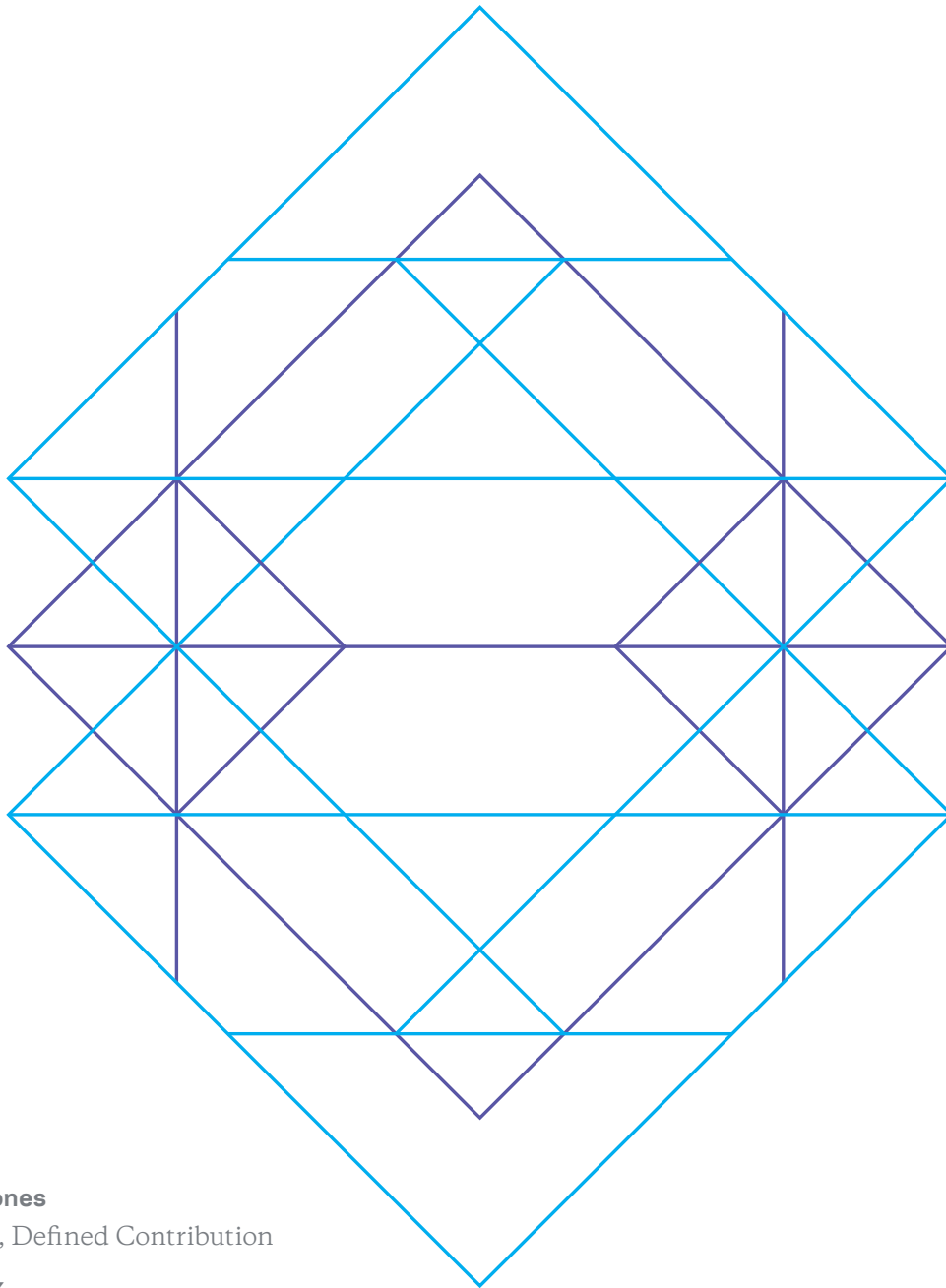




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# Defensive Equity Part 1



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For more, see Frazzini, Friedman and Kim (2012) “Understanding Defensive Equity.”

# Introduction

Over a 40-year working life, Defined Contribution (DC) savers try to maximize two basic investment outcomes: wealth accumulation and wealth preservation. However, these objectives present a basic tradeoff: for many retirement savers, the investments designed to promote wealth accumulation (equities) are different than the investments designed to promote wealth preservation (e.g., cash, bonds). Defensive equity seeks to provide a “best of both worlds”, by delivering the equity risk premium to achieve wealth accumulation, but by investing in less-risky equity securities to promote wealth preservation.

In part one of this two-part series, we focus on the intuition behind defensive equity and present evidence for its efficacy. In part two, we focus on the implementation of the strategy within the context of retirement plan investing.

