

How do changes in common stock price volatility affect portfolio diversification?

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Summary: Company-level price risk has risen significantly in recent years, and price movement correlations between individual stocks have declined. This means investors must hold significantly more stocks to achieve diversification. Furthermore, volatility tends to jump well above average at the bottom of market cycles. Investors should focus on these peaks and not just the average volatility across the market cycle. In the scientific investment literature, price volatility measures investment risk. The greater the likely variability in securities prices, the greater the risk that an investor is expected to bear in holding particular securities. While historical averages can be instructive, price volatility is not constant over time at the individual company, industry, or market levels. The potential for major changes in volatility and risk over time directly affects portfolio diversification requirements.

If common stock prices at the individual company level become more volatile, then an investor needs to spread his investments over a greater number of equities to maintain the same degree of diversification. If price volatility at the company level varies across the business cycle, then the degree of diversification in a portfolio will also fluctuate across the business cycle. The 2001 study, "Have Individual Stocks Become More Volatile? An Empirical Exploration of Idiosyncratic Risk," provides some very important insights to individual investors about risk and diversification.¹ In this study, Professor John Campbell of the University of Chicago, Martin Lettau of the Federal Reserve Bank of New York, Professor Burton Malkiel of Princeton University, and Professor Yexiao Xu of the University of Texas at Dallas performed a variety of statistical analyses of market data. They studied changes over time in price volatility at the market, industry, and company levels. Note that "idiosyncratic risk" is known also as "unsystematic risk" in investment studies. Both terms refer to company specific risk, rather than market risk. The markets tend not pay investors to bear idiosyncratic company risk. (See: [What is investment portfolio diversification?](#) and [Investment securities markets do not pay you for the risks of holding individual common stocks and bonds](#)) Using NYSE, AMEX, and NASDAQ data for 1962 to 1997, Campbell, et al. concluded that company-level price volatility had risen significantly over the study period measured either on a daily, weekly, and monthly basis. Comparing those periods, however, they found that the average volatility at the market and the industry levels had not risen significantly. Campbell, et al. looked at volatility averages for the first nine years of the study period and compared them with averages for the last nine years of the study period. When compared to the total combined volatility at the company, industry, and market levels, they found that the percentage of total volatility attributed to the company level had increased significantly from 71% to 77%. Conversely, the portion of total volatility due to price movements at the market level declined from 16% to 13%, and the industry portion of total volatility declined from 13% to 10%. They concluded that increased company-level volatility has significant implications for investors. For the investor seeking to diversify away volatility at the company level, lower correlations between stocks mean that this firm level volatility is harder to eliminate. With increased company-level volatility, an investor holding individual securities needs to hold significantly more firms in his portfolio to achieve a targeted level of

diversification. Campbell, Lettau, Malkiel, and Xu ran tests and found that on average before the mid-1980s, 5 to 10 stocks removed 90% of unsystematic portfolio risk. For the 1986 to 1997 period, 15 to 20 stocks were needed for the same level of diversification. If the target was to remove 95% of expected unsystematic risk, then they calculated that the number moved up dramatically from about 15 to 20 stocks up to 40 to 50 stocks. The actual diversification provided by such rules of thumb regarding an average number of stocks can be both overly simplistic and deceptive. (See: [How many common stocks are needed for a well-diversified portfolio?](#)) This study also found that risk or volatility at all levels (market, industry, and company) rose very significantly during stock market downturns, which tend to be correlated with economic downturns. Market volatility increased roughly three times in recessions, and industry and company level volatility increased about two times. This has very significant diversification implications, because investors tend to be most sensitive to volatility during economic and market downturns, which tend to be closely correlated. Therefore, to maintain a desired target level of portfolio diversification, individual investors may want to focus not on average volatility across market cycles, but on volatility at the bottom of the market cycle, when it jumps well above average. Since Campbell, Lettau, Malkiel, and Xu found volatility to be strongly countercyclical, an investor might wish either to increase significantly the number of different securities held or to move their assets into very broadly diversified index mutual funds and exchange-traded funds.

These related articles may also be useful to you: ->[Why is diversification valuable to individual investors?](#) ->[What is a well-diversified portfolio?](#) ->[Is the average individual investor portfolio well diversified?](#) ->[Can a limited number of equities provide complete portfolio diversification?](#) ->[What is the cost to individual investors of sub-optimal portfolio diversification?](#) ->[How do changes in common stock price volatility affect diversification?](#) ->[How does the size of the common stock risk premium affect diversification?](#) ->[How many mutual funds are needed for a well-diversified portfolio? – a commentary](#) 1) Campbell, Lettau, Malkiel, and Xu 2001] Campbell, John Y., Martin Lettau, Burton G. Malkiel, and Yexiao Xu. "Have Individual Stocks Become More Volatile? An Empirical Exploration of Idiosyncratic Risk." Journal of Finance, February 2001: 1-43 Campbell: <http://post.economics.harvard.edu/faculty/campbell/campbell.html> Lettau: <http://www.ny.frb.org/> Malkiel: <http://www.econ.princeton.edu/> Xu: <http://www.utdallas.edu/~yexiaoxu/>