équilibre, au sens de la forme mathématique de la valeur qui est à l'origine de l'intervention des opérateurs par arbitrage sur détection de mauvaise évaluation par le marché. Le juste prix à une date donnée est le prix arbitré, au sens où les opérateurs pourront considérer qu'il n'y a plus, par rapport à la valeur théorique issue de ce modèle, d'arbitrage possible à faire.

1.2. Les deux sortes d'information et le consensus de modélisation

Puisque l'on apprécie la qualité (et donc la valeur) de l'outil « marché financier » par sa capacité à transformer de l'information en argent, encore faut-il s'interroger sur la nature de l'information qui passe dans les prix. Il est d'usage dans la théorie financière de considérer deux types d'information : l'information dite « exogène », en ce qu'elle concerne l'environnement économique « réel » *externe* au marché proprement dit (les comptes des entreprises, les indicateurs macroéconomiques, la situation sociale etc.), et l'information dite « endogène », relative aux seuls aspects techniques *internes* du marché (position de place, volume, passé des cours etc.), c'est-à-dire propres aux opérateurs eux-mêmes.

L'information exogène est considérée comme « bonne » car elle permet au jugement de se former une opinion raisonnée sur la valeur réelle de l'entreprise, valeur dite « fondamentale », alors que l'information endogène est considérée comme « mauvaise », car elle ne peut pas être utilisée pour la formation de la valeur fondamentale. Pire, elle est suspectée de contribuer aux comportements spéculatifs des boursiers qui s'intéressent plus, dans ce cas, aux autres opérateurs qu'à la valeur de l'entreprise : au lieu de scruter l'état du monde réel, ils se contemplent eux-mêmes dans une circularité qui ne mène nulle part. Les graphiques n^{os} 2 et 3 illustrent ces deux types d'attitude des opérateurs : l'attitude saine, qui regarde vers l'avant (les résultats futurs de l'entreprise), malsaine, qui regarde vers l'arrière ou sur le côté (les comportements des autres opérateurs).

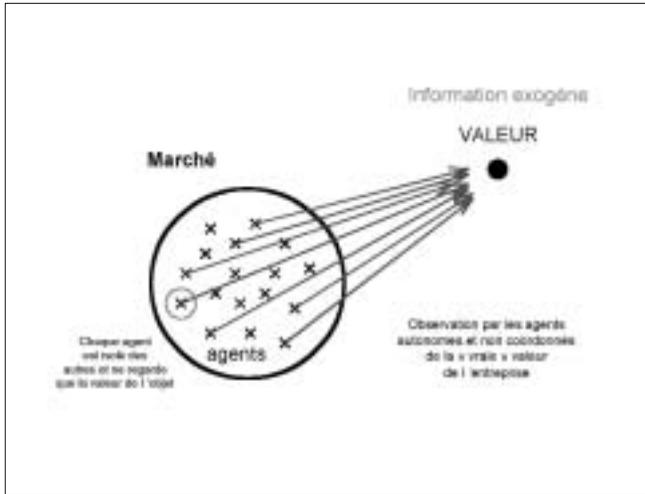


Figure n°2 : *Un modèle d'information bonne*

Tous les intervenants cherchent à s'informer sur la valeur de l'entreprise : chacun regarde à l'extérieur du marché, sans considérer les autres intervenants (ses voisins). L'information exogène est "bonne".

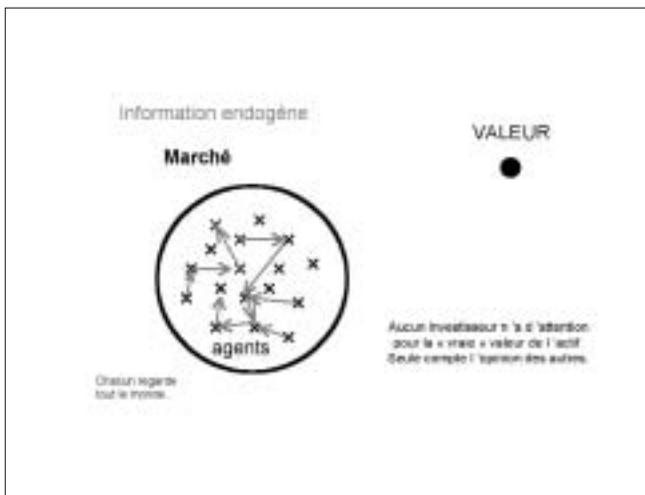


Figure n°3 : *Un modèle d'information mauvaise*

Personne n'est intéressé par la valeur de l'entreprise : tous les intervenants regardent à l'intérieur du marché, ne considérant que ses aspects techniques ou les opinions de leurs voisins. L'information endogène est "mauvaise".

Les anticipations correspondant à chaque type d'information sont, soit relatives à une plus-value espérée sur le cours du titre : c'est la composante « spéculative » du prix, soit relatives à un rendement associé au dividende du titre : c'est la composante « fondamentale » du prix. Ce clivage interprétatif rejoint aussi une différence sociologique sur les populations des acteurs des marchés concernés. Tandis que l'étude de l'information sur l'économie « réelle » est le champ d'exploration des analystes financiers et des économistes, l'examen de l'information relative aux comportements collectifs des acteurs des marchés est le territoire très controversé des analystes techniques. Dans cette perspective épistémologique, le monde est divisé en deux ensembles de connaissance, d'information, d'acteurs : les « bons » qui s'intéressent à l'économie réelle et au rendement attendu des actions, les « méchants », qui ne cherchent qu'à obtenir des gains de plus-value par une habile spéculation attentive aux comportements grégaires des opérateurs. Cette bipartition sociologique font écho à la désormais classique distinction proposée par Keynes, entre un comportement « spéculatif » et un comportement « d'entreprise ».

Dans le sillage de cette vision du monde, le problème de la volatilité boursière semble alors apparemment simple et bien résolu : ou bien les spéculateurs interviennent en retraitant une mauvaise information (endogène) et l'on observe la formation d'une bulle spéculative, avec découplage entre prix et valeur, ou bien les investisseurs et arbitragistes interviennent en retraitant une bonne information (exogène) et l'on observe une résorption de l'écart entre le prix et la valeur, avec absence d'emballlement anormal de marché. Les actions sont à leur « juste prix ». Comme les deux catégories d'acteurs cohabitent dans un marché réel, la proportion d'opérateurs informés sur l'économie réelle devient un paramètre important : si leur nombre diminue, il est vraisemblable que le marché sera conduit par des opérateurs mal informés qui parasiteront les prix, et deviendra brinquebalé entre les opinions majoritaires successives des opérateurs parasites. De très nombreux modèles théoriques ont étudié l'influence du poids des opérateurs bien informés par rapport au poids des opérateurs mal informés (les opérateurs parasites), en cherchant à isoler les routes qui tendent vers l'équilibre des routes qui conduisent au chaos. En regard de cette perspective, on serait alors tenté d'imaginer qu'il suffirait d'assurer une prédominance aux arbitragistes en réduisant drastiquement le nombre de spéculateurs par des taxations sur les transactions (comme par exemple le projet de taxation de Tobin), pour éviter les emballements spéculatifs.

En réalité, il faut bien comprendre l'importance du modèle d'évaluation dans la formation du prix d'équilibre, et l'argument du consensus de modélisation. Le modèle d'évaluation conditionne l'usage des anticipations, et rien n'interdit théoriquement que les opinions des opérateurs informés se dirigent ensemble et simultanément dans une direction d'évaluation arbitraire, et arbitrairement fautive. Une multiplicité d'équilibres à anticipations rationnelles est possible, même avec une information supposée bonne (exogène), et des phénomènes de polarisation peuvent apparaître et pousser à la hausse ou à la baisse les cours, et ceci sans raison apparente. Les croyances subjectives des individus sur un consensus de modélisation particulier ont pour effet de faire surgir dans la réalité des cours leur contenu imaginaire, le contenu du modèle lui-même, en sorte que les prévisions de niveau des cours peuvent s'autoréaliser collectivement

grâce à l'action simultanée des opérateurs qui les pensent comme vrais. Dans une logique autoréférentielle totalement coupée d'une quelconque réalité entrepreneuriale, le marché se dirige alors vers une valeur de cours qui résulte uniquement du passage dans le réel coté de l'idée fausse que se font les opérateurs du juste prix de l'entreprise. Ceci jusqu'à un hypothétique retour du réel, où l'on s'aperçoit que l'emballement boursier n'apparaissait en rien fondé (par exemple la chute des bourses après les évaluations des valeurs internet). Cette situation est particulièrement sensible lorsque le consensus de modélisation ne repose sur aucune validation empirique du comportement réel des entreprises ou des bourses, et conduit alors l'ensemble des acteurs vers un point fixe arbitraire, attracteur instable qui est très proche de l'effondrement brutal des cours. L'erreur de modèle couplée à la polarisation des opinions est une source d'accidents financiers récurrents, au point qu'une nouvelle notion, celle de « risque de moèle » est apparue depuis quelques années dans la gestion des risques de marchés des établissements financiers.

Le consensus de modélisation sur la nature du hasard, que l'on va à présent aborder, est l'un des plus centraux de la finance contemporaine, comme l'un des plus délicats à évaluer.

2. Du hasard boursier aux aléas de l'économie réelle

2.1. Le consensus sur la nature du hasard et ses problèmes

Il est nécessaire de s'intéresser de plus près à cette question du hasard, et d'examiner en particulier le contenu de l'un des consensus de modélisation les plus puissants qui ait marqué les pratiques professionnelles depuis Bachelier : le consensus de normalité⁷.

Ce consensus extrêmement important pour les développements concrets de la finance moderne s'est progressivement solidifié au cours des cinquantes dernières années, et a conduit au modèle standard des fluctuations boursières : il est fait l'hypothèse que, en première approximation, les variations successives des cours sont distribuées selon une loi normale (ou log-normale). La loi normale de Laplace-Gauss calibre ainsi les fluctuations boursières théoriques, en permettant de qualifier qualitativement ces fluctuations de « trop fortes » ou « normales » (précisément...) en fonction de mesures de dispersion gaussiennes. Ainsi, les fluctuations de la valeur théorique des actions doivent être normales (dans les deux sens du terme) pour permettre aux opérateurs de marché de fixer une information nette. Le graphique n° 4 illustre cette importance : une fluctuation laplacienne des quantités observées de l'économie réelle permet aux opérateurs d'être rassurés sur l'estimation de la valeur des actions.

⁷ Sur cette question, la littérature technique en finance est extrêmement abondante (plusieurs milliers d'articles et de manuels). Pour les aspects historiques relatifs à la formation du paradigme normal-gaussien, voir Walter [1996a, 2003]. Pour une discussion sur les enjeux de la normalité pour les marchés financiers, voir Walter [1996b]. Deux ouvrages récents présentent de manière accessible certains aspects du problème. Sur la mathématisation des marchés rendue possible grâce à l'hypothèse de normalité, voir Bouleau [1998]. Une interprétation de la normalité en termes de convention keynésienne est donnée par Orléan [1999].

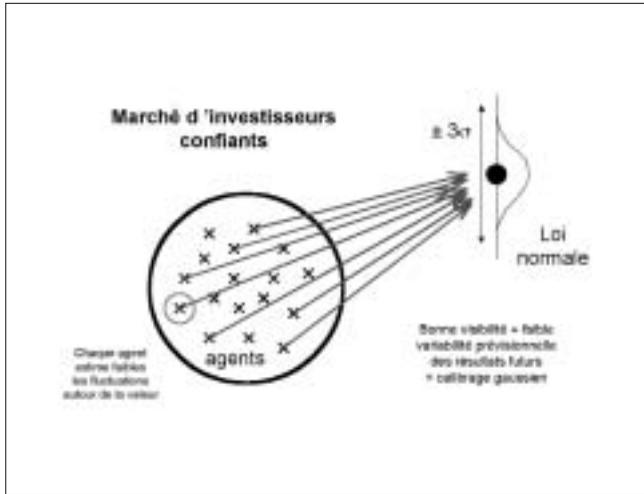


Figure n°4 : *L'importance du consensus gaussien*

Le consensus d'évaluation sur la loi gaussienne assure une bonne visibilité aux opérateurs : la valeur reste nette et tout le monde peut la voir clairement. Il n'y a pas de raison théorique à l'apparition de mouvements spéculatifs.

Or, et ceci depuis l'origine des études statistiques des fluctuations boursières, il a été mis en évidence une violation de l'hypothèse gaussienne lorsque l'on analysait les fluctuations boursières sur différentes échelles de temps (fréquences trimestrielle, mensuelle, hebdomadaire, quotidienne et intraquotidienne). En pratique, les distributions réelles des variations de cours sont plus pointues et plus étirées que la distribution gaussienne : il apparaît des queues de distribution plus épaisses que celles prévues par la loi normale, correspondant à des grandes variations plus nombreuses que le nombre théorique prévu par la niveau de probabilité correspondant. C'est le phénomène appelé « leptokurtique » (du grec « leptos » pointu, et « kurtosis » courbure), qui caractérise la quasi-totalité des séries chronologiques financières. Examinées en coupe instantanée, toutes les queues de distribution réelles sont ajustables par une loi de probabilité particulière décrite par la théorie des valeurs extrêmes⁸ : la distribution de Pareto généralisée. Au lieu d'être gaussiennes, les

⁸ Pour une synthèse technique, voir Embrechts *et al.* [1997].

variations boursières seraient donc plutôt paréliennes, et, en ce sens, le hasard boursier ne serait pas un hasard gaussien, mais un hasard parélien⁹.

Cette observation de structures paréliennes en finance qui venait contrarier le consensus gaussien, à provoqué une controverse sur la modélisation financière, controverse qui traverse l’histoire de la finance, et qui a conduit à l’émergence de plusieurs modèles concurrents pour rendre compte de cette non normalité empirique. Ces modèles se classent selon leurs objectifs (descriptif ou explicatif), et selon la cause donnée aux emballements boursiers, dualité d’approches qui définit deux grands courants de pensée. On peut présenter ces deux courants interprétatifs au moyen de la grille de lecture suivante : soit on attribue la leptokurticité à des causes externes aux marchés, soit l’on fait des marchés eux-mêmes la cause de la leptokurticité.

3.1. Les deux compréhensions de la cause de la volatilité boursière

Pour la première manière de comprendre les grandes fluctuations des marchés, la non normalité des distributions des variations boursières n’est que la transposition sur les marchés financiers de la non normalité des variables de l’économie réelle. La propriété d’efficacité informationnelle des marchés assure cette transmission de chocs non normaux de la réalité économique dans les variations des prix. La leptokurticité est dans ce cas externe au marché.

La seconde manière de voir les grandes variations prend l’option opposée : le phénomène leptokurtique n’est que le produit d’une amplification par les opérateurs de chocs réels normaux, mais surinterprétés par les effets d’opinion et de mimétisme qui peuvent conduire à des ruptures de marché. Selon cette conception du monde, la spécularité financière est la conséquence de la polarisation des opinions dans une logique autoréférentielle (les « esprits animaux » dont parlait Keynes). La leptokurticité devient alors interne au marché.

Dans le premier cas, les grands mouvements boursiers sont normaux, car l’économie réelle est non normale, tandis que dans le deuxième cas, les grands mouvements boursiers sont anormaux car l’économie réelle est normale. En utilisant la terminologie de Mandelbrot, on peut dire que, selon la première hypothèse, les marchés sont fractals parce que l’économie réelle est fractale, alors que, avec la deuxième hypothèse, les marchés sont exubérants parce que l’économie réelle est équilibrée.

⁹ La distribution de Pareto traduit l’expression du sens commun selon laquelle « très peu ont beaucoup et beaucoup ont très peu ». Dans un hasard gaussien, un grand nombre d’événements homogènes de petite importance conduit à une forme de hasard classique, dans laquelle la forme simple de la loi des grands nombres s’applique : chacun a (à peu près) autant que son voisin. Dans un hasard parélien, tout au contraire, c’est un petit nombre d’événements de grande importance qui produit le résultat observé, et la loi des grands nombre doit être généralisée. Une minorité d’événements capte l’essentiel du phénomène : par exemple les pertes se concentrent sur quelques dossiers de sinistres, les gains sur quelques opérations industrielles etc. Voir Walter [2002] et Zajdenveber [2000].

3.2. La cause externe : l'économie des extrêmes

Pour le courant de pensée situant la source de la non normalité à l'extérieur de la finance, il est important de pouvoir établir que les quantités de l'économie réelle sont effectivement parétiennes. Or ce phénomène semble aujourd'hui clairement acquis et Samuelson pouvait affirmer en 1972 que « de telles distributions *ultra-étirées* se manifestent fréquemment en économie ». Par exemple la taille des entreprises, les chiffres d'affaires annuels, la répartition des richesses, la population des pays etc. sont tous répartis selon une distribution de Pareto, et il semble que l'économie réelle soit, selon la terminologie de Zajdenweber, une « économie des extrêmes ». Ainsi, les fluctuations boursières extrêmes seraient le reflet fidèle de l'économie des extrêmes : la structure parétienne de la « nature » de l'économie réelle se transmet intégralement dans les prix de marché, en sorte que la structure leptokurtique des variations boursières reflète la structure parétienne de l'économie.

3.3 La cause interne : l'interaction extrême

Pour le courant de pensée situant la source de la non normalité à l'intérieur de la finance, il s'agit de décrire puis de tester des modèles de comportements d'opérateurs dans lesquels la polarisation des opinions sur n'importe quel consensus arbitraire conduit le marché vers une bulle spéculative. Extrêmement fécond et actif depuis une vingtaine d'années, ce courant de recherche a permis de mieux comprendre que les anticipations supposées rationnelles des agents économiques n'étaient en réalité qu'une rationalisation de croyances subjectives qui, selon les circonstances, pouvaient être soit vraisemblables, soit totalement déconnectées de la réalité (par exemple les modèles de type « taches solaires », ou la bourse suit l'apparition de taches sur le soleil, alors même que ces taches n'ont aucune incidence sur l'économie réelle). D'autre part, l'existence de systèmes informatiques boursiers très puissants comme le système SuperDOT à New York ou SuperCAC à Paris, qui rendent accessibles à la recherche la totalité des cotations et des carnets d'ordre des opérateurs, cotation par cotation, ont déjà permis des avancées significatives dans la modélisation de l'agrégation de l'information dans les prix de marché. L'analyse de la microstructure des marchés devrait, dans un proche avenir, permettre de mieux décrire la manière dont les prix se forment et donc de mieux appréhender la relation entre information, rumeur, croyance et prix.