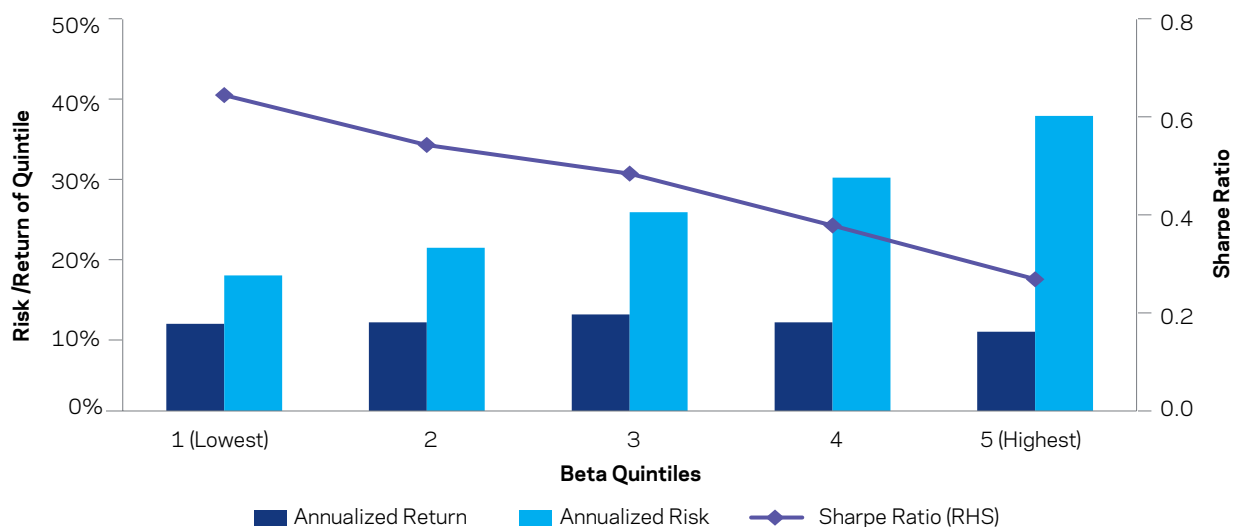
# The Defensive Premium

One of the oldest findings in finance is that lower-risk stocks have delivered returns that are “too high” compared to what traditional models would expect.<sup>1</sup> As shown in Figure 1, over the long term, U.S. stocks with lower risk (left side) have delivered approximately the same average returns

as stocks with higher risk (right side). Defensive equity<sup>2</sup> strategies seek to capture this premium, by investing across a range of low-risk stocks, with the objective of achieving market-like returns, but with less volatility.<sup>3</sup>

**Figure 1**

## Low Beta Stocks Offer Similar Returns (Dark Blue Bars) as High Beta Stocks U.S. Equities Simulation, April 1927–December 2015



Source: AQR. U.S. Equities are represented by the CRSP U.S. index until 1980, then the Russell 3000 thereafter. Chart shows arithmetic average returns. Past performance is not a guarantee of future performance. Return and risk characteristics are provided excess of the risk free rate. At the beginning of each calendar month, stocks are ranked in ascending order on the basis of their estimated beta at the end of the previous month. The ranked stocks are assigned to one of five quintile portfolios. All stocks are equally weighted within a given portfolio. The risk free rate is represented by U.S. 3 Month T-Bills. These are not the returns of an actual portfolio that AQR manages and are for illustrative purposes only. Hypothetical performance results have inherent limitations, some of which are disclosed at the end of this document. Please see disclosures at the end of this presentation.

- 1 Early studies include Black (1972).
- 2 Defensive Equity, Low Beta, Minimum Variance, Low Volatility — these names all describe investment strategies that generally seek to overweight safe securities and underweight risky securities (relative to capitalization-weighted benchmarks).
- 3 Evidence for the defensive premium is pervasive. Beyond the U.S., we find decades of evidence in international markets and in other asset classes—such as bonds and credit—that point to the same basic conclusion: defensive strategies may generate returns similar to those of overall markets, but with less volatility (and thus generally smaller drawdowns).

# What Drives the Defensive Premium?

Various theories seek to explain why defensive stocks perform as well as they do. One of the oldest—and most tested—is that of “leverage aversion,” which considers what happens to stock prices if a meaningful subset of investors are unable to, or unwilling to, use leverage.

In general, equity investors with aggressive return targets have two options: 1) invest in higher-risk stocks in hopes of being compensated with commensurately higher returns, or 2) use leverage to magnify the returns of lower-risk stocks.

However, in a leverage-averse world, investors do not have the choice between options 1 and 2 — instead, they are forced to take option 1: invest in higher-risk stocks.

This demand for higher-risk stocks means their prices get bid up, and thus their expected returns go down. The opposite holds for lower-risk, or defensive, stocks — because there is less demand for them, those prices are bid lower, and thus may be expected to perform better than they otherwise would.

