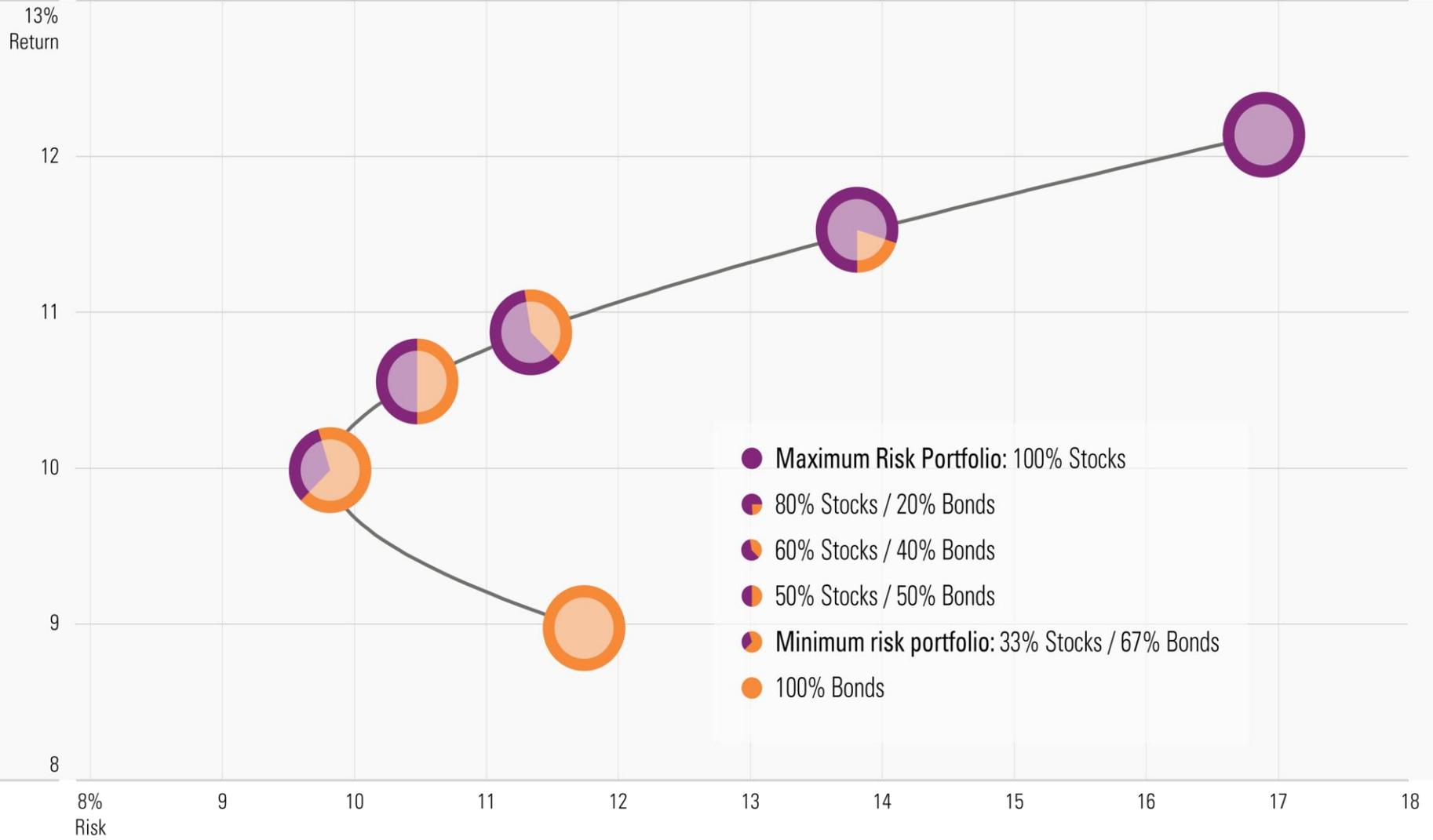


Stocks and Bonds: Risk Versus Return

1970–2020



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An efficient frontier represents every possible combination of assets that maximizes return at each level of portfolio risk and minimizes risk at each level of portfolio return.

An efficient frontier is the line that connects all optimal portfolios across all levels of risk. An optimal portfolio is simply the mix of assets that maximizes portfolio return at a given risk level. This image illustrates an efficient frontier for all combinations of two asset classes: stocks and bonds.

Although bonds are considered less risky than stocks, the minimum risk portfolio does not consist entirely of bonds. The reason is that stocks and bonds are not highly correlated; that is, they tend to move independently of each other. Sometimes stock returns may be up while bond returns are down, and vice versa. These offsetting movements help to reduce overall portfolio volatility (risk).

As a result, adding just a small amount of stocks to an all-bond portfolio actually reduced the overall risk of the portfolio. However, including more stocks beyond this minimum point caused both the risk and return of the portfolio to increase.

Diversification does not eliminate the risk of investment losses. Government bonds are guaranteed by the full faith and credit of the U.S. government as to the timely payment of principal and interest, while stocks are not guaranteed and have been more volatile than bonds.

About the data

Stocks in this example are represented by the Ibbotson® Large Company Stock Index and bonds by the 20-year U.S. government bond. Risk and return are based on annual data over the 1970–2019 period and are measured by standard deviation and arithmetic mean, respectively. Standard deviation measures the fluctuation of returns around the arithmetic average return of the investment. The higher the standard deviation, the greater the variability (and thus risk) of the investment returns. An investment cannot be made directly in an index. The data assumes reinvestment of all income and does not account for taxes or transaction costs.

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