3.4. Notre hypothèse : l'incertitude extrême

On veut avancer ici que ces deux analyses apparemment opposées quant à leur conclusion, non seulement ne sont pas contradictoires, mais de plus sont conciliables, et ceci dans le sens suivant. Si l'économie réelle se caractérise par l'existence de quantités structurellement non gaussiennes, alors les fluctuations de la valeur fondamentale théorique sont trop fortes pour pouvoir être appréhendées de manière fiable par des modèles gaussiens (phénomène de perte de pertinence de la notion de « moyenne », même s'il est toujours possible de calculer une moyenne). La volatilité de la valeur fondamentale conduit alors les opérateurs à douter des évaluations usuelles, doute qui, selon les modèles théoriques de polarisation des opinions individuelles, produit des comportements mimétiques et spéculatifs. En d'autres termes, on fait la proposition suivante :

Proposition : Non normalité de l'économie réelle et volatilité élevée

Une économie réelle non gaussienne conduit à une incertitude sur la valeur fondamentale, incertitude à l'origine des comportements mimétiques qui amplifient en retour la violence des fluctuations boursières et les mouvements spéculatifs. La défaillance dans la modélisation des fondamentaux et la faible lisibilité de la valeur fondamentale constituent un potentiel théorique de forte volatilité boursière.

La difficulté dans la modélisation des fondamentaux due à la structure même des phénomènes qui se traduisent par la faible lisibilité de la valeur fondamentale constituent un potentiel théorique de spéculation boursière. Les graphiques n^{os} 5 à 8 illustrent la route vers la spéculation à partir de cette défaillance de modélisation, issue de la structure non gaussienne de l'économie réelle.

Conclusion : excès de volatilité ou nature de l'économie réelle ?

Dans la séduisante, élégante et puissante construction intellectuelle qui distingue la « bonne » volatilité de la « mauvaise », les investisseurs utiles des spéculateurs nocifs, les opérateurs qui agissent de manière éthiquement responsable, et ceux qui n'interviennent que pour parasiter le bon fonctionnement des marchés en évacuant toute préoccupation de finalité commune, il semble qu'un élément fondamental ait été sous-estimé, voire ignoré : la nature probabiliste des aléas affectant l'économie réelle. La prise en considération de cet élément permettrait d'évacuer en partie le fatalisme ou le pessimisme ambiant attribuant à l'existence même des marchés les causes de la spécularité financière.

Nous avons ici avancé que :

- a) D'une part, cette bipartition entre bonne et mauvaise volatilité repose sur l'hypothèse implicite forte mais nécessaire selon laquelle les aléas de l'économie réelle sont de type gaussiens. A cette condition, le schéma intellectuel décrit précédemment peut s'appliquer sans trop de difficultés car une gravitation du prix de marché autour d'une hypothétique valeur fondamentale bien calibrée permet de séparer nettement les écarts « normaux » (aux sens propre et figuré) des écarts « anormaux ». La normalité (loi de Gauss) permet une qualification simple du normal et de l'anormal, une distinction claire entre juste prix et spéculation.
- b) D'autre part, en présence d'aléas non gaussiens affectant les quantités de l'économie réelle, et en particulier d'aléas de type parétiens (au sens des distributions de Pareto), cette distinction entre normalité et non normalité s'estompe : le flou de la valeur fondamentale conduit les opérateurs à se reporter sur la convention (au sens keynésien) d'une valeur dont la seule justification reste un argument d'autoréférence.

Ce qui n'est pas sans avoir des conséquences importantes pour la juste appréciation éthique de la volatilité boursière.

Annexe

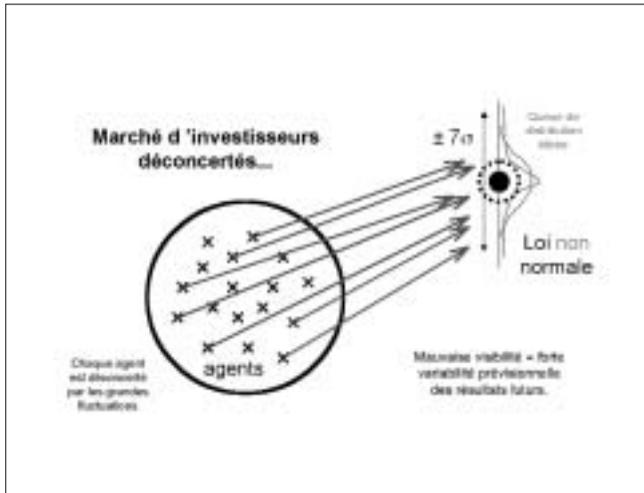


Figure n°5 : *L'impact de la non normalité*

Le consensus de modélisation sur la loi gaussienne est pris en défaut. La valeur réelle peut fluctuer très fortement (non normalement) et les opérateurs ne parviennent pas à la distinguer suffisamment nettement.

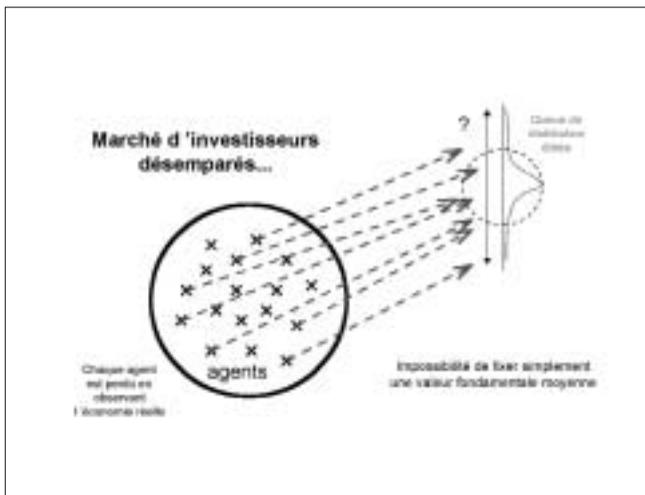


Figure n°6 : *La perte de la valeur en univers non normal*

Dans un monde réel non gaussien, la figure nette de la valeur intrinsèque s'efface sous l'effet de fluctuations trop fortes pour pouvoir attribuer une pertinence à la notion de moyenne. Les opérateurs deviennent désemparés.

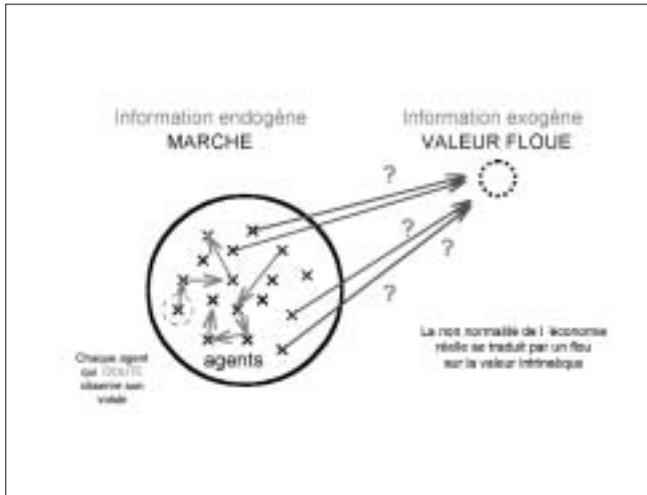


Figure n°7 : *De la perte de la valeur au doute angoissant*

La perte de la valeur intrinsèque se traduit par l'apparition d'un doute sur la validité de sa propre évaluation. A ce moment, une logique mimétique peut s'installer sur le marché, et l'information endogène apparaît pertinente.

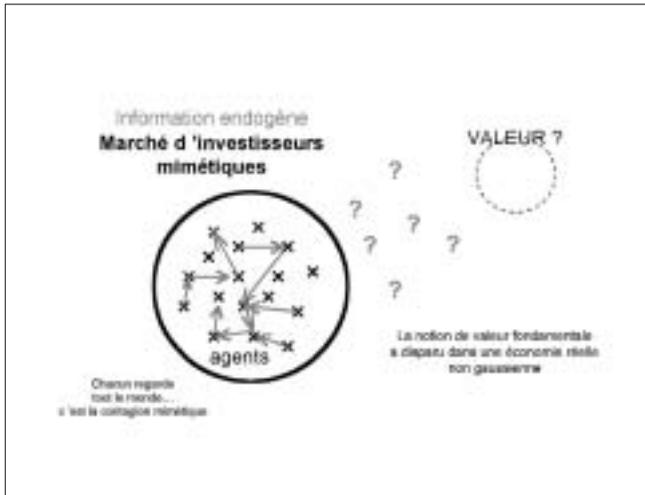


Figure n°8 : *De la non normalité à la spéculation*

Au terme du processus de doute résultant de la non normalité de l'économie réelle, le marché s'emballe sur lui-même dans une spécularité mimétique que rien ne semble pouvoir freiner.

