

Black Monday and Black Swans

Remarks by John C. Bogle

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before the

Risk Management Association

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Just a week from tomorrow, we'll mark the twentieth anniversary of what came to be known as "Black Monday," October 19, 1987. On that single day, the Dow Jones Industrial Average dropped from 2246 to 1738, an astonishing decline of 508 points or almost 25 percent. The drop was nearly twice the largest previous daily decline of 13 percent, which took place on October 24, 1929 (which became known as "Black Thursday"), a distant early warning that the Great Depression lay ahead.¹

From its earlier high until the stock market at last closed on that fateful Black Monday of 1987, some one trillion dollars had been erased from the total value of U.S. stocks. The stunning decline seemed to shock nearly all market participants. But there were some veterans whom it didn't surprise. Ace Greenberg, former chairman of Bear Stearns, was quoted in the newspapers as saying, "So markets fluctuate. What else is new?" And only a year before Black Monday, I observed to the Vanguard crew that even a 100-point decline in the Dow—something that had never before occurred—was possible. Why? Because, as I observed, "in the stock market, *anything can happen.*"

That truism remains, but I'd argue the point even more strongly today. Changes in the nature and structure of our financial markets—and a radical shift in its participants—are making shocking and unexpected market aberrations ever more probable. The amazing market swings we've witnessed in the past few months tend to confirm that likelihood. While the daily changes in the level of stock prices typically exceed two percent only three or four times per *year*, in just one recent *month* we've seen 8 such moves. Ironically, 4 were up, and 4 were down. Based on past experience, the probability of that scenario was . . . *zero*.

So the first—and most basic—point I wish to make today is that the application of the laws of probability to our financial markets is badly misguided. Truth told, the fact that an event has never before happened in the markets is no reason whatsoever to be confident that it can't happen in the future. Metaphorically speaking, *the fact that the only swans we humans have ever observed are white doesn't mean that no black swans exist.*

¹ From its September 1929 high of 381 to its July 1932 low of 41, the Dow would drop by an astonishing 90 percent.

Note: The opinions expressed in this speech do not necessarily represent the views of Vanguard's present management.

Black Monday, then, was a Black Swan. Unlike its 1929 antecedent, however, Black Monday was not a warning of dire days ahead. If anything, it was, totally counterintuitively, a harbinger of the greatest bull market in recorded history. *The Black Swan*, as most of you are likely aware, is also the title of a new book by Nassim Nicholas Taleb. Here is his definition of the characteristics of a black swan, in our markets, and, for that matter, in our lives:

1. An outlier beyond the realm of our regular expectations. (*Rarity*)
2. An event that carries an extreme impact (*Extremeness*)
3. A happening that, *after the fact*, our human nature enables us to accept by concocting explanations that make it seem predictable (*Retrospective Predictability*)

So there it is: Rarity; extremeness; and retrospective predictability. Together they define *the occurrence of an event that is regarded as impossible, or at least highly improbable*. What's more, as Taleb notes, a Black Swan is also the reverse of this definition: *The non-occurrence of an event that is regarded as highly probable*. Life is full of them!

Today I observe little concern about the ever-present possibility that what will occur in our financial markets in the coming months (or years) might in fact prove to be a non-occurrence of what we expect. Indeed, despite the recent wild disturbances in both the stock market and the bond market, most market participants seem confident that future returns will resemble those of the past. Only time will tell whether yet another Black Swan, lurking out there beyond the horizon, will become part of stock market history.

Whatever the case, the fact that Black Swans can and do happen in our financial system holds important lessons for how we think about risk. While we look for corroboration of what we believe (*confirmation bias*), what we really ought to be looking for is the opposite—that observation that would prove us wrong. Sad to relate, we know what is wrong with a lot more confidence than what we know is right. Yet we continue to look ahead with apparent confidence that the past is prologue, based on our assumptions that the probabilities established by history will endure.

The idea of seeking out evidence that contradicts our belief goes far beyond the financial markets. It goes to the very nature of knowledge itself. For the eminent British philosopher Sir Karl Popper—well-known for his use of the Black Swan metaphor—the key question was “what if science didn't proceed from observation to theory? What if it was the other way around?” Writing in *The New Yorker*,² journalist Adam Gopnik described Popper's reasoning: “No number of white swans could tell you that all swans were white, but a single black swan could tell you that they weren't . . . Science, Popper proposed, didn't proceed through observations confirmed by verification; it proceeded through wild, overarching conjectures which generalized ‘beyond the data,’ but were always controlled and sharpened by falsification (i.e., proof that the theory was *wrong*).”

“It was the conscious, purposeful search for falsification by refutation, by the single decisive experiment” (or swan), Popper believed, “that allowed science to proceed and objective knowledge to grow.” Yet most of us—in our investment ideas and political ideas alike—do quite the reverse: we search for facts that confirm our beliefs (*reinforcement bias*), not for the facts that would negate them.

The Light Shined by Frank Knight

In the markets, however, few theories are advanced with the search for falsification as the object, and we continue to speak of forecasts and probabilities. But *probability* is a slippery concept when

² April 1, 2002

applied to our financial markets. We use the term *risk* all too casually, and the term *uncertainty* all too rarely. This distinction was first made by the late University of Chicago economist Frank H. Knight, who spelled it out in his seminal work, *Risk, Uncertainty, and Profits*,³ in, well, no uncertain terms.

Here's what Knight wrote:

. . . uncertainty must be taken in a sense radically distinct from the familiar notion of Risk, from which it has never been properly separated. The term "risk," as loosely used in everyday speech and in economic discussion, really covers two things which . . . are categorically different. The essential fact is that "risk" means in some cases *a quantity susceptible of measurement*, while at other times it is something distinctly not of this character. A *measurable* uncertainty, or "risk" proper, is so far different from an *immeasurable* one that it is not in effect an uncertainty at all.