# What Makes a Stock “Defensive”?

There are many ways to evaluate whether a security is defensive, which we believe can be categorized as fundamental and quantitative. From a fundamental perspective, companies with low risk may have relatively high margins, sustainable earnings and low credit risk.<sup>4</sup> From a statistical

standpoint, companies with low risk may be those with low betas (or sensitivities) to the market or low volatilities. We believe both categories are useful for identifying defensive companies, as thus the combination is likely to produce a more robust portfolio of truly defensive stocks.

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<sup>4</sup> Consistent with the earlier evidence, safe, profitable and stable companies have historically earned higher risk-adjusted returns than risky, unprofitable and unstable firms, as shown in Piotroski (2002), Novy-Marx (2012), Asness, Frazzini and Pedersen (2012).

# Defensive and Defined Contribution

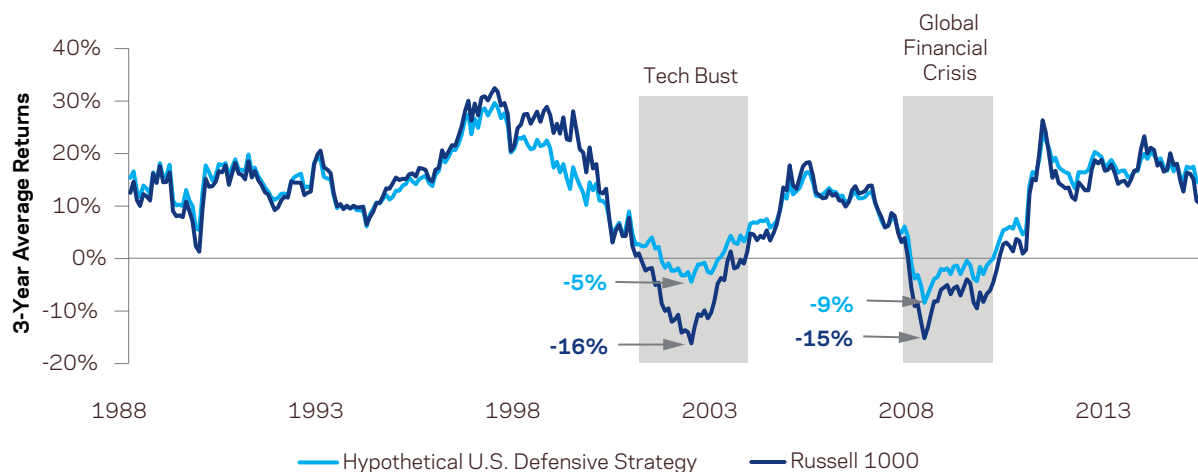
Defensive equities may be among those that are best able to meet the twin objectives of wealth accumulation and wealth preservation. Figure 2 illustrates this by showing the rolling 3-year average returns of two portfolios: a hypothetical U.S. large cap defensive equity strategy, and the Russell 1000. In good times the returns are comparable, which supports the idea that defensive equities may achieve returns on par with passive equities, and thus provide a similar engine for growth.

The difference, though, can be seen in the shaded areas in Figure 2, which show that defensive equities may be better at addressing wealth

preservation, as their lower volatility leads to smaller drawdowns in these worst environments.<sup>5</sup> This feature is clearly valuable near retirement, when investors have less time to ride through a market drawdown. But it may also be valuable for younger savers, who may be less likely to “throw in the towel” after a severe — and potentially prolonged — bear market, and thus remain invested on the path to having enough savings in retirement.

We turn to how investors might implement defensive equities in a portfolio, and how they may fit into a traditional defined contribution context in part II of this series.

**Figure 2**  
**Equity-Like Returns, With Potentially Smaller Drawdowns**  
**U.S. Equities Simulation, January 1986–April 2016**



Source: AQR. Defensive Equity backtest is based on the AQR U.S. Defensive Equity Strategy; net of transaction and financing costs but gross of advisory fees. Returns are shown in USD. Additional details on backtest methodology in Appendix. These are not the returns to an actual portfolio AQR manages and are for illustrative purposes only. Hypothetical performance results have certain inherent limitations, some of which are disclosed in the Appendix. Past performance is not a guarantee of future performance. Universe for the Hypothetical U.S. Defensive Equity Strategy is roughly equivalent to the Russell 1000.

5 Over the full period show in Figure 2, the average volatility and total returns of the Russell 1000 are 15% and 11%, respectively. For the Hypothetical Defensive Strategy the average volatility and total returns are 12% and 12%, respectively.

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# U.S. Defensive Strategy Backtest Methodology

Universe: Liquid tradable universes for U.S. (roughly equivalent to the Russell 1000). Quarterly rebalancing frequency. Risk model: Barra USE3L model. Performance is measured after AQR's proprietary t-cost estimates.

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