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Marchés financiers - La volatilité des cours est-elle irrationnelle ?¹

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La volatilité des cours boursiers, qui semble aujourd'hui exceptionnellement forte, a pourtant de nombreux précédents historiques. Elle se manifeste par « bouffées », dont la périodicité n'a rien de cyclique. Les grandes vagues de hausse et de baisse observées sur plusieurs années se composent en fait d'un très petit nombre de variations extrêmes concentrées sur quelques séances. Ces « pics », dont ne rend pas compte la théorie des marchés efficients, s'expliquent à la fois par l'absence de « constantes fondamentales » ou d'« échelle intrinsèque » en économie, par les caractéristiques techniques des marchés financiers, et, plus profondément, par la volatilité de la valeur « fondamentale » des actions.

Entre 1987 et 2000, les hausses des principaux indices boursiers, pour « exubérantes » qu'elles aient semblé – à Alan Greenspan notamment –, n'étaient pas vraiment exceptionnelles. En douze années, de décembre 1987 (donc après le krach d'octobre), jusqu'à son sommet absolu du 14 janvier 2000, le Dow Jones est passé de 2850 à 11722 en dollars constants, soit une multiplication par 4,1 seulement, et l'indice CAC 40, en monnaie constante, a été multiplié par 5,3 entre fin décembre 1987 (1300) et son sommet du 5 septembre 2000 (6929). Or, des multiplications aussi spectaculaires se sont déjà produites dans le passé. Le Dow Jones a été multiplié par 6,3 de 1922 à octobre 1929, toujours en dollars constants, et par 4,4 de 1949 à son deuxième sommet historique en janvier 1966 (5355). Ce sommet précéda la longue chute, initiée par le bombardement du Tonkin au Vietnam, et qui ne s'achèvera qu'en 1982 avec l'indice 1400 !

De fait, les baisses des indices boursiers ont été aussi spectaculaires que les hausses. Ainsi, de 1929 à 1932, le Dow Jones a été divisé par 7,3, et par 3,8 entre 1966 à 1982. En février 2003, les baisses en monnaie constante n'ont pas encore atteint de pareilles valeurs extrêmes, mais déjà, depuis son sommet de septembre 2000, le CAC 40 a été divisé par 2,5, alors que, depuis son sommet de janvier 2000, le Dow Jones n'a baissé que de 37%. L'indice le plus exubérant n'est pas celui auquel M. Greenspan faisait référence.

Pour comprendre l'origine et la permanence de ces importantes fluctuations, caractéristiques de tous les marchés boursiers, le plus simple est d'analyser les variations en pourcentage des indices en les reportant sur un graphique. Elles fixent les plus-values et les moins-values des opérateurs, elles permettent d'estimer la volatilité des indices, enfin elles révèlent plusieurs comportements typiques des chroniques boursières.

Le premier graphique représente, sur son axe vertical, les quelques 2000 variations quotidiennes consécutives du Dow Jones entre janvier 1980 et décembre 1987. Le

¹ Article publié dans la revue Sociétal n° 40, Repères et tendances, n° 40, avril 2003

second retrace les 1260 variations mensuelles du Dow Jones entre 1896, l'année de sa création, et 2000. Sans faire appel à des techniques statistiques complexes, la simple inspection de ces deux graphiques permet de dégager plusieurs caractères saillants.

Les variations en pourcentage, quotidiennes ou mensuelles, sont à peu près symétriques et centrées sur zéro. Il y a presque autant de variations positives que de variations négatives, les plus-values sont donc presque aussi nombreuses que les moins-values. Il n'y a pas de tendance dans les variations, car les deux graphiques sont parfaitement horizontaux.

La volatilité moyenne des variations quotidiennes peut être estimée à environ 1%, l'immense majorité des variations quotidiennes étant comprise dans une bande horizontale de $\pm 2\%$ autour de zéro. De même, la volatilité mensuelle peut être estimée à environ 4,6%, avec un intervalle de confiance voisin de $\pm 9,2\%$.

Des « bouffées » irrégulières de volatilité

Mais, dans les deux graphiques, la volatilité fluctue beaucoup d'une période à l'autre : elle est elle-même volatile. Elle varie par « bouffées », en faisant alterner les périodes agitées et les périodes relativement calmes. La volatilité des variations quotidiennes est très forte à partir de mars 1982, avec de nombreuses variations proches de, ou supérieures à 4%. Elle est encore plus forte à la fin de 1987, au moment du krach du 19 octobre, avec une baisse, ce jour-là, de 22,6%, suivie par un rebond à la hausse de 9,1% le 21 octobre et par une nouvelle chute de 8,04% le 26. Inversement, la volatilité quotidienne est plus faible que la volatilité moyenne au début de 1982 et à la fin de 1985. Quant aux variations mensuelles depuis 1896, elles montrent clairement que la volatilité a été considérable dans les années 1930, limitée pendant l'après-guerre, puis à nouveau forte dans les années 1987 et 2000.

Une analyse « à la loupe » de ce même graphique 2 permet de déceler une particularité de la volatilité du marché new-yorkais. Elle est sensiblement plus élevée pendant toute la période comprise entre 1896 et 1940, avec des variations mensuelles supérieures à 10% en nombre visiblement supérieur à celui observé à partir des années 1950. De même, 16 variations annuelles dépassent 25% avant 1940, contre seulement 4 variations annuelles supérieures à 25% après 1950. Ce changement de comportement, peu connu du public, est le résultat de la création de la SEC (*Securities Exchange Commission*) en 1933. Elle mit fin à des formes incontrôlées et pas toujours honnêtes de spéculation, et surtout elle imposa des règles de bonne conduite aux intermédiaires et fixa les conditions d'information des actionnaires.

Mais ce qui caractérise le plus les chroniques des variations des cours boursiers, c'est la présence très visible de nombreux « pics » correspondant à des variations de très grande amplitude, bien au-delà de l'intervalle de confiance $\pm 2\%$ dans le graphique 1 ? ou au-delà de $\pm 9,2\%$ dans le graphique 2. Depuis 1885, à New York, on a dénombré plus de 125 variations quotidiennes supérieures à 5%, dont certaines au-delà de 10%, alors qu'en appliquant la théorie statistique « classique », comme celle des sondages, on aurait dû en compter seulement deux ou trois au-delà de 4% et aucune au-delà de 5%. Pis, ces variations exceptionnelles sont groupées, elles aussi. Les fortes variations quotidiennes sont immédiatement suivies par de fortes variations, pas nécessairement

de même sens, si bien que l'essentiel d'une hausse annuelle, comme d'une baisse, se déroule en très peu de jours. Par exemple, entre 1983 et 1992, l'essentiel de la hausse de l'indice Dow Jones, qui fut multiplié par 2,4 en dollars constants, s'est déroulée sur 40 jours, soit 4 jours par an en moyenne. Si l'on supprime ces 40 meilleurs jours de hausse de la chronique des variations quotidiennes et qu'on recalculé le Dow Jones à partir des 2486 variations restantes, la hausse devient quasiment nulle en dollars constants. Autrement dit, en bourse, même pendant les périodes de hausse prolongée, il ne suffit pas d'acheter, il faut le faire au bon moment. Ce phénomène n'est d'ailleurs pas propre aux variations annuelles, il s'observe également dans les variations « *intra day* », celles qui comptent pour les traders qui commencent leurs opérations à l'ouverture du marché pour les achever à sa clôture. Eux aussi savent que l'essentiel de la variation du jour se déroule souvent en quelques dizaines de minutes, parfois moins.

Ces variations de grande amplitude, peu fréquentes mais groupées dans le temps, ont toujours été présentes dans tous les marchés spéculatifs, ceux des actions comme ceux des taux d'intérêt, ceux des matières premières comme ceux des changes. Ainsi, le mathématicien français Louis Bachelier (1870-1946), qui, dans sa thèse soutenue en 1900 sur les fluctuations des cours de la rente perpétuelle, proposa le premier modèle probabiliste des marchés spéculatifs, observait déjà que les grandes fluctuations étaient « trop nombreuses » par rapport aux fréquences qui correspondraient à l'habituelle « courbe en cloche » de Gauss. Un autre mathématicien français, Benoît Mandelbrot, dans un article paru en 1963 sur la modélisation stochastique des variations des cours du coton à Chicago, montrait que depuis la création de ce marché au XIX^e siècle, les variations extrêmes étaient relativement fréquentes et groupées.

Les fluctuations qualifiées d'exubérantes ont donc toujours existé dans les marchés boursiers. Celles qu'on observe depuis une dizaine d'années, d'abord à la hausse ensuite à la baisse, ne sont pas plus exubérantes que par le passé.

La théorie économique des marchés dits efficients, qui légitime les marchés boursiers, permet d'expliquer certaines caractéristiques que nous venons de décrire (mais pas toutes, nous verrons lesquelles), notamment le rôle fondamental de la volatilité. Aussi, pour comprendre l'origine et l'amplitude des fluctuations boursières il faut commencer par un petit détour théorique.

