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Benchmarks as Limits to Arbitrage: Understanding the Low-Volatility Anomaly

Malcolm Baker, Brendan Bradley & Jeffrey Wurgler

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To recap the anomaly, whether risk is defined as volatility or beta and whether we consider all stocks or only large caps, low risk consistently outperformed high risk over this period. A dollar invested in the lowest-volatility portfolio in January 1968 would have increased to $59.55 by the end of 2008. Over this period, inflation eroded the real value of a dollar to about $0.17, meaning that the low-risk portfolio produced a $10.12 gain in real terms. In contrast, a dollar invested in the highest-volatility portfolio would have been worth 58 cents at the end of December 2008, assuming no transaction costs. Given the declining value of the dollar, the real value of the high-volatility portfolio declined to less than 10 cents—a 90 percent decline in real terms! The anomaly with respect to beta risk is similar. A dollar invested in the lowest-beta portfolio in January 1968 would have grown to $60.46 ($10.28 in real terms), and a dollar invested in the highest-beta portfolio would have grown to $3.77 (64 cents in real terms). Like the high-volatility investor, the high-beta investor also failed to recover his dollar in real terms and underperformed his "conservative" beta neighbor by 964 percent.

Behavioral models of security prices, such as ours, combine two ingