

## **What is a well-diversified investment portfolio?**

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What is a well-diversified investment portfolio?

A well-diversified portfolio contains a very large number of individual stocks and/or bonds that are selected without bias toward particular economic segments. A fully diversified portfolio will approximate the global publicly traded securities markets. The question about diversification most frequently asked by individual investors is "how many stocks or bonds do I need to be well-diversified?" While the answer to this question is important, the caveats surrounding the answer are even more important. There are large numbers of scientific investment studies addressing the question of the number of stocks required to be well diversified. (See: [Can a limited number of equities provide complete portfolio diversification?](#) and [How many common stocks are needed for a well-diversified portfolio?](#)) It is important that both the stock and bond portions of one's portfolio be very well diversified. However, because stocks and bonds have very different characteristics, diversification considerations vary between these types of securities. Most of the scientific literature focuses on equities diversification, and there are relatively few studies on bond diversification. Because bond pricing is quite complex and bond markets transaction costs are relatively high for individual investors, the logic of investing through bond funds is extremely compelling. (See: [Is it worth paying higher bond mutual fund management fees?](#)) *The Skilled Investor* has summarized several different diversification research papers, because of their points-of-view and educational value to individual investors. This article summarizes key observations of "Diversification and the Reduction of Dispersion: An Empirical Analysis" by Professors John Evans and Stephen Archer of the University of Washington is an early study on the number of stocks required to be well diversified.<sup>1</sup> While this is an older study (1968), it is worth understanding, because Professors Evans and Archer went into some detail about what a well-diversified portfolio depends upon. From the S&P 500 stock list, Professors Evans and Archer developed a model to test diversification using the 470 stocks that had complete data for the period 1958 to 1967. They randomly selected 60 different portfolios of 40 stocks each and compared these portfolios with the returns and price volatility of the S&P 500 index. They ran statistical tests to determine both the incremental value and costs of adding more stocks to a portfolio. Concerning the number of stocks needed largely to eliminate unsystematic or company specific risk from a stock portfolio, they did not intend to come up with a single magic threshold number. Instead, they tested the number of additional stocks needed to achieve a statistically important gain in diversification.<sup>2</sup> The Evans and Archer study made the point that increasing diversification by purchasing additional stocks was not costless. Of course, when Professors Evans and Archer published their study in 1968, financial market transaction costs were far higher, and one had to be much more concerned with the cost of building a diversified portfolio. At that time, one could argue that a lower number of stocks achieved a sufficiently well diversified portfolio on a cost-adjusted basis, because per unit transaction costs were so much higher than today. Now, the ability of portfolio managers to pay attention to a large number of potential portfolio holdings is much more a limiting factor than trading costs. During the last twenty-five years of the 20th century, mutual fund and exchange traded fund portfolio assembly costs declined dramatically. Brokerage commissions were deregulated in 1975, and transaction costs have fallen very dramatically since then. Furthermore, well-diversified, low-cost index mutual funds have now become commonplace, while none existed in 1968. The mutual fund

industry was still in its relative infancy. For example, there were 361 mutual funds of all kinds in 1970 with only \$48 billion in assets. In contrast, at the end of 2006, there were 8,120 U.S. mutual funds of all kinds with \$10.4 trillion in assets.<sup>1</sup> Now, very low cost index mutual fund and ETF investing is a much more efficient and effective way to achieve full market diversification. Because investment costs have declined dramatically, higher levels of diversification can be achieved far more cost-effectively through mutual funds and ETFs today. Of course, you need to be very careful to keep the total fund expenses that you pay very low. While a minority of available mutual funds and ETFs have pursued a low cost strategy, one of the primary reasons why the number of funds has grown so phenomenally is that they are very profitable. Unfortunately, this profit to the ETF and mutual fund industry comes at the expense of individual investors, who are ostensibly "shareholders" in these excessively costly investment funds. For many mutual funds large scale has meant large profits, because savings from these economies of scale have not been passed on to the shareholders of the funds. This is a very stark example of an industry with what is known as an "agency" problem. When there is an agency problem, the agents of the shareholders do not act in the best interests of the shareholders. In theory, the interests of fund shareholders are supposed to be paramount in mutual funds. In practice the boards of many mutual funds are not truly independent and serve primarily the for-profit interests of the large investment fund family companies that either employ fund directors or that pay fees to supposedly "independent" outside directors to sit on the boards of funds.

Unfortunately, there are two boards of directors and two sets of shareholders whose interests are in conflict - the board of each individual mutual fund and the board of the overall fund company with their respective sets of shareholders with conflicting interests. In reality, for many mutual funds it seems that the profit interests of the shareholders of the overall fund company dominates and supplants the interests of the shareholders of the individual investment funds. This is a clear breakdown in corporate governance. Unfortunately, these agency problems are systematic across most of the industry. The only real solution that individual investors have is to decide to patronize only fund companies with very low fees that respect their obligations to fund shareholders. In addition to showing that large numbers of additional stocks are required to achieve measurable improvements in diversification, the Evans and Archer study clarified other requirements for a well-diversified portfolio. The number of stocks selected for a highly diversified portfolio also depends on what one actually means by "the market." To achieve full diversification, as the scope of your definition of the "securities market" increases, you need to hold an increasing number of representative individual securities. If one means the market for the largest U.S. companies, then the S&P 500 is one of several competing indexes and represents about 70% of total U.S. equity market capitalization. If one means the entire investable U.S. equities market, then the Wilshire 5000 is one of several that could be used. A global index would have many more stocks and would cover an even broader economic base. Therefore, the number of stocks to be well diversified would depend on what one means by the "market." Within the meaning of finance literature, the full equity securities "market" portfolio is the global equities market and includes all investment styles and all countries. In addition, to the numbers of different securities and their weighting, Evans and Archer indicated that you need to ensure that your securities selection process is random, if you wish to be fully diversified. Your diversified investment portfolio construction methods should not be biased toward one or another decision factor, such as being skewed toward a single industry or a subset of all industries. Unless you buy the entire global market through an index fund or exchange-traded fund, your random selection of a subset of the whole market might be a method such as a "toss of the darts" at a capitalization-weighted stock page. This would mean that each security would have an equal chance of being selected for inclusion on a capitalization-weighted portfolio basis. Unless this random selection condition is met, the goal of constructing a highly-diversified portfolio would be disrupted, because you introduced a bias or skew through your selection methods. Fundamental indexing investment product alternatives have received attention recently. Fundamental indexes

select securities based on various company economic metrics rather than on a company's securities market capitalization. Concerning the use of capitalization weighting as the index benchmark for the full market and for full diversification, *The Skilled Investor* is well aware of the controversy percolating in the industry and in financial journals about the possible advantages and disadvantages of market capitalization weighting of mutual funds and ETFs. Supposedly "new" fundamental indexing methods are based upon various measures of a company's economic impact, such as revenues, dividends, book value, number of employees, etc. A detailed analysis of this "market capitalization" versus business or fundamental indexing metrics dispute is beyond the scope of this diversification article. In short, however, well-constructed statistical investment analyses of the past several decades have shown that other factors affect securities prices, in addition to the economic risk factors that affect the overall markets. In particular, a "value stock" versus "growth stock" factor seems to exist. In general, over much longer periods value stocks tend to out-perform growth stocks. However, for shorter periods there is a cyclical and unpredictable ebb and flow, concerning when one or the other strategy produces superior returns. Whether you should have a "value" versus "growth" emphasis in your investment portfolio selection has been debated for much longer than this more recent debate about "fundamental" indexing. In fact, fundamental indexing might just primarily be a better method to introduce a "value tilt" into an investment program. However, the higher current fee structure associated with fundamental indexing investment vehicles on the market could nullify its potential risk-adjusted return advantage - partially or fully. There are very broadly diversified capitalization weighted market index funds and ETFs available with annual management fees of only .1% and total costs around .2% annually. Fundamentally indexed products have annual management fees that typically are .5% to 1.0% higher - not including other less visible costs, such as incremental trading expenses. You have to be very confident in your convictions about the superiority of fundamentally indexed funds to choose them over much cheaper capitalization weighted index mutual funds and ETFs.

1) John L. Evans and Stephen H. Archer. "Diversification and the Reduction of Dispersion: An Empirical Analysis." *Journal of Finance*, Vol. 23, Issue 5: December 1968: p. 761-767

2) *ibid*, p. 766-767

3) [ICI 2007] Investment Company Institute. "2007 Mutual Fund Fact Book." Table 1, p. 93, <http://www.icifactbook.org/> Accessed 10-25-07

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