

*New  
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in  
Modern  
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WHY THE

US Stock Market Performance since 1982

BUBBLE

LAWRENCE LEE EVANS, JR.

BURST

# Why the Bubble Burst

US Stock Market Performance since 1982

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Lawrance Lee Evans Jr.

*US General Accounting Office*

**NEW DIRECTIONS IN MODERN ECONOMICS**

**Edward Elgar**

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# Why the Bubble Burst

**NEW DIRECTIONS IN MODERN ECONOMICS**

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1920s and the mid-1960s, the greatest and most intense run-up in equity values had yet to occur. From 1995 to the end of the first quarter of 2000 the S&P surged from 465 to 1442.12 – another 210 per cent in nominal terms.

By the end of 1999 the S&P 500 Index had risen an extraordinary 1,118 per cent from its 1982 level in nominal terms (644 per cent in real terms). However, over the same period nominal S&P 500 earnings and dividends increased approximately 200 per cent and 150 per cent, respectively (just 40 per cent and 63 per cent in real terms). The total value of US corporate equity was nearly twice the value of gross national income while the key measures of stock market valuation, namely the price multiples, appeared to be at unsustainable levels when juxtaposed to the long-run historical trend. In particular, the price–earnings ratio on S&P 500 stock stood at 44.3 – reminiscent of the 32.6 figure seen just prior to the great crash of 1929. In fact, Robertson and Wright (1998) note that even at the end of 1997 Tobin's  $q$  was 'at a historically extreme value, comparable only to that seen this century in late 1929' (p. 20).

Historically, low dividend yields have served as an important indicator of market overvaluation, with market corrections occurring as the yield approaches 2.65 per cent (Standard and Poor's Stock Market Encyclopedia, 1999). However, the new millennium began with a yield on S&P 500 stock of approximately 1.14 per cent, accentuating the fact that equity prices in the United States had reached levels consistent with expected dividend growth rates that were, by historical standards, unprecedented. This implied that either the run-up in equity values was not well anchored by fundamentals, that there had been a significant shift in the risk–return characteristics of the stock market, or that something extraordinary had occurred in the underlying real economy. These possibilities begged questions about the forces underpinning the phenomenal increase in US equity prices and whether the boom was the result of investor euphoria or rational assessments of future prosperity. The popular answers that dominated the academic literature and business press illustrated conflicting visions about equity price movements and more importantly exposed the lacuna in the dominant theory of asset pricing.

Despite the efficient markets hypothesis (EMH), the struggle to understand the forces underpinning equity price movements has been well documented. In 1986, Chen et al. wrote, 'A rather embarrassing gap exists between the theoretically exclusive importance of systematic "state variables" and our complete ignorance to their identity'. In his 1988 address to the American Economic Association, Richard Roll stated, 'The immaturity of our science is illustrated by the conspicuous lack of predictive content about some of its most interesting phenomena, particularly changes in asset prices' (Canova and De Nicolo, 1995). Against the backdrop of the run-up in US equity prices Robert Hall (2001) once again reiterated the perennial struggle to understand equity price dynamics noting, 'Economists are as perplexed as anyone by the behavior of the stock market'. Given this general uncertainty about equity price movements it is to be expected that economists

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# 1. Towards an Understanding of the Stock Market Bubble

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How we value the stock market now and in the future influences major economic and social policy decisions that affect not only investors but also society at large, even the world. If we exaggerate the present value of the stock market, then as a society we may invest too much in business startups and expansions, and too little in infrastructure, education, and other forms of human capital. If we think the market is worth more than it really is, we become complacent in funding our pension plans, in maintaining our savings rate, in legislating an improved Social Security system ... (Shiller, 2000a).

In the late 1990s societal preoccupation with the stock market and its spectacular performance was so pervasive that books like *Dow 36,000* found receptive audiences throughout the US. The authors confidently proclaimed elsewhere that, 'A sensible target date for Dow 36,000 is early 2005, but it could be reached much earlier'.<sup>1</sup> Based primarily on the belief that stocks were indeed destined to provide investors with superior returns going forward, funds flowed into the stock market at an unprecedented rate fueling one of the biggest bubbles in US history. Yet, although they may exist for an undetermined length of time, financial bubbles by their very definition are predestined to burst. The performance of the US stock market from the second quarter of 2000 through 2002 made this painfully obvious to investors and stock analysts, many of whom believed that market would continually produce the double-digit gains with little to no downside risk. There will be no Dow 36,000 in 2005 – investors should consider themselves lucky if we see a Dow anywhere in the vicinity of 10,000 in 2005.

