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A RANDOM WALK DOWN *Wall Street*

The Time-Tested Strategy *for* Successful Investing

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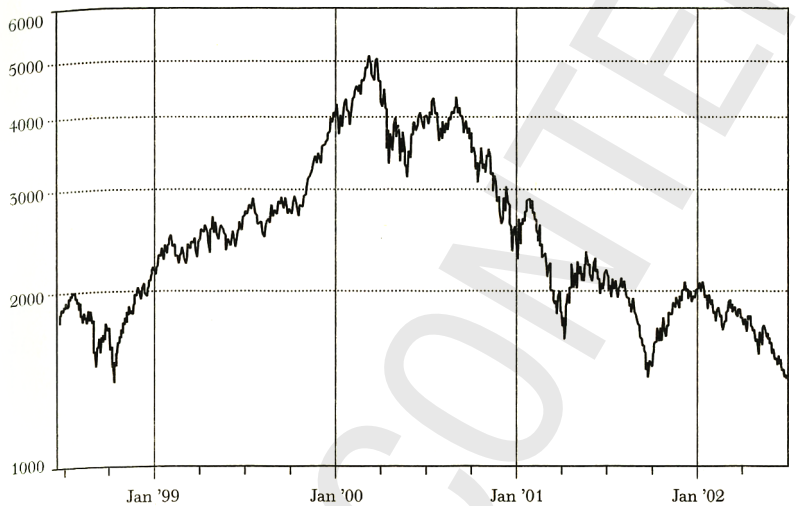
COMPLETELY REVISED *and* UPDATED

Part Two

HOW THE PROS PLAY THE BIGGEST GAME IN TOWN

NASDAQ COMPOSITE STOCK INDEX, JULY 1999–JULY 2002



A Broad-Scale High-Tech Bubble

At the bubble's height, scoffers were hard to find. Surveys of investors in early 2000 revealed that expectations of future stock returns ranged from 15 percent per year to 25 percent or higher. For companies such as Cisco and JDS Uniphase, widely known as producing "the backbone of the Internet," 15 percent returns per year were considered a slam dunk. But Cisco was selling at a triple-digit multiple of earnings and had a market capitalization of almost $600 billion. If Cisco grew its earnings at 15 percent per year, it would still be selling at a well above average multiple ten years later. And if Cisco returned 15 percent per year for the next twenty-five years and the national economy continued to grow at 5 percent over the same period, Cisco would have been bigger than the entire economy. Obviously, there was a complete disconnect between stock-market valuations and any reasonable expectations of future growth. And even blue-chip Cisco lost over 90 percent of its market value when the bubble burst and the forecasted growth

professional portfolio managers. It shows how academics have analyzed their investment results and have concluded that they are not worth the money you pay for them. It then introduces the efficient-market hypothesis (EMH) and its practical implication: Stock investors can do no better than simply buying and holding an index fund that owns a portfolio consisting of all the stocks in the market.

TECHNICAL VERSUS FUNDAMENTAL ANALYSIS

The attempt to predict accurately the future course of stock prices and thus the appropriate time to buy or sell a stock must rank as one of investors' most persistent endeavors. This search for the golden egg has spawned a variety of methods, ranging from the scientific to the occult. There are people today who forecast future stock prices by measuring sunspots, looking at the phases of the moon, or measuring the vibrations along the San Andreas Fault. Most, however, opt for one of two methods: technical or fundamental analysis.

The alternative techniques used by the investment pros are related to the two theories of the stock market I covered in Part One. Technical analysis is the method of predicting the appropriate time to buy or sell a stock used by those believing in the castle-in-the-air view of stock pricing. Fundamental analysis is the technique of applying the tenets of the firm-foundation theory to the selection of individual stocks.

Technical analysis is essentially the making and interpreting of stock charts. Thus, its practitioners, a small but abnormally dedicated cult, are called chartists or technicians. They study the past—both the movements of common-stock prices and the volume of trading—for a clue to the direction of future change. Many chartists believe that the market is only 10 percent logical and 90 percent psychological. They generally subscribe to the castle-in-the-air school and view the investment game as one of anticipating how the other players will behave. Charts, of course,

On the other hand, if Ford was combined with a government contractor in a depressed area, diversification might reduce risk substantially. If consumer spending is down (or if oil prices skyrocket), Ford's sales and earnings are likely to be down and the nation's level of unemployment up. If the government makes a habit during times of high unemployment of giving out contracts to the depressed area (to alleviate some of the unemployment miseries there), it could well be that the returns of Ford and those of the contractor do not move in phase. The two stocks might have very little covariance or, better still, negative covariance.

The example may seem a bit strained, and most investors will realize that when the market gets clobbered, just about all stocks go down. Still, at least at certain times, some stocks and some classes of assets do move against the market; that is, they have negative covariance or (and this is the same thing) they are negatively correlated with each other.

THE CORRELATION COEFFICIENT AND THE ABILITY OF DIVERSIFICATION TO REDUCE RISK

Correlation Coefficient	*Effect of Diversification on Risk*
+1.0	No risk reduction is possible.
+0.5	Moderate risk reduction is possible.
0	Considerable risk reduction is possible.
–0.5	Most risk can be eliminated.
–1.0	All risk can be eliminated.

Now comes the real kicker; negative correlation is not necessary to achieve the risk reduction benefits from diversification. Markowitz's great contribution to investors' wallets was his demonstration that anything less than perfect positive correlation can potentially reduce risk. His research led to the results presented in the preceding table. As shown, it demonstrates the crucial role of the correlation coefficient in determining whether adding a security or an asset class can reduce risk.

THE FAMA-FRENCH RISK FACTORS

- Beta: from the Capital-Asset Pricing Model
- Size: measured by total equity market capitalization
- Value: measured by the ratio of market to book value

Some analysts would add further variables to the Fama-French three-factor risk model. A momentum factor could be added to capture the tendency for rising or falling stocks to continue moving in the same direction. In addition, a liquidity factor could be added to reflect the fact that investors need to be paid a return premium to induce them to hold illiquid securities. A further factor that has been suggested is the "quality" of the company as measured by such indicators as the stability of its earnings and sales growth and its low amount of debt. Factor models are extensively used now to measure investment performance and to design "smart beta" portfolios, as will be discussed in chapter 11.

A SUMMING UP

Chapters 8 and 9 have been an academic exercise in the modern theory of capital markets. The stock market appears to be an efficient mechanism that adjusts quite quickly to new information. Neither technical analysis, which analyzes the past price movements of stocks, nor fundamental analysis, which analyzes more basic information about the prospects for individual companies and the economy, seems to yield consistent benefits. It appears that the only way to obtain higher long-run investment returns is to accept greater risks.

Unfortunately, a perfect risk measure does not exist. Beta, the risk measure from the capital-asset pricing model, looks nice on the surface. It is a simple, easy-to-understand measure of market sensitivity. Alas, beta also has its warts. The actual relationship between beta and rate of return has not corresponded to the relationship predicted in theory during long periods of the twentieth