Knight continues:

The facts of life in this regard are in a superficial sense obtrusively obvious and are a matter of common observation. It is a world of change in which we live, and a world of uncertainty. We live only by knowing something about the future; while the problems of life or of conduct at least, arise from the fact that we know so little . . . in business as in other spheres of activity. We act according to (our) opinion, of greater or less foundation and value, neither entire ignorance nor complete information, but partial knowledge. If we are to understand the workings of the economic system we must examine the meaning and significance of uncertainty; and to this end some inquiry into the nature and function of knowledge itself is necessary.

The (likelihood) of opinion or estimate to error must be radically distinguished from probability or chance, for there is no possibility of forming in any way groups of instances of sufficient homogeneity to make possible a quantitative determination of true probability (in which) any sort of statistical tabulation (provides) any value for guidance. *The conception of an objectively measurable probability or chance is simply inapplicable . . . there is much question as to how far the world is intelligible at all . . . It is only in the very special and crucial cases that anything like a mathematical study can be made.*" (Italics added.)

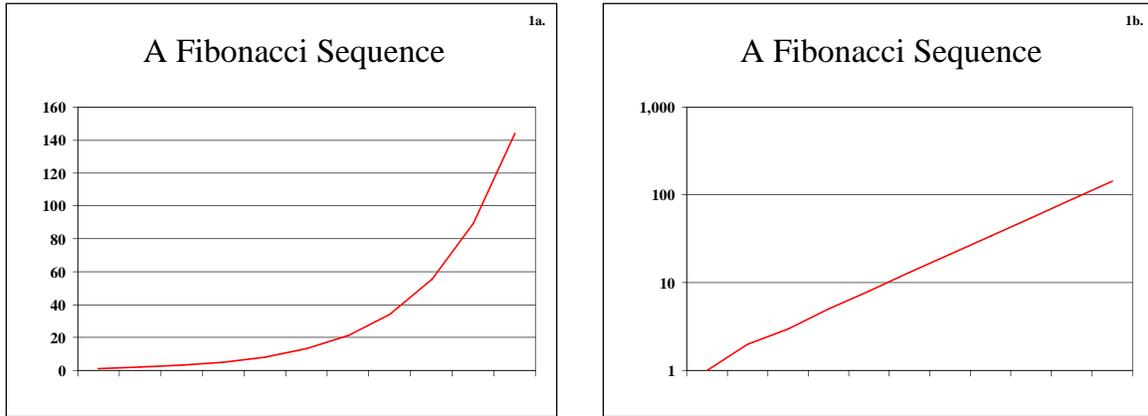
Mandelbrot on Risk, Ruin, and Reward

The abstract theories of Karl Popper and Frank Knight can be directly applied to the financial markets, which is exactly what Benoit Mandelbrot, the brilliant inventor of fractal geometry, has done with Richard Hudson in his book *The (Mis)Behavior of Markets*, ominously subtitled "A Fractal View of Risk, Ruin, and Reward."

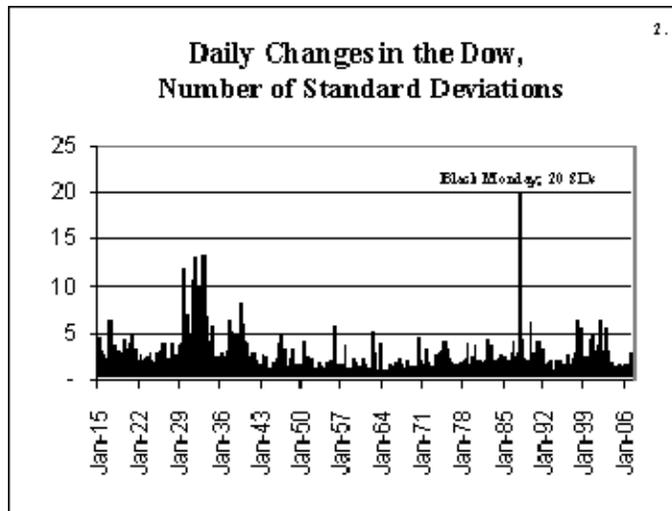
Fractal geometry, simply put, is about patterns, patterns that repeat themselves continually, in nature and in geometry, scaling up or scaling down, sometimes defined by a determination rule, sometimes entirely by chance. They often relate to power laws, where growth is not linear but logarithmic. The Fibonacci sequence, in which each successive number is the sum of the two previous numbers 1 – 2 – 3 – 5 – 8 – 13 – 21 – 34 – 55 – 89 – 144, and so on (well, you get the picture), is a soaring arc on a linear scale (**Chart 1a**), but a straight line on a logarithmic scale. (**Chart 1b**) As it happens, each successive number is 1.6 times its predecessor, and after 144, 1.618, a ratio that our Greek

³ Houghton Mifflin Company, 1921

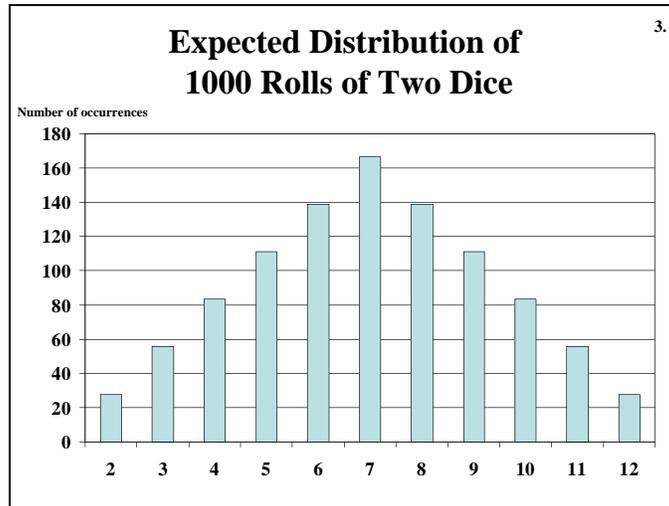
ancestors called “the Golden Mean,” appearing all through civilization, notably in nature, in architecture, and, more mundanely, in the size of book covers and playing cards.



Mandelbrot applies this concept to the daily price movements of the Dow Jones Industrial Average. Nearly always (since 1915), the standard deviation (Sigma) of the daily change in the Dow has been about 0.89 percent. **(Chart 2)** That is, two-thirds of the fluctuations were within 0.89 percentage points (plus or minus) of the average daily change of 0.74 percent. Nonetheless there are frequent occasions with standard deviations of 3 or 4, infrequent occasions when it exceeds 10, and just one 20-Sigma event. (The odds against such a happening are about 10 to the 50th power.) Black Monday, of course, was that 20 and Black Thursday was that 10-Sigma event. (The possible 100-point decline that I contemplated back in 1986 would have been a 6-Sigma event.)

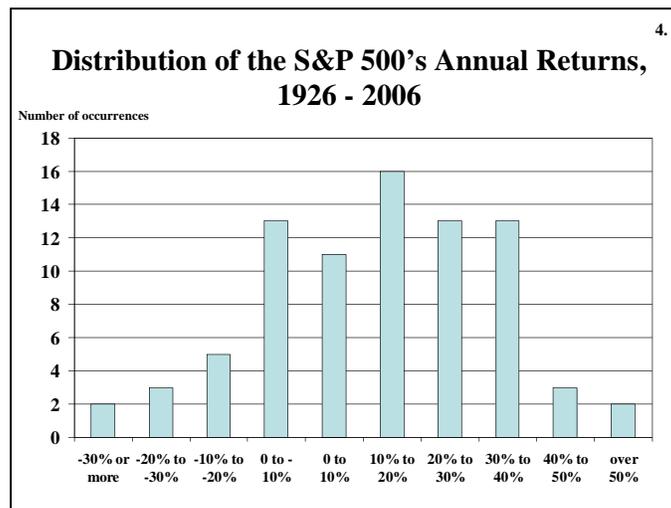


While our markets are periodically defined by fractals and power laws (although we never know when), there are many areas in which they do not apply. The classic example is in the height of men, or the extremes of temperature, or the flipping of coins. **(Chart 3)** These patterns lend themselves to Gaussian (standard-frequency) distribution curves, familiarly known as *bell curves*. Yes, when two dice are rolled 1000 times, 7 will come up (roughly) 167 times; 6 or 8, 139 times each; 5 or 9, 111 times each; 4 or 10, 83 times; 3 or 11, 56 times; 2 or 12, just 28 times.



But other areas surprise. One classic fractal is the average wealth of our citizens. That figure follows a fairly neat distribution pattern, but only until we get to the very high figures. Bring a hedge fund manager with annual earnings of \$200 million into a room with 100 persons earning an average of \$50,000, and the average jumps to more than \$2 million.

So as long as we look at past patterns of market repetition on a sort of Gaussian “bell curve,” so long as we rely on Monte Carlo simulations in which past stock returns are thrown into a giant mixer that produces a million or more permutations and combinations, looking at probabilities in the stock market seems a fool’s errand. Thus, we deceive ourselves when we believe that past stock market return patterns provide the bounds by which we can predict the future.⁴ (Chart 4) When we do so, we ignore the potential for future Black Swans.



The stock market has experienced relatively few of these extreme changes. And they are overwhelmed by the frequent—but usually humdrum—fluctuations that take place each day within

⁴ The *average* annual return on stocks during this period was 10.4 percent. Curiously, in only two years of the 80 years examined did the returns realized fall between 9 percent and 11 percent. The “average” year, then, rarely occurs.

normal ranges. For example, the Standard & Poor's 500 Stock Index has risen from a level of 17 in 1950 to 1,540 at present. But deduct the returns achieved on the 40 days in which it had its highest percentage gains—only 40 out of 14,528 days!—and it would drop by some 70 percent, to 276. Or eliminate the 40 worst days; then, the S&P would be sitting at 11,235, more than seven *times* today's level. A good lesson, then, about “staying the course” rather than jumping in and jumping out.

Financial markets, then, are volatile and unpredictable. Importantly, the markets themselves are far more volatile than the underlying businesses that they represent, which collectively account for their aggregate market capitalization. Put another way, *investors* are more volatile than *investments*. Economic reality governs the returns earned by our *businesses*, and Black Swans are unlikely. But emotions and perceptions—the swings of hope, greed, and fear among the participants in our financial system—govern the returns earned in our *markets*. Emotional factors magnify or minimize this central core of economic reality, and Black Swans can appear at any time.

The Wisdom of John Maynard Keynes

More than 80 years ago, the great British economist John Maynard Keynes recognized this critical distinction between economics and emotions. Observing the predilection of investors to implicitly assume that the future will resemble the past, Keynes warned: “*It is dangerous to apply to the future inductive arguments based on past experience unless we can distinguish the broad reasons for what it (the past) was.*”

A decade later, in 1935, in his amazing *The General Theory of Employment, Interest, and Money*, Keynes focused on the two broad reasons that explain the returns on stocks. The first was what he called *enterprise*—“forecasting the prospective yield of an asset over its entire life.” The second was *speculation*—“forecasting the psychology of the market.” Together, these two factors explain “The State of Long-Term Expectation” for an investment, the title of Chapter 12 of *The General Theory*.

From his vantage point in London, Keynes observed that, “in one of the greatest investment markets in the world, namely, New York, the influence of speculation is enormous . . . It is rare for an American to ‘invest for income,’ and he will not readily purchase an investment except in the hope of capital appreciation. This is only another way of saying that he is attaching his hopes to a favorable change in the conventional basis of valuation, i.e., that he is a speculator.” Today, 70 years after Keynes wrote those words, the same situation prevails, only far more strongly.

Lord Keynes's confidence that speculation would dominate enterprise was based on the then-dominant ownership of stock by individuals, largely ignorant of business operations or valuations, leading to excessive, even absurd short-term market fluctuations based on events of an ephemeral and insignificant character. Short-term fluctuations in the earnings of existing investments, he argued (correctly), would lead to unreasoning waves of optimistic and pessimistic sentiment.

While competition between expert professionals, possessing judgment and knowledge beyond that of the average private investor, Keynes added, should correct the vagaries caused by ignorant individuals, the energies and skill of the professional investor would come to be largely concerned, not with making superior long-term forecasts of the probable yield of an investment over its whole life, but with foreseeing changes in the conventional basis of valuation a short time ahead of the general public. He therefore described the market as “. . . a battle of wits to anticipate the basis of conventional valuation a few months hence rather than the prospective yield of an investment over a long term of years.”

In my 1951 Princeton senior thesis on the mutual fund industry, I cited Keynes' conclusions. And I had the temerity to disagree with the great man, arguing that he was wrong. Rather than

professional investors succumbing to the speculative psychology of ignorant market participants, I argued, these pros would focus on enterprise. In what I predicted—accurately—would become a far larger mutual fund industry, our portfolio managers would “supply the market with a demand for securities that is *steady, sophisticated, enlightened, and analytic* [italics added], a demand that is based essentially on the [intrinsic] performance of the corporation rather than the public appraisal reflected in the price of its shares.” Alas, the sophisticated and analytic focus on enterprise that I had predicted from the industry’s expert professional investors has failed to materialize; rather, the emphasis on speculation by mutual funds has actually increased many fold. Call the score, Keynes 1, Bogle 0.

Interestingly, Keynes was well aware of the fallibility of forecasting stock returns, noting that “it would be foolish in forming our expectations to attach great weight to matters which are very uncertain.” He added (shades of Frank Knight!) that “by very uncertain I do not mean the same thing as ‘improbable.’” While Keynes made no attempt to quantify the relationship between enterprise and speculation in shaping stock market returns, however, it occurred to me, decades later, to do exactly that.

Putting Numbers on Keynes’s Distinction

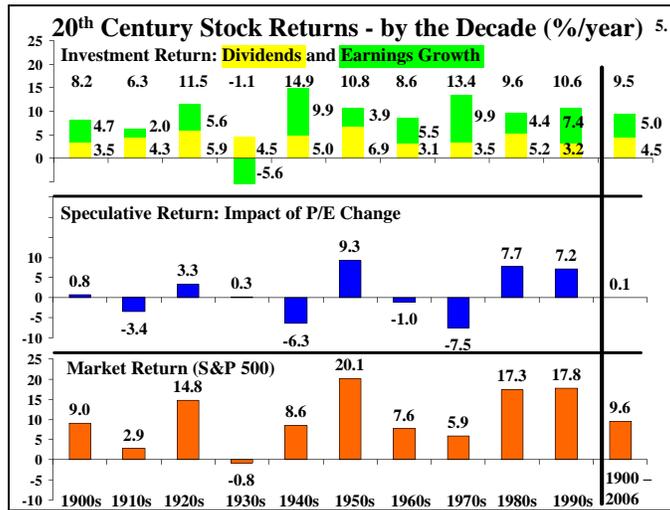
By the late 1980s, based my own first-hand experience and my research on the financial markets, I concluded that the two essential sources of equity returns were: (1) *economics*, and (2) *emotions*. What Keynes had described as enterprise I called “economics.” What Keynes termed “speculation,” I found well-defined by “emotions.” The former I defined as *investment return*— the initial dividend yield on stocks plus the subsequent annual rate of earnings growth. The latter I defined as *speculative return*—the change in the price investors are willing to pay for each dollar of earnings. (Essentially, the return that is generated by changes in the valuation or discount rate that investors place on future corporate earnings.)

Simply adding speculative return to investment return produces the *total* return generated by the stock market. For example, if stocks begin a decade with a dividend yield of 4 percent and experience subsequent earnings growth of 5 percent, the *investment* return would be 9 percent.⁵ If the price-earnings ratio rises from fifteen times to twenty times, that 33 percent increase, spread over a decade, would translate into an additional *speculative* return of about 3 percent annually. Simply adding the two returns together, the total return on stocks would come to 12 percent. It’s not very complicated!

This remarkably simple numeric approach of separating enterprise and speculation—i.e., investment return and speculative return—has been borne out in practice. Indeed I have the temerity (again!) to suggest that Lord Keynes would respect this mathematical extension of his concept. Decade after decade over the past century, we can account, with remarkable precision, for the total returns actually earned by U.S. stocks.⁶ (**Chart 5**)

⁵ I understand that the numbers should in fact be multiplied together, i.e. $1.05 \times 1.04 = 1.092$, or 9.2 percent. But given the inevitable imprecision of projections, I elect the simple expedient of summing them up, in this case to 9.0 percent.

⁶ A recent article in *Global Investor*, Summer 2007, confirmed that the concept works in stock markets all over the globe. “Occam’s Wisdom and Bogle’s Wit,” by professor Javier Estrada.



The *investment* return on stocks (top line) proves to be remarkably susceptible to reasonable expectations. The initial dividend yield—a crucial—but underrated—factor in shaping stock returns—is a known factor. And the steady contribution of dividend yields to investment return during each decade has always been a positive, only once outside the range of 3 percent to 5 percent. The secular rate of earnings growth on the other hand, while hardly certain, is relatively stable. There were no *long-term* Black Swans in investment returns, and even the sharp earnings drop in the Great Depression was but a 2-Sigma event (meaning within the 95 percent probability range).

Note that, with the exception of the depression-ridden 1930s, the contribution of earnings growth was positive in every decade, usually running between 4 percent and 7 percent per year. Total investment returns were only once (again, the 1930s) less than 6 percent annually, and only twice more than 11 percent. But if we recognize that corporate earnings have, with remarkable consistency, grown at about the rate of the U.S. Gross Domestic Product, this relative consistency is hardly surprising.

Speculative return is, well, speculative, and has alternated from positive to negative over the decade. But over the long-run speculation hasn't produced any Black Swans either. In fact, if P/E ratios are historically low (say, below 10 times) they have been likely to rise over the subsequent decade. And if they are historically high (say, above 20 times) they have been likely to decline (though in neither case do we know *when* the change is coming). Nonetheless, certainty about the future never exists, nor are probabilities always borne out. But applying reasonable expectations to investment return and speculative return and then combining them has been a sensible and effective approach to projecting the total return on stocks over the decades.

The point is this: Over the very long run, it is the *economics* of investing—enterprise—that has determined total return; the evanescent *emotions* of investing—speculation—so important over the short run, have ultimately proven to be virtually meaningless. In the past century, for example, the 9.6 percent average annual return on U.S. stocks has been composed of 9.5 percentage points of investment return (an average dividend yield of 4.5 percent plus average annual earnings growth of 5 percent), and only 0.1 percent of speculative return, borne of an inevitably period-dependent increase in the price-earnings ratio from 10 times to 18 times, amortized over the century. Despite the Black Swans of market history, ownership of American business has been a winner's game.

Hyman Minsky Adds the Crucial Ingredient

While my simple insight provides a solid framework for understanding stock market returns, however, I failed to consider the extent to which speculation in the financial economy (emotions) might

influence changes in the business economy (enterprise). But when I learned of the work of the great American economist, Hyman Minsky (1919-1996), who dedicated his career largely to what he described as the “financial instability hypothesis,” I recognized that yet another element of risk—here, clearly, meaning uncertainty—existed.⁷

“In 1974, Minsky observed a fundamental characteristic of our economy that linked finance and economics: ‘The financial system swings between robustness and fragility, and these swings are an integral part of the process that generates business cycles.’ Moreover, according to Minsky, the prevailing financial structure is a central determinant of the behavior of the capitalist economy. Likewise, the dynamism of profit-driven motives influence economic activity within the context of a given institutional structure in that the structure itself changes in response to profit seeking. Resonating with the ideas of economist Joseph A. Schumpeter, Minsky emphasized that:

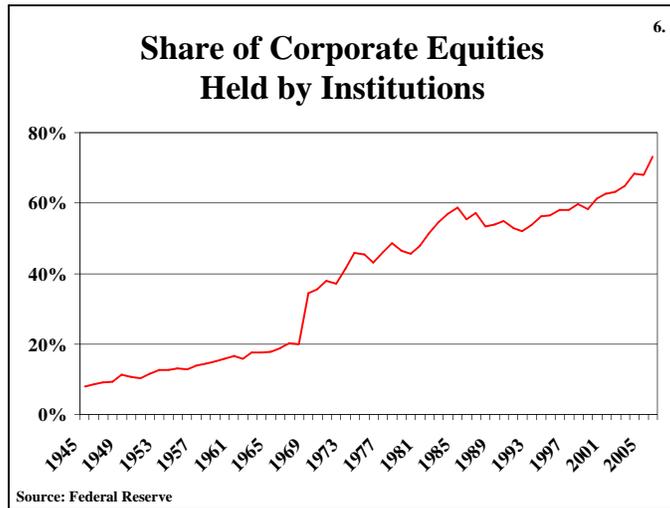
Financial markets will not only respond to profit-driven demands of business leaders and individual investors but also as a result of the profit-seeking entrepreneurialism of financial firms. Nowhere are evolution, change, and Schumpeterian entrepreneurship more evident than in banking and finance, and nowhere is the drive for profits more clearly the factor making for change.

“The financial system takes on special significance in Minsky’s theory, not only because finance exerts a strong influence on business activity, but also because this system is particularly open—or, as some might claim, prone—to innovation, as is abundantly evident today. Continues Minsky: ‘Since finance and industrial development are in a symbiotic relationship, financial evolution plays a crucial role in the dynamic patterns of the economy.’

“In addition to emphasizing the relations between finance and business, Minsky identified progression through at least five distinct stages of capitalism. The five stages can be labeled as follows: merchant capitalism (1607-1813), industrial capitalism (1813-1890), banker capitalism (1890-1933), managerial capitalism (1933-1982), and money-manager capitalism (1982-present). But the broad historical framework that Minsky developed in the last years of his life has gone almost unnoticed. According to Minsky, money-manager capitalism ‘became a reality in the 1980s as institutional investors, by then the largest repositories of savings in the country, began to exert their influence on financial markets and business enterprises.’

“The *raison d’être* for money managers, and basis by which they are held accountable, is the maximization of the value of the investments made by their clients. Not surprisingly, therefore, business executives became increasingly attuned to short-term profits and the stock-market valuation of their firm. The growing role of institutional investors fostered continued financial-system evolution by providing a ready pool of buyers of securitized loans, structured finance products, and myriad other exotic innovations.”

⁷ In the following four paragraphs, I quote investment adviser Frank K. Martin, CFA, writing in the 2006 annual report of his firm, Martin Capital Management.



I've written a book about these issues,⁸ and I express my conclusion bluntly. Using words remarkably close to those of Minsky, I describe how capitalism has changed for the worse. In a half-century we've moved from an *ownership* society where individual shareholders owned 92 percent of all stocks and financial institutions owned only 8 percent (**Chart 6**) to an *agency* society in which institutional shareholders now own 74 percent of all stocks. But we haven't changed the rules. These mutual fund and pension fund managers have largely ignored the interests of their principals—fund shareholders and pension beneficiaries. To restore balance to the system, we need a new *fiduciary* society in which the interests of these 100 million principals—the last-line investors of America—come first.

The Rise of the Financial Economy

I've taken you on this long trip through risk and uncertainty, not only because I find these ideas both important and intellectually stimulating, but because they set the stage for my discussion of the concerns I hold today regarding our financial system and our society. I recognize that some of these ideas are complex, so let's summarize the ground we've covered so far:

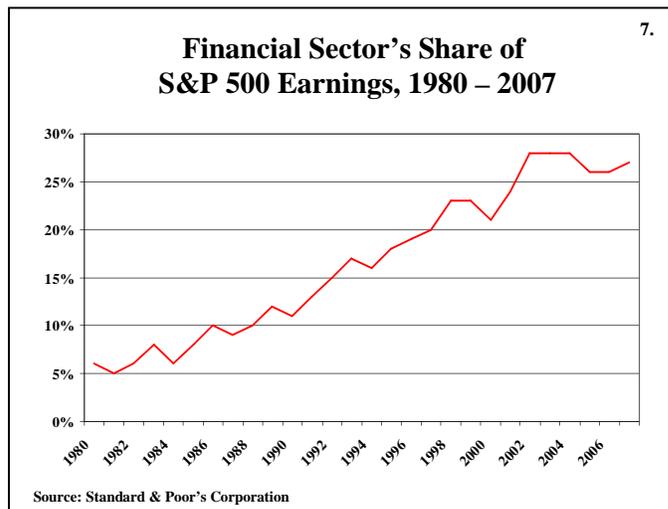
1. Black Swans—extreme and unexpected outcomes—are part of investing, and can't be predicted in advance.
2. As Karl Popper recognized, not only our market, but science itself, depends not on observations confirmed by verification, but on wild conjectures sharpened by falsification (proof that the theory is wrong).
3. Frank Knight focused on a critical distinction between *risk*—which is subject to measurement—and *uncertainty*—which is not.
4. Stock market returns, in the short-term, are not normally distributed, but are explained by the fractal patterns discovered by Mandelbrot. We can't ignore the possibility—indeed, the virtual certainty—that such extreme patterns will persist, and we never know *when*.
5. Keynes's insight was to separate stock returns into two elements, *enterprise*—subject to a reasoned financial analysis and *speculation*—the madness of crowds—which, he argued, would become increasingly dominant.
6. Bogle (if you will) applied numbers to Keynes's insight, showing that future *investment* returns were subject to reasonable expectations, and that even *speculative* returns tended, over time, to move toward zero.
7. Minsky added a sobering note: the financial economy, focused on speculation, was not separate and distinct from the productive economy, focused on enterprise. Rather, the former would come to overwhelm the latter.

⁸ *The Battle for the Soul of Capitalism*, Yale University Press, 2005.

Was Minsky right? Has a new element of uncertainty been introduced into our economy? I'm inclined to agree. Indeed, I express the secular changes in the economy in a way quite similar to Minsky. Over the past two centuries, our nation has moved from being an agricultural economy, to a manufacturing economy, to a service economy, and to what is now predominantly a financial economy, and a global one at that. But the costs that we incur in our financial economy, by definition, subtract from the value created by our productive businesses.

Think about it. When investors—individual and institutional alike—engage in far more trading—inevitably with one another—than is necessary for market efficiency and ample liquidity, they become, collectively, their own worst enemies. While the owners of business enjoy the dividend yields and earnings growth that our capitalistic system creates, those who play in the financial markets capture those investment gains only *after* the costs of financial intermediation are deducted. Thus, while investing in American business is a *winner's game*, beating the stock market—for all of us as a group—is a *zero-sum* game before those costs are deducted. After intermediation costs are deducted, beating the market becomes, by definition, a *loser's game*.

The rise of the financial sector to pre-eminence is one of the seldom-told tales of the recent era. Twenty-five years ago, financials accounted for only about 5 percent of the earnings of the 500 giant corporations that compose the Standard & Poor's 500 Stock Index, rising to 10 percent twenty years ago, then to 20 percent in 1997, and to a near-peak level of 27 percent in 2007. (**Chart 7**)



If we add to this total the earnings of the financial affiliates of our giant manufacturers (think General Electric Capital, for example, or the auto financing arms of General Motors and Ford) financial earnings now likely exceed one-third of the annual earnings of the S&P 500. In fact, the finance sector is now by far our nation's largest generator of corporate profits, larger even than the *combined* profits of our huge energy and health care sectors, and almost three *times* as much as either industrials or information technology. (**Chart 8**)



In any event, we're moving, or so it seems, toward becoming a country where we're no longer *making* anything. We're merely *trading* pieces of paper, swapping stocks and bonds back and forth with one another, and paying our financial croupiers a veritable fortune. We're also adding even more costs by creating ever more complex financial derivatives in which huge and unfathomable risks have been built into our financial system.

The Soaring Costs of our Financial System

Turning first to the costs of our system, they have soared to staggering proportions. Led by Wall Street bankers and brokers and mutual funds, followed by hedge funds and pension fund managers, plus advisor fees and all the other costs incurred by financial market participants have risen from an estimated \$2.5 billion as recently as 1988 to something like \$528 billion this year, or some *20 times* over. (**Chart 9**)

But don't forget that these costs recur year after year. If the present level holds for the next decade (I'm guessing that it will grow), total intermediation costs would come to a staggering \$5 trillion. Then think about these cumulative costs relative to the \$16 trillion value of the U.S. stock market and the \$12 trillion value of our bond market. Those costs would represent an astonishing 18 percent of that value.

9.

Estimated Costs of Securities Intermediation, 2007 (billions)

Investment Banking and Brokerage	\$308
Mutual Fund Operating Expenses	100
Hedge Funds	45
Variable Annuities	30
Pension Fund Advisory Fees	15
Legal / Accounting Fees	15
Financial Advisers	10
Bank Trust Departments	5
Total	\$528 billion

Does this explosion in intermediation costs create an opportunity for money managers? You better believe it does! Does it create a problem for investors? You better recognize that too. For as long as our financial system delivers to our investors in the aggregate whatever returns our stock and bond markets are generous enough to deliver, but only *after* the costs of financial intermediation are deducted, these enormous costs seriously undermine the odds in favor of success for our citizens who are accumulating savings for retirement. Alas, as we all know, the investor feeds at the bottom of the costly food chain of investing.

This is not to say that our financial system creates only costs. It creates substantial value for our society. It facilitates the optimal allocation of capital among a variety of users; it enables buyers and sellers to meet efficiently; it provides remarkable liquidity; it enhances the ability of investors who wish to capitalize on the discounted value of future cash flows (stock sellers), and other investors who wish to acquire the right to those cash flows (stock buyers); it creates financial instruments (so-called “derivatives,” albeit often of mind-boggling complexity) that enable investors to divest themselves of a variety of risks by transferring those risks to others. No, it is not that the system fails to create benefits. The question is whether, on the whole, the costs of obtaining those benefits have reached a level that overwhelms them.