La théorie des marchés efficients

La théorie des marchés boursiers efficients, initiée par Louis Bachelier, fut développée dans les années 1960 par Paul Samuelson, Prix Nobel d'économie en 1970, puis complètement élaborée en 1965 par Eugene Fama, professeur à l'Université de Chicago, laquelle a fourni bon nombre de prix Nobel d'économie. Elle pose que toute l'information pertinente sur les entreprises cotées est connue de tous les intervenants, immédiatement et sans frais, et qu'elle est donc toujours incorporée dans les cours. Un adage résume cette idée fondamentale : « *Once you have heard the news, it's too late to use it* »². Cette théorie légitime les marchés boursiers en opposant la finance de marché à la finance bancaire, dans la mesure où les banques font

² « Quand vous apprenez la nouvelle, il est déjà trop tard pour l'utiliser. »

exactement l'inverse des marchés boursiers. Elles fondent en effet leur légitimité sur le secret et sur l'information privilégiée que les banquiers s'efforcent d'obtenir et de conserver sur leurs clients, en général des emprunteurs.

La théorie des marchés efficients part de deux prémices : 1. Ce qui s'échange sur ces marchés, ce sont des anticipations et seulement des anticipations (sauf le cas particulier des droits de vote, valorisés au moment des OPA). 2. Les marchés sont équitables, ils ne favorisent ni les acheteurs ni les vendeurs, car celui qui achète anticipe le contraire de celui qui vend. À partir de ces deux prémices, la théorie des marchés efficients montre qu'effectivement les variations des cours doivent être symétriques autour de zéro. Autrement dit, la plus value moyenne (non compris les dividendes) doit être strictement égale à zéro, alors que, dans la finance bancaire, celui qui emprunte à sa banque subit un taux d'intérêt beaucoup plus élevé que lorsqu'il lui prête par l'intermédiaire de ses dépôts. Un autre adage exprime l'absence de gain systématique : « *You cannot beat the market, because you are the market* »³. Quant à la volatilité des variations, elle est la conséquence directe de l'absence de gain systématique. Elle mesure la part d'aléatoire que les acheteurs et les vendeurs se répartissent entre eux, à la manière d'un jeu de pile ou face, où les gains de chaque joueur sont identiques et résultent d'un aléa symétrique.

L'efficacité des marchés boursiers explique aussi plusieurs particularités statistiques :

- Les cours fluctuent de façon apériodique. Les cycles apparents sont dépourvus de régularité, leur longueur n'étant qu'un artefact statistique.
- La volatilité des variations est d'autant plus forte que l'intervalle de temps est long. Elle croît comme la racine carrée du temps, comme le montre la comparaison entre les graphiques 1 et 2. La volatilité mensuelle y est, conformément à la théorie, 4,6 fois plus grande que la volatilité quotidienne⁴.

Le mystère des valeurs extrêmes

Malgré ses succès scientifiques auprès des économistes et ses nombreuses applications pratiques, comme par exemple l'ouverture des marchés d'options négociables en 1973, dont les primes, dépendant de la volatilité, sont calculées à partir d'une formule mathématique reposant sur l'hypothèse d'efficacité⁵, la théorie des marchés efficients n'explique pas les valeurs extrêmes. Or, ce sont ces « pics » de variations et ces « bouffées » de volatilité excessive, souvent qualifiés d'irrationnels tant ils surprennent les économistes eux-mêmes, qui sont mis en avant par les journalistes informant le grand public. Trois raisons fondamentales expliquent et justifient l'existence de ces fluctuations. D'abord, l'économie n'est pas un phénomène naturel,

³ « Vous ne pouvez pas battre le marché, parce que vous êtes le marché. »

⁴ Pour mémoire : $4,6 = \sqrt{21} = \sqrt{\text{du nombre moyen mensuel de jours boursiers ouvrables}}$.

⁵ Il s'agit de la formule de « Black et Scholes », qui valut le prix Nobel à Myron Scholes en 1997. Fisher Black étant décédé ne put l'obtenir, conformément aux statuts de la Fondation Nobel.

elle ne relève pas de la physique ni de la biologie, mais elle peut être contaminée par la psychologie. Ensuite, la confrontation de l'offre et de la demande sur un marché engendre des instabilités. Enfin, la valeur dite « fondamentale » d'une action ou d'un indice d'actions est par construction une valeur volatile.

Contrairement à la physique, il n'y a pas en économie de constante fondamentale : pas de « constante de Planck », pas de constante gravitationnelle ou de vitesse de la lumière structurant la matière et l'univers. Il est donc impossible de fixer des normes indépassables. Il n'existe pas non plus, en économie, de lois du type « conservation de l'énergie », qui limitent les phénomènes de croissance dans la réalité physique. Ainsi, pour un physicien, tous les taux de croissance, même très faibles, disons 1% par an, sont de nature à engendrer des réactions explosives et ne peuvent donc perdurer⁶. Cette absence de constantes en économie facilite évidemment les anticipations les plus folles, génératrices de bulles spéculatives, comme celle des nouvelles technologies. Elles ne trouvent leurs corrections qu'a posteriori, lorsque la réalité montre l'impossibilité de la croissance sans limite.

Les effets de l'absence de constante sur les anticipations sont renforcés par une autre caractéristique de l'économie, l'absence d'échelle intrinsèque. En économie, aucune contrainte de nature théorique n'empêche le gigantisme. Les tailles des entreprises peuvent varier d'une personne à plusieurs centaines de milliers d'employés ; les tailles des agglomérations de quelques habitants à plusieurs dizaines de millions ; les rémunérations, d'un salaire égal au SMIC, parfois moins, à 1000 fois le SMIC, parfois beaucoup plus ; le box office des films, de presque rien à 20 millions de spectateurs en France (Titanic), etc. On peut multiplier les exemples dans tous les secteurs, c'est toujours la même théorie économique qui s'applique. En cela, l'économie est très différente de la biologie où tous les êtres vivants ont une dimension intrinsèque qui ne tolère que de très faibles variations de taille. Ainsi, tous les êtres humains sont contraints par le rapport entre le volume de leur corps, qui croît comme le cube de leur taille, et la surface de leur peau, qui croît comme le carré de leur taille. Au-delà de 2,50 mètres, la taille des plus grands basketteurs, il devient difficile d'assurer les échanges thermiques du corps sans modifier tout le système respiratoire et le système cardiovasculaire, si bien que l'écart entre les adultes les plus petits et les adultes les plus grands ne dépasse pas un facteur deux. L'absence d'échelle intrinsèque se manifeste également dans la structure des fluctuations boursières. Comme on peut le constater sur les deux graphiques, si on efface les indications d'échelles sur les deux axes, il n'y a pas de différence fondamentale entre le comportement des variations quotidiennes et celui des variations mensuelles⁷.

⁶ Par exemple, 1 dollar placé pendant 2000 ans à 1% devient 439 millions de dollars ! Placé depuis 5000 ans, ce même dollar aurait atteint une valeur qui dépasse l'entendement (4 suivi de 21 zéros). À l'échelle de l'âge de l'univers, le calcul perd toute signification.

⁷ Il en va de même avec les variations « intra day ». L'indice CAC 40 est affiché toutes les 30 secondes, soit près de 1000 variations par jour ouvrable – en tout point semblables aux variations quotidiennes sur quatre ans. L'absence d'échelle intrinsèque est une caractéristique essentielle des objets fractals, dont la théorie a été créée par Benoît Mandelbrot.

Ces deux propriétés caractéristiques de l'économie, si elles rendent possible l'existence des grandes fluctuations, ne suffisent pas à expliquer leur réalisation ni leur regroupement. Cette explication, il faut la chercher dans le fonctionnement des marchés boursiers et le comportement des opérateurs inégalement informés.

Des mécanismes d'amplification

Les cours résultent de la confrontation des courbes d'offre et de demande. Mais, deux caractéristiques majeures différencient les marchés boursiers des marchés de produits ou de services :

- Ceux qui demandent et ceux qui offrent des titres peuvent parfaitement permuter leur rôle sans frais ni sans délais. Il suffit de changer d'anticipation, ce que les professionnels des marchés n'hésitent pas à faire plusieurs fois par mois, voire par jour. Or une entreprise ne peut pas changer son activité sans frais et sans délais. Elle peut éventuellement modifier certains paramètres de son activité, mais pas à la vitesse des échanges d'ordres boursiers. L'action Renault peut varier de plusieurs dizaines de pourcents en quelques séances, alors que la variation de sa production d'une année sur l'autre ne peut guère dépasser 10%. De plus, Renault ne peut pas devenir acheteuse des voitures qu'elle a vendues, à la manière d'un spéculateur rachetant un titre qu'il vient de vendre, à découvert le cas échéant.
- Les offres et les demandes de titres ne sont pas indépendantes. Au contraire, elles sont liées de façon négative. Une même information peut engendrer simultanément une variation de la demande et une variation en sens inverse de l'offre, d'où des écarts de cours importants. Ainsi, lorsqu'une information arrive sur le marché et qu'elle est jugée favorable à une action, par exemple la découverte d'un nouveau gisement pétrolifère géant ou d'un nouveau médicament efficace contre une maladie répandue dans le monde, les demandes affluent, mais ceux qui détiennent déjà des actions se gardent de les vendre, ce qui accentue la hausse. Il en va de même à la baisse. En cas de mauvaise nouvelle, les vendeurs se précipitent, mais ils ne trouvent pas d'acheteurs – comme par exemple le 19 octobre 1987, lorsque le Dow Jones a perdu 22,6 %. La baisse aurait d'ailleurs été beaucoup plus forte si le marché n'avait pas été interrompu quelques heures. Cette liaison négative entre l'offre et la demande est d'autant plus déstabilisante qu'il suffit parfois d'un petit nombre d'opérateurs intervertissant leurs anticipations pour que les cours varient de façon extrême⁸.

Sur les marchés de produits et de services, l'offre et la demande ne sont pas non plus indépendantes, mais, à l'inverse des marchés boursiers, elles sont liées positivement. Lorsque la demande augmente, les producteurs s'efforcent d'augmenter leur offre ; lorsque la demande diminue, ils s'efforcent de la diminuer aussi. Les variations des prix ne peuvent qu'en être atténuées.

⁸ On peut comparer le fonctionnement du marché au jeu de la corde, en anglais : « tug-of-war », où deux équipes s'affrontent en tirant sur une corde. Le jeu dure tant que les deux équipes restent de force égale. Les fluctuations du point d'équilibre représentent les petites fluctuations des cours. Mais si l'un des équipiers vient à changer de camps (si de demandeur il devenait offreur), le déséquilibre serait immédiat (forte variation de cours).

Mimétisme et information discontinue

Ce phénomène d'amplification des variations par les comportements liés des offreurs et des demandeurs peut être accentué par le manque d'information, ou simplement par son imprécision. En effet, la théorie des marchés efficients repose sur la diffusion de toute l'information. Si des demandeurs ou des offreurs n'ont pas accès à cette information, des comportements particuliers peuvent perturber le marché en amplifiant les variations. Il suffit que des acheteurs ou des offreurs, privés d'information, s'en remettent à l'observation des comportements des autres opérateurs, pas nécessairement mieux informés qu'eux. Ils achètent quand tout le monde achète et ils vendent quand tout le monde vend, d'où les krachs et les rallies. Ce phénomène grégaire, fortement coloré par la psychologie des opérateurs qui paniquent ou s'enthousiasment de façon excessive, et baptisé « mimétisme », joue un rôle non négligeable. Ce comportement moutonnier a fait l'objet de nombreuses analyses et caricatures, comme le célèbre M.Gogo d'Honoré Daumier. Ses fondements psychologiques et cognitifs ont été analysés en détail par André Orléan, mais il ne peut à lui seul expliquer l'origine des pics de variation. Si les demandes et les offres n'étaient pas liées de façon négative sur les marchés boursiers, les mouvements de foule n'auraient pas un tel impact. En cas de demandes massives, l'offre s'adapterait à la demande en augmentant, si bien que les cours ne pourraient pas monter autant. De plus, le « mimétisme » n'explique pas le groupement des grandes variations. Autrement dit, il n'explique pas pourquoi il s'arrête de lui-même pendant les périodes relativement calmes.

C'est l'arrivée discontinue d'informations, notamment sur la politique monétaire et les taux d'intérêt, qui est à l'origine du regroupement des variations de grande amplitude des indices boursiers. Dans le cas du Dow Jones, près des deux tiers des grandes variations depuis 1946 ont été liées à des variations de taux d'intérêt, qui les ont précédées ou qui avaient été anticipées. Le tiers restant est lié aux guerres ou aux élections présidentielles.

L'enchaînement des mécanismes de marché, générateurs de variations extrêmes et de leur groupement, peut donc être décrit ainsi : tant qu'il n'y a pas d'informations importantes, les variations de cours dues aux innombrables ordres d'achats et de ventes restent confinées dans la fourchette étroite de quelques pourcents autour de zéro. Mais dès qu'une information importante, par exemple une hausse des taux d'intérêt ou un « profit warning »⁹ arrive sur le marché, l'effet de la diminution de la demande combinée à la hausse de l'offre, effet aggravé par les éventuels comportements moutonniers de certains opérateurs, provoque une baisse importante des cours, par exemple 5% en un jour. Une telle baisse provoque toujours des effets techniques secondaires dus aux opérations de couverture, d'arbitrage, de débouclage de positions spéculatives, de prises de bénéfices, etc. D'où des hausses et des baisses importantes consécutives à l'arrivée de l'information. Pendant quelques jours, les cours auront donc tendance à varier beaucoup, dans un sens et dans l'autre ; les variations diminuent ensuite, l'information ayant été intégrée dans les cours.

⁹ Annonce par une entreprise que ses résultats seront inférieurs aux attentes.

Le dernier facteur expliquant les variations de grande amplitude est contenu dans la volatilité de la valeur dite fondamentale des actions (V). Cette valeur n'est pas autre chose qu'une extension de la formule d'actualisation des dividendes (d) par le taux d'intérêt (i) auquel sont ajoutés deux correctifs, le taux de croissance anticipé des dividendes (g) et la prime de risque (p). En simplifiant pour la clarté de l'exposé, on obtient une relation très simple, dont les éléments sont régulièrement publiés dans la presse économique et financière :

$$V = d / (i + p - g).$$

Elle signifie que la valeur fondamentale d'une action est égale au dividende divisé par un dénominateur lui-même égal au taux d'intérêt, augmenté de la prime de risque, diminué du taux de croissance. Or, il n'est pas difficile de vérifier avec une calculatrice que la moindre variation du taux d'intérêt i , surtout lorsqu'elle entraîne des variations de même sens de la prime de risque et de sens inverse du taux de croissance, peut avoir des effets considérables sur V . De fait, entre 1972 et 1995 aux Etats-Unis, une hausse de 1% du taux d'intérêt nominal a fait baisser les cours des actions de 26% en moyenne. On comprend mieux pourquoi les analystes financiers scrutent avec beaucoup d'inquiétude ou d'espoir les déclarations ou les silences des organismes régulateurs de la politique monétaire que sont la Réserve fédérale (Fed) et la Banque centrale européenne. De plus, dans les cas extrêmes où certains se persuadent que l'espérance de croissance des dividendes est supérieure au taux d'intérêt augmenté de la prime de risque, la valeur fondamentale de l'action devient, au sens littéral, « incalculable » – ce qui explique sans doute quelques excès commis sur les titres Internet.

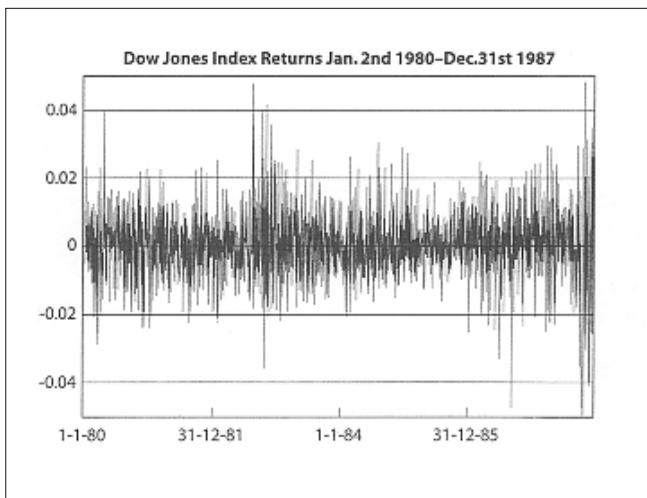
Volatilité et gestion de portefeuille

Le comportement pour le moins erratique, « exubérant » pour certains, des variations des cours boursiers semble incompatible avec toute rationalité des placements financiers. Il n'en est rien. En général, dans le long terme, toutes les études scientifiques montrent que le placement dans un portefeuille diversifié d'actions protège bien de l'inflation. Mieux, si on capitalise intégralement les dividendes, le placement en actions est le meilleur des placements en titres. Aux Etats-Unis, depuis 1896, son taux moyen de rentabilité annuelle est voisin de 7%, hors inflation, mais avant le prélèvement des frais de gestion du portefeuille (entre 1% et 2%) et avant l'impôt sur les dividendes et sur les plus-values éventuelles. En France, le placement en actions a rapporté sensiblement moins depuis 1913 – 4% par an en monnaie constante –, mais il est comparable à celui des Etats-Unis depuis 1950, toujours avant les prélèvements des frais de gestion, des impôts sur le revenu et sur les plus-values¹⁰. Aucun autre placement en titres ne rapporte autant. Mais il faut préciser que ces taux de rentabilité sont des moyennes à long terme, et non des performances réalisables à

¹⁰ La différence entre les rentabilités hors inflation aux Etats-Unis et en France provient du très important différentiel d'inflation entre ces deux pays. Le pouvoir d'achat du dollar a été divisé par 20 depuis 1900, celui du franc par 2000. Les fluctuations monétaires expliquent également la plus grande volatilité des indices en France comparés à ceux des Etats-Unis.

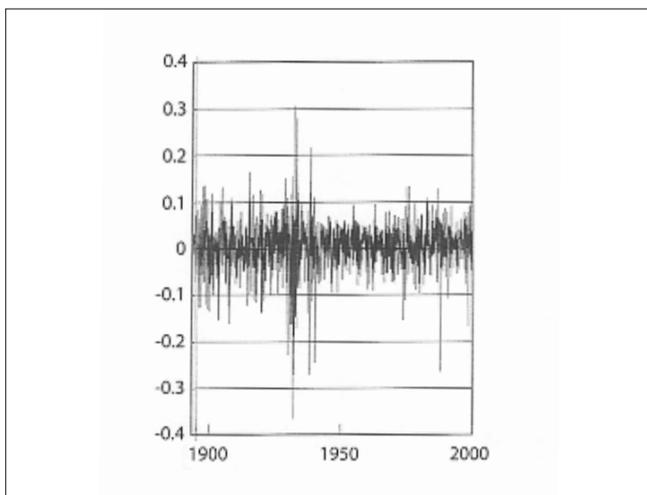
tout moment. Il faut savoir ou pouvoir attendre. La volatilité des variations des cours n'étant jamais négligeable (18% par an aux Etats-Unis en moyenne depuis 1896, 24% par an en France en moyenne depuis 1950), pour être absolument sûr de ne pas perdre une partie de son capital, en monnaie constante, il faut attendre plus de 15 ans aux Etats-Unis et plus de 25 ans en France. En revanche, à moins de cinq ans, le placement en actions peut être ruineux, comme aux Etats-Unis entre 1915 et 1921, entre 1929 et 1932, entre 1937 et 1942 ou entre 1966 et 1982. Et à très court terme, soit moins de deux ans, les effets de la volatilité sont si importants qu'il vaut mieux réserver le placement en actions aux spéculateurs, qui se prétendent mieux informés que les autres investisseurs.

La longueur des périodes de référence, qui rend compatible la rentabilité d'un portefeuille avec son risque mesuré par la volatilité, peut paraître excessive. Elle résulte d'analyses sur une période longue qui recouvre un siècle particulièrement agité, le XX^e. Le XXI^e sera-t-il aussi volatil ? Ses deux premières années laissent augurer que, pour l'instant, la réponse est oui.



Graphique n° 1

Variations quotidiennes en pourcentage du Dow Jones de 1980 à 1987



Graphique n° 2

Variations mensuelles en pourcentage du Dow Jones de 1896 à 2000

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Les mystères d'une volatilité débridée, ou le rêve brisé d'un bonheur économique perdu

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L'irrésistible envolée d'une aversion au risque jusque-là contenue

Du milieu des années 1990 à mars 2000, l'économie américaine et mondiale a connu une période exceptionnelle de prospérité et de faible inflation, marquée par les dividendes de la paix, la sécurité civile, l'extension de la mondialisation à des pays anciennement communistes comme la Chine et la Russie, la poursuite de politiques monétaires et fiscales vigilantes, l'envolée des échanges et les bénéfices de productivité apportées par la généralisation des nouvelles technologies. L'optimisme était tel que les agents pensaient pouvoir s'affranchir des contraintes du cycle des affaires, et que l'aversion au risque, tel que mesurée ci-dessous par la prime de risque actions du DJ Stoxx, restait confinée dans d'étroites limites autour de sa moyenne historique de 5%, avant de s'effondrer à 3,0% au sommet de la bulle.

Prime de risque monétaire de l'indice DJ Stoxx 1996-2003



C'est au moment où l'aversion au risque était au plus bas que la bulle a éclaté, ouvrant trois années complètes d'une déflation d'actifs qui allait effacer mondialement près de 10 trillions de dollars de capitalisation boursière, soit l'équivalent réparti sur l'ensemble des marchés d'une année de PIB américain... Lointain écho du désastre japonais du début des années 1990. Certes, un retour à la moyenne s'imposait, mais l'effet de balancier a surpris même les plus pessimistes. La prime de risque s'étale aujourd'hui en « terra incognita » à des niveaux sans précédent dans l'histoire économique récente.

Quel sens donner à cette anomalie ? Une menace de dépression à la japonaise ?

Les abords du millénaire auront coïncidé au sommet de la bulle avec quatre fractures stratégiques :

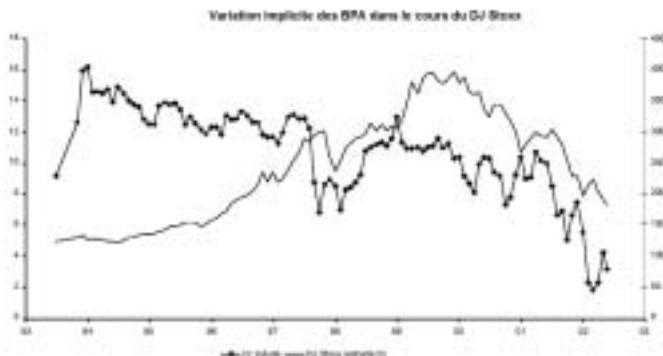
- 1) une crise majeure de bilan, née du sur-investissement et du surendettement dans les pays riches, le nettoyage des excès agitant le spectre du syndrome japonais. Pour nous, c'est la fracture primordiale puisqu'elle est un écho à la crise des années 1930. Terrible défi pour les banquiers centraux et les politiques ! Or une crise de bilan fait toujours beaucoup plus peur qu'une crise du cycle ordinaire des affaires ;
- 2) la montée en régime de la puissance asiatique, qui pousse à la déflation des prix, et accentue les pressions tant sur les responsables politiques que sur les grands argentiers ;
- 3) la crise de confiance dans les marchés (affaire Enron, crise de l'audit et de l'analyse financière, refondation comptable, remise en cause du rôle des administrateurs, contrainte du développement durable, etc.), qui a quelque peu secoué les fondements mêmes du capitalisme¹, du libéralisme et de la globalisation ;
- 4) les menaces qui pèsent sur la mondialisation, cristallisées par la fracture géopolitique et « la fin des dividendes de la paix » au lendemain des attentats du 11 septembre, qui ont accentué la flambée du pétrole et ses retombées négatives pour la croissance.

Une aversion au risque associée à une menace de dépression

Chaque menace ponctuelle de dérapage vers la déflation est associée à une « fuite vers la qualité » et donc à une poussée d'aversion au risque. La remontée spectaculaire de l'aversion au risque est liée à une conjonction de facteurs déflationnistes susceptibles de plonger l'économie mondiale dans une récession prolongée, à la japonaise². Elle peut traduire aussi un réflexe d'auto-défense d'une planète sur-exploitée et surmenée. Les anticipations de croissance contenues dans les prix de marché retombent à des niveaux dérisoires par rapport à la moyenne historique, comme le rappelle le graphique suivant :

¹ Ils vont tuer le capitalisme de Claude Bébéar et Philippe Manière, PLON, Paris 2003

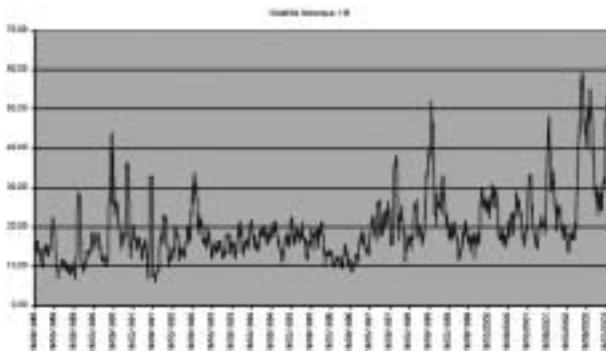
² Dérapage à la japonaise : risques et parades, Etude Stratégie CIC Securities, 29 octobre 2002



La volatilité, miroir de l'aversion au risque

A côté de la prime de risque, la volatilité est une autre mesure de l'aversion au risque. De la fin de la Seconde Guerre jusqu'à la crise LTCM de septembre 1998, la volatilité mensuelle annualisée des indices de la Bourse de Paris s'était inscrite en moyenne autour de 20%, un chiffre du même ordre de grandeur que pour l'indice S&P 500. Sur toute cette période, les brusques poussées de volatilité étaient rares et éphémères, comme d'ailleurs en 1998. Toutefois, le fait marquant de la période récente 2001-2003 tient dans un véritable changement d'échelle de la volatilité, dont les bornes de fluctuations sont passées de 10 à 25% avec des pointes à 8 ou 30%, à une fourchette des possibles beaucoup plus haute : comprise entre 15 et 35% avec des pointes à 60% !

Volatilité mensuelle annualisée de l'indice CAC 40 : 1988-2003



Cette anomalie est résumée dans le graphique ci-dessus qui reprend l'historique de la volatilité mensuelle annualisée du CAC 40 de 1988 à aujourd'hui. Le clivage y apparaît nettement entre la période 1988-2000, qui malgré l'accident de 98 reste assez représentative des 30 années précédentes, et les 3 années suivantes qui ont suivi le passage à l'an 2000. Cette anomalie du tournant du millénaire, dont la flambée éphémère de 1998 n'était que l'avant-goût, a traduit un déplacement spectaculaire et objectivement non ponctuel, de l'aversion pour le risque, dont l'indicateur de prime de risque décrit plus haut s'est fait le miroir.

Quel espoir de sortie de cette zone de turbulences ? Les réponses des autorités économiques

Le problème est maintenant de savoir si la réaction des autorités mondiales et notamment américaines est à la hauteur des défis.

Sur le plan géopolitique, la réponse américaine est d'abord « déterminée », et s'il est encore trop tôt pour juger de son efficacité à plus long terme, elle devrait toutefois favoriser dans un deuxième temps à court-moyen terme un retour à la confiance, certes fragile mais réel. L'ouverture de la feuille de route israëlo-palestinienne, est à cet égard pleine de promesses pour l'avenir.

Sur le plan monétaire, la réponse de M. Greenspan semble finalement pertinente, puisqu'en aidant à la fois le consommateur et les banques de détail, cette politique a compensé les déboires des entreprises et des banques d'investissement. Du moins le temps nécessaire aux entreprises pour reconstituer leurs marges, se refaire une santé et s'approprier à prendre le relais. Les bons résultats financiers de Citigroup et Bank of America sont un lointain écho au sauvetage des caisses d'épargne américaines du début des années 1990. C'est un message d'immunisation contre la spirale déflationniste et dépressive.

Sur le plan budgétaire et fiscal, la réponse américaine est presque aussi risquée que son cavalier-seul en Irak, car la perspective du retour en force des déficits jumeaux a fait dans un premier temps dévisser le dollar et tousser l'Europe qui serait la première victime d'un Euro surévalué. Mais là encore, la réponse « reflationniste » des autorités de Washington nous semble appropriée et l'inaction de la BCE devant l'appréciation de sa monnaie très discutable.

Seule la réponse des autorités européennes est défaillante dans ce contexte, notamment au niveau de la BCE, dont on comprend mal l'attentisme face à la spéculation qui joue sur les différentiels de taux court terme. En rapprochant les deux structures de taux, elle aurait pourtant les moyens de lui casser les reins et de redonner de l'oxygène tant aux marchés qu'aux industriels exportateurs.

A quand la fin de la crise et la prospérité retrouvée?

1) Le dollar, arbitre de la volatilité des marchés

Dans un premier temps, la baisse du dollar accompagne le gigantesque effort de « reflation » de l'Amérique et d'ajustement de son économie, afin de reconstituer son taux d'épargne et de freiner sa demande intérieure. Cet effort, combiné aux avancées

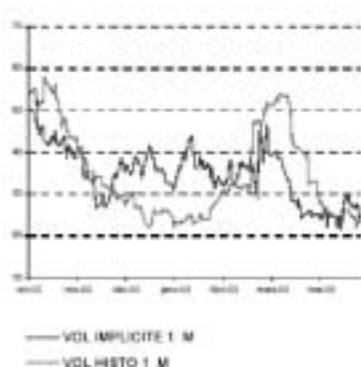
diplomatiques américaines au Proche-orient, contribue à rétablir la confiance et à éloigner les risques déflationnistes. Notre conviction est que, dans un deuxième temps, le différentiel de croissance Amérique-Europe favorisera la stabilisation du dollar, future courroie de transmission d'une prospérité retrouvée. Car, même si la zone euro est moins sensible à la baisse du dollar que ne pouvait l'être la somme de ses composantes il y a 4 ans, la santé de la devise américaine apparaît comme le véritable arbitre du retour à la normale de la confiance, donc de la volatilité.

2) L'optimum mondial suggère une stabilisation du dollar

Une chute supplémentaire et profonde du dollar ne serait dans l'intérêt de personne, et notamment des créanciers des Etats-Unis qui vont devoir y recycler le produit de leurs excédents courants. Pour l'Amérique, plus le dollar sera ferme et moins élevés seront les taux d'intérêt qu'il va commander. Enfin, le différentiel de croissance va jouer en ce sens.

3) La forte chute récente de la volatilité historique dans le sillage de la volatilité implicite annonce sans doute une poursuite de la bonne tenue des marchés... et peut-être la fin de la crise

La volatilité implicite contenue dans le prix des options a tendance à précéder l'évolution de la volatilité historique de quelques semaines. Or la retombée récente de ces deux mesures de l'aversion au risque pourrait annoncer une consolidation des gains acquis depuis mars 2003 (cf. graphique ci-dessous de notre Desk Dérivés et Options) et la fin des menaces déflationnistes.



Source :CIC Securities, Desk Dérivés et Options

Il faut recréer les conditions de l'investissement à long terme afin de stabiliser les marchés

Jean-Pierre Hellebuyck

Vice-président, Directeur de la stratégie d'investissement - Axia Investment Managers

- La trop forte volatilité du marché des actions est un fait. Elle montre que les bourses (surtout européennes continentales) fonctionnent mal, la formation des prix n'est pas faite de façon efficiente. Cette situation est dangereuse car elle compromet le financement en fonds propres des entreprises et elle disqualifie peu à peu les actions comme instrument d'épargne.
- Les raisons de la volatilité sont multiples et il est important de les détailler afin d'éviter de prendre des conséquences pour des causes initiales.
 - La grande instabilité des politiques monétaires, surtout depuis 1997, contribue à la volatilité du cycle économique et par conséquent financier. Resserrement monétaire en 1996-97, relâchement en 1998-99 (crise asiatique – préparation de l'année 2000) resserrement en 2000-01, relâchement en 2001-2002-2003 : quatre phases en 7 années !
 - L'endettement des entreprises : La recherche avide et funeste des 15 % de rentabilité des capitaux propres dans un environnement de croissance nominale au mieux de 5 % l'an conduit à une utilisation abusive de l'effet de levier. La faible croissance nominale mondiale depuis 2001 a rendu insupportable aux entreprises leur endettement. Elle a conduit à de vrais désastres et aussi à des escroqueries (Enron, etc.) Les créanciers et détenteurs d'obligations sont généralement mieux protégés face à cette situation et les actionnaires sont devenus la variable d'ajustement, ceci explique en grande partie la volatilité.
 - La disparition des investisseurs de long terme en actions : la généralisation du « *mark to market* », les exigences de marges de solvabilité, de provisionnement, l'absence en Europe continentale de fonds de pension sont des facteurs qui expliquent l'absence des investisseurs de long terme, les seuls qui ont la capacité d'être contra-cycliques. Aujourd'hui 20 % seulement des transactions correspondent à des investissements de long terme
 - La quasi-disparition des investisseurs de long terme a été encore aggravée par la modification de leur processus d'investissement. 20 années de marchés haussiers ont fait passer le risque relatif devant le risque absolu. La sélection des valeurs est devenue secondaire, les nouveaux gérants connaissent peu les entreprises et surveillent plus leur budget de risque relatif que leur performance dans l'absolu. Ceci a renforcé les comportements moutonniers pro-cycliques bien connus qui sont autant de facteurs de volatilité.

Tous les facteurs cités plus haut ont favorisé l'émergence des gestions alternatives, structurées, et garanties dont beaucoup correspondent à un réel besoin, à une attente de placements pour l'épargne des ménages. Les détenteurs d'obligations *corporate* et les gestions alternatives sont donc devenus par construction de gros utilisateurs de produits dérivés et les principaux intervenants sur les marchés actions. Les actions sont devenues de ce fait des « sous-jacents » sorte de matières de base qui n'ont plus que des liens très tenus avec les entreprises elles-mêmes.

La perte de vitalité, d'efficacité des marchés actions a enfin favorisé l'émergence des gestions « *long-short* » refuge des véritables « *stock-pickers* » probablement un des endroits où l'on connaît le mieux les valeurs. Mais, évidemment, l'augmentation ou diminution artificielle du fait du levier, de l'offre et de la demande d'actions fausse la formation des prix. Sur certains marchés étroits, en Europe continentale en particulier, on assiste même à une véritable manipulation de certains cours du fait de l'action d'une minorité de spéculateurs peu scrupuleux.

● Que faire ?

Le rétablissement de la santé des entreprises, leur désendettement, l'éloignement du spectre de la déflation sont évidemment des préalables macro-économiques au retour de la stabilité.

- Le renforcement structurel des investisseurs institutionnels de long terme est une nécessité incontournable. Il serait vain d'envisager des mesures de régulation sans veiller auparavant à la reconstitution de forces de placement capables d'une vision à moyen terme. Cela passe forcément en particulier par la création de fonds de pension, le renforcement de l'épargne salariale, l'atténuation du « *mark to market* » etc.
- Des mesures plus ciblées de régulation peuvent aussi avoir un effet positif :
 - variations des appels sur marge décidées par les autorités de contrôle en fonction des mouvements de marché ;
 - publicité et transparence au niveau des places, des prêts de titres ;
 - meilleure surveillance, et transparence des garanties offertes par les produits structurés ;
 - moyens d'actions à caractère supranational donnés aux régulateurs pour sanctionner ou poursuivre les manipulations de cours ;
 - développement du *corporate governance* – en particulier obligation des dirigeants d'entreprise de soumettre à l'approbation des actionnaires en AGO-AGE les programmes d'endettement, d'émissions d'obligations.

-
- En conclusion, on voit bien que la volatilité des marchés n'est pas seulement une affaire de régulation ou de contrôle, ceci apparaît certes nécessaire pour stopper les abus les plus frappants et obliger à la transparence mais l'essentiel est probablement ailleurs. Il faut recréer les conditions propres à l'investissement de long terme, ceci semble bien être la priorité. Pour ce qui concerne les sociétés de gestion et leur processus d'investissement, la baisse des marchés les a déjà obligées à repenser la gestion du risque dans l'absolu. N'oublions pas non plus que les bonnes économies font les bons marchés. En particulier la capacité de la zone euro à procéder à des réformes, la révision d'un policy mix - aujourd'hui trop attaché à un certain « fétichisme » sur des objectifs chiffrés budgétaires et monétaires - sont indispensables. Elle permettrait aux actions européennes d'être à l'avenir autre chose que de simples warrants sur les actions américaines.



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