Why did the bubble burst after appearing seemingly impregnable to global financial crises and internal debacles like the collapse of Long-Term Capital Management? To fully comprehend this we need to understand the evolution of the stock market bubble as the formation itself explains the roots of the collapse. Identifying the forces driving US equity values over the 1982–2000 period take us beyond the standard and popular theories. In short, the unparalleled escalation in stock values was produced by sizeable international and domestic demand flows in the face of a shrinking supply of corporate equity via share repurchases, leveraged buyouts and merger activity. As the insatiable demand chased a diminishing supply, the resulting prices became detached from their more reasonable values. Ultimately, the bubble burst because the stock market had been driven to

unsustainable levels by forces unrelated to economic fundamentals and the pace of equity retirements could not be maintained.

The recent proliferation of earnings restatements and recognition of dubious accounting practices, alongside explosive debt to equity ratios, corporate bankruptcies, class action lawsuits and disappearing high-tech companies are the vestiges of a hungover economy confused by unjustified stock market valuations. Companies like Enron, Global Crossing, Adelphia, Critical Path, Qwest, Rite Aid, Kmart, WorldCom, Xerox, ConAgra, AOL Time Warner and Kroger make it abundantly clear that stock prices in the United States by one way or the other produced misleading signals about underlying corporate performance. The meltdown, much like the run-up, has been well chronicled in the business press. Tales of catastrophic losses have replaced the countless narratives of swollen 401(k) accounts. Investors have gone from what Warren Buffet described as 'giddy' to, according to an April 2001 edition of *Business Week*, 'mad as hell'.

While this book does not seriously address the issues of the quality of financial information transmitted to the public, or the role of investment banks and stock analysts in the run-up, the evidence suggests that investors are justified in pointing a collective finger at US corporations and the security industry. (Our focus on the role of corporations in the stock market boom is limited primarily on the retirement of equity on the secondary markets, which served to boost stock prices during the 1980s and late 1990s.) However, investors prone to speculative enthusiasms are unduly susceptible to misrepresentation, corporate fraud and new economy concepts lacking true economic substance. Moreover, it was the exuberant trading activity of investors that was partially responsible for the placing of unrealistic earnings expectations on corporations and the rewarding of high-tech firms without profits, clearly identifiable products, or realistic blueprints for success. Domestic and international shareholders, then, should be equally angry with themselves for providing an environment conducive to dubious corporate practices.

## RECAPPING THE PHENOMENON

During the late 1960s and 1970s the stock market in the US performed abysmally. This was exemplified by the performance of the Standard and Poor's (S&P) 500 Index, which increased a mere 1.2 per cent between 1968 and 1980 and actually declined from 1975 to 1981. Yet the stage was being set for one of the most dramatic bull markets in US history. The period 1982 until October 1987 saw the S&P Index rise from 107.8 to 318 (an increase of 171 per cent). Despite the turbulence of 1987 and the bearish climate of 1990, the market continued to record gains and by the end of 1992 the S&P 500 Index stood at 408.27. While the market performance had already surpassed the bull markets of the late

1920s and the mid-1960s, the greatest and most intense run-up in equity values had yet to occur. From 1995 to the end of the first quarter of 2000 the S&P surged from 465 to 1442.12 – another 210 per cent in nominal terms.

By the end of 1999 the S&P 500 Index had risen an extraordinary 1,118 per cent from its 1982 level in nominal terms (644 per cent in real terms). However, over the same period nominal S&P 500 earnings and dividends increased approximately 200 per cent and 150 per cent, respectively (just 40 per cent and 63 per cent in real terms). The total value of US corporate equity was nearly twice the value of gross national income while the key measures of stock market valuation, namely the price multiples, appeared to be at unsustainable levels when juxtaposed to the long-run historical trend. In particular, the price–earnings ratio on S&P 500 stock stood at 44.3 – reminiscent of the 32.6 figure seen just prior to the great crash of 1929. In fact, Robertson and Wright (1998) note that even at the end of 1997 Tobin's  $q$  was 'at a historically extreme value, comparable only to that seen this century in late 1929' (p. 20).

Historically, low dividend yields have served as an important indicator of market overvaluation, with market corrections occurring as the yield approaches 2.65 per cent (Standard and Poor's Stock Market Encyclopedia, 1999). However, the new millennium began with a yield on S&P 500 stock of approximately 1.14 per cent, accentuating the fact that equity prices in the United States had reached levels consistent with expected dividend growth rates that were, by historical standards, unprecedented. This implied that either the run-up in equity values was not well anchored by fundamentals, that there had been a significant shift in the risk–return characteristics of the stock market, or that something extraordinary had occurred in the underlying real economy. These possibilities begged questions about the forces underpinning the phenomenal increase in US equity prices and whether the boom was the result of investor euphoria or rational assessments of future prosperity. The popular answers that dominated the academic literature and business press illustrated conflicting visions about equity price movements and more importantly exposed the lacuna in the dominant theory of asset pricing.