Once a profession in which business was subservient, the field of money management has largely become a business in which the profession is subservient. Harvard Business School Professor Rakesh Khurana was right when he defined the standard of conduct for a true professional with these words: “*I will create value for society, rather than extract it.*” And yet money management, by definition, extracts value from the returns earned by our business enterprises.

The Dominance of Finance over Business

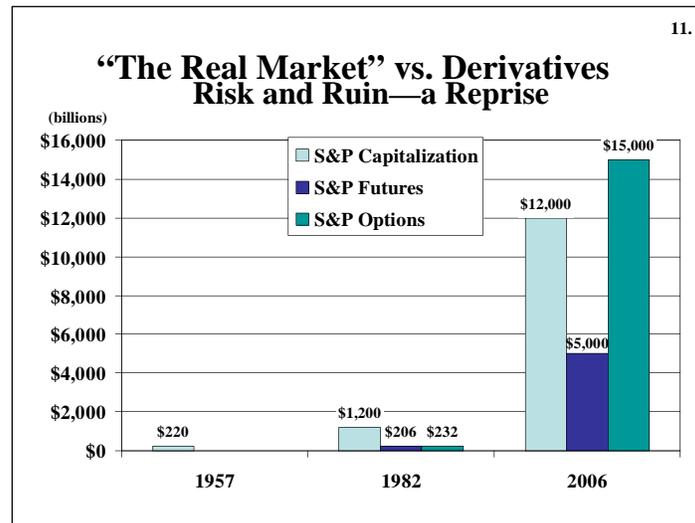
I now turn to the rise to dominance of our financial economy over our production economy, just as Minsky predicted. I earlier noted that the earnings of the financial sector of the S&P 500 have risen to preeminence, and so has the capitalization of the stock market risen to exceed our Gross Domestic Product, the value of the goods and services that we as a nation produce each year. **(Chart 10)** In 1975, the stock market had an aggregate market capitalization of \$800 billion, about 50 percent of our \$1.6 trillion GDP. But while GDP has risen eight times since then, stock valuations have risen nearly twenty times over. Today the \$15.7 trillion aggregate value of stocks is actually equal to about 120 percent of our \$13 trillion GDP.



Even more striking is the truly staggering increase in financial transactions, a global phenomenon whose implications are far from clear. While the world’s GDP is about \$60 trillion, the aggregate nominal value of worldwide financial derivatives is said to be \$600 trillion, fully ten *times* as large as all of the net goods and services produced by our entire world.

A simple comparison, based solely on U.S. financial centers, makes the point. In 1957, the market value of stocks in the S&P 500 Index was \$220 billion, and futures and options markets on the Index didn’t even exist. **(Chart 11)** By 1982, the value of S&P 500 had soared to \$1.2 trillion and the newly created S&P futures outstanding were valued at \$206 billion and S&P options at \$232 million. But by the close of 2006, with the S&P 500 valued at \$12 trillion, futures contracts on the Index had reached \$5 trillion and options contracts had soared to \$15 trillion, together an “expectations market” valued at almost *double* the value of the “real market” itself.

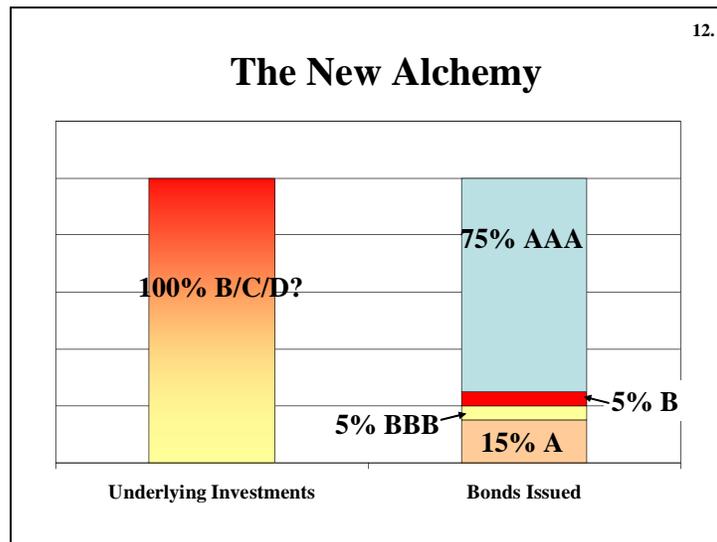
If that 160-fold increase in instruments based on ownership of the S&P Index over the past half-century—two and one-half times the 60-fold increase in the production of goods and services in the American economy—doesn’t show that our financial system has come to dominate our productive economy, I’m not sure what would. Minsky’s concerns seem to have been realized in full.



Even as the volume of financial transactions has soared, so has their mind-numbing complexity. The most recent case in point, of course, was the boom in mortgage-backed debt obligation, part of the secular trend in the “securitization” of assets of all kinds. Two trends were at work here: one, the disintermediation of mortgages, once held largely by community banks for local citizens. (The Jimmy Stewart movie “It’s a Wonderful Life” comes quickly to mind.) It hardly offends one’s common sense to learn that lenders, once they pool their loans and send them off to Wall Street, never to be seen by them again, pay far less attention to loan quality. (Nor is it surprising that the creators of these mortgage-backed bonds have little interest or incentive to help mortgagees in distress to work through their financial difficulties and retain their homes.)

Nor—given Wall Street’s ever-pressing need to have something, anything, to sell in the way of “new product”—is it surprising that these instruments became ever more complex, with risk even more deeply concealed. In league with SEC-registered rating agencies (which were paid, as I understand it, some \$300,000 for placing their imprimatur on each issue), some new issues of bonds were created entirely out of subprime mortgages. Nonetheless, in one typical example, 75 percent of the value of the

bonds was in “tranches” (series) rated AAA, another 15 percent rated at least A, and 5 percent rated BBB. **(Chart 12)** Only the remaining 5 percent carried a rating of BB. One might call this the new alchemy—turning lead to gold. But that was an illusion. (I’ve seen a lot of financial legerdemain in my day, but none to equal that.) Early this year, when the first wave of mortgage defaults began to snowball, the financial crisis in mortgages was upon us, at a great and growing cost to our citizens and our society, a classic example of the impact of the financial economy on the real economy.



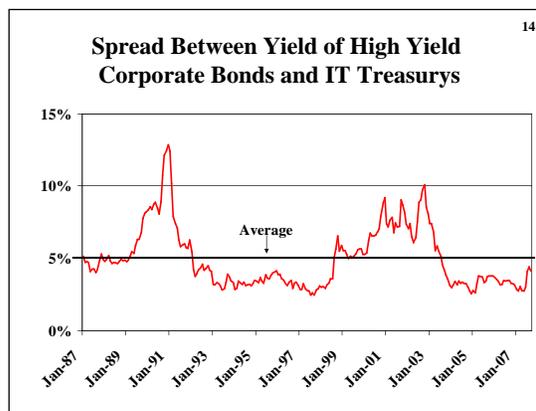
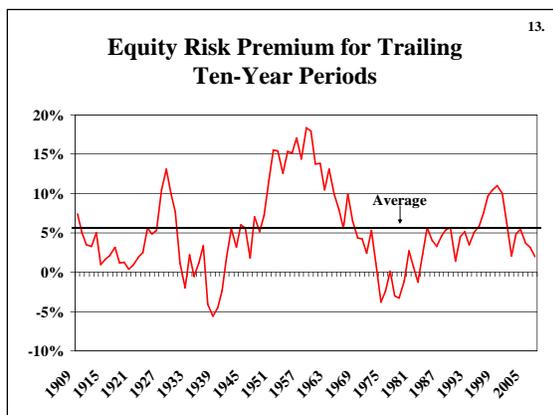
Given the nature of our financial system, few of our giant investment banking firms had the courage to summon the discipline to jump off (or even not to jump on) the mortgage-backed bond bandwagon. The issuance of such bonds in the past five years totaled \$2 trillion (including both prime and sub-prime mortgages), likely generating some \$80 billion of revenues to “the Street,” its investment bankers, its brokers, its rating agencies, its attorneys, and its securities processors. The only thing the banks could not resist was, of course, temptation, and even the biggest and most savvy firms reveled in the party, its rocking music, and its joyous dancing.

Charles Prince, chairman of the giant Citigroup, said it as well as any friend—or foe—of the situation could have: “As long as the music is playing, you’ve got to get up and dance. We’re still dancing.” Epilogue: just last week, Citigroup slashed the value of its mortgage-backed portfolio by more than \$3 billion. Not to be outdone, Merrill Lynch followed suit with a \$5 billion writedown; UBS wrote down \$3.4 billion, and Deutsche Bank has written down a mere \$3.1 billion. Following a long age of rife credit availability, and borrowers with high confidence and low collateral, then, we are beginning to pay the price, even as we face a whole plethora of other risks created by our financial system. Stay tuned.

Looking Ahead

But if systemic risks are increasing, how can it be that risk premiums on stocks are at less than one-half the historic average? Today’s projected equity premium, for one example, is just 2 percent, some 60 percent below the century-long average of 5.2 percent. **(Chart 13)** Bonds, based on the current yield on investment-grade issues, should return about 5 percent over this period. The stock return over the coming decade is projected at 7 percent, based on today’s dividend yield of about 2 percent and prospective nominal earnings growth of about 6 percent, with a shading for the slightly lower price-earning ratio that I expect a decade hence. And while the spread of high-yield bonds relative to U.S.

Treasury bonds has risen from 3 percent to about 4 percent after the recent unpleasantness in the mortgage market, it remains below its long-term average of 5 percent. (Chart 14)



Our markets, then, seem to be ignoring the warning issued by then-Federal Reserve Chairman Alan Greenspan in 2005: “*History has not dealt kindly with the aftermath of protracted periods of low risk premiums.*” When participants in the financial services field ignore the lessons of history, yet another series of risks are created.

Other Risks

There are, I regret to say, other huge, seemingly unacknowledged risks beyond the financial sector, out there in our society. The risks presented by the Social Security and Medicare payments committed to by our national government. For that matter, the staggering string of huge (and in fact *understated*) deficits in our Federal budget. Our enormous (soon to reach \$1 trillion) expenditures on war in Iraq and Afghanistan (with more to come, perhaps in Iran), bleeding the resources of our empire; terrorism; and the threat of global warming and the cost of dealing with it.

You all know about these risks, of course, but there are other more subtle risks too. A political system dominated by money and vested interests; a congress and an administration seemingly focused entirely on the short-term, the long-term consequences be damned. The vast chasm between the very wealthiest among us (the top 1 percent of our citizenry holds more than a third of our total wealth) and those at the bottom of the economic ladder. (Did you know that 20 percent of New York City residents earn less than \$8,300 per year?) The implications of our enormous trade deficit and unfettered global competition. Our self-centered “bottom-line” society, focused on money over achievement, charisma over character, and the ephemeral over the eternal. And finally, the paucity of leaders who are willing to, well, lead, to defy the conventional wisdom of the day, and to stand up for what is right and noble and true.

So the risks are high; the uncertainties rife. Yet perhaps we’ll all muddle through. After all, America has always done just that, all through our 230-year history. Perhaps, too, our society and our economy will continue to reflect the resilience that they have demonstrated in the past, often against all odds. And perhaps we’ll come to our collective senses and develop the courage to take arms against this sea of troubles and by opposing, end them. The stock market, indeed, seems to be saying just those things, and I hope it’s right.

But we'd best not forget Lord Keynes's warning of 70 years ago: "When enterprise becomes a mere bubble on a whirlpool of speculation the consequences may be dire. . . . When the capital development of a country becomes a by-product of the activities of a casino, the job (of capitalism) is likely to be ill-done." Whatever the case, some surprising event out there, far beyond our expectations, will surely come to pass, an event that may carry an extreme impact, and one that, once it happens, we'll quickly concoct an explanation as to why it was so predictable after all. That event, if—perhaps I should say *when*—it comes, will be just one more Black Swan.