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– especially those attached to the theory of efficient markets – have struggled to understand the recent stock market boom, bubble and burst.

There are two principal views of the 1982–2000 bull market inspired by the EMH: the new economy theory and the falling risk premium theory. The former (in numerous incarnations – some more plausible than others) holds that the revolution in information technology ushered in a high-growth ‘new’ economic era and thus the appreciation in stock prices was justified primarily on the basis of discounted future dividend payouts. One widely established variant of the latter maintains that the increase in market participation, alongside the push towards portfolio diversification and the proliferation of new financial instruments that help manage risk, resulted in a substantial decline in the risk premium and thus, the required rate of return. Another version of the falling equity risk premium theory argues that investors ‘learned’ the stock market was inherently less risky relative to alternative investments and were therefore content with a lower expected rate of return going forward. While both theories are consistent with the EMH and justify the stock market boom on fundamental grounds, one portends high earnings growth in the future and the other implicitly assumes that investors will be comfortable with lower returns into the future.

These conclusions are not completely without merit given the robust performance of the underlying real economy and the length of the recent bull market. However, due to the implausibility of the implied dividend growth rates necessary to validate equity values that existed at the end of the first quarter of 2000 coupled with poor profit performance in the late 1990s, especially for the ‘new economy’ Internet firms, skepticism about the new era theory abounded (Gordon, 2000; Paulre, 2000; Perkins and Perkins, 1999; Browne, 1999). Moreover, from its quarterly peak to the opening of the markets in 2002, the S&P 500 Index declined by 20.4 per cent. Correspondingly, the technology-heavy Nasdaq 5000 Index dropped a whopping 60.8 per cent from its peak value. 2002 proved to be an even worse year for stock market investors as all major market indices in the United States collapsed, erasing the gains attained over the previous five years. Thus, proponents of the new economy theory face a serious challenge to explain the abrupt market downturn of 2000 and the poor performance thereafter. To remain consistent with the EMH, this theory strains credulity as readers are forced to believe the new economy appeared then disappeared over the course of a decade.

The falling risk premium theory also appears deficient in explaining a sizeable portion of price appreciation given the increasing volatility in US equity markets since 1996 and recent econometric evidence suggesting that the risk premium has not significantly trended downwards (see Hayes et al., 1998). Moreover, as we discuss more fully in the later chapters, the theory is premised on developments in the stock market that are at odds with key stylized facts and investor survey data that suggests investors were still expecting near double-digit gains going



forward at the market peak. Nevertheless, such theories remind investigators that even though the appreciation in prices was unprecedented, it does not immediately follow that the market valuations were unwarranted by economic fundamentals.

With the significant decline in stock values during 2000–2003 and the implausibility of the theories that trace stock movements completely back to ‘fundamentals’, other influential theories which break away from the EMH and identify the market conditions as a speculative bubble resulting from ‘irrational exuberance’ on the part of the investing public appear much more credible. Shiller’s (2000a) bubble theory, which builds on his earlier work (1984, 1989), is premised upon social-psychological dynamics that consequently spawn investing fads and fashions, culminating in the under-pricing of risk and a rupturing of prices from their intrinsic values. Others focus on choice under fundamental uncertainty, market psychology and an adaptive expectation process, which facilitates bandwagon and herding behavior, conventionally determined prices and financial euphoria. Central to both, however, is the notion that all flows impart price pressure on market valuations irrespective of economic fundamentals and that the recent boom was not only unprecedented but also unjustifiable. These theories are appealing and, when placed in a historical context, appear to explain why stock prices exhibit excess volatility when juxtaposed to risk-adjusted, discounted future dividends. These diverging views alone make a study of US equity prices during the recent bull market a relevant study.

### **Beyond the Popular Theories**

There are six important stylized facts from the 1982–2000 period that are key to explaining the stock market boom and bubble. One, US corporations experienced strong growth in profitability during the period indicating that some portion of the run-up can be attributed to economic fundamentals. Two, the period corresponded with the significant and unprecedented decline in corporate equity outstanding, initiated in part by SEC Rule 10b-18, which established a safe haven for corporations to repurchase shares. The public has yet to come to grips with the fact that the US corporate sector during the 1980s and 1990s resembled a lizard garnering strength by eating its own tail. Third, the period also saw the United States shift from net lender to net debtor status and the resulting capital flows into the stock market were enormous. Fourth, the most dramatic shift of equity holdings from individual investors to institutional investors as a collective sector had occurred before 1980. In fact, by 1975 institutional investors accounted for 75 per cent of all market trading. Thus, attributing a perceived fall in the risk premium to the rise of institutional investors appears to be an inadequate explanation for the 1982–2000 stock market boom. Fifth, the 1980s and 1990s did coincide with the growth of mutual funds – a sector that is generally held to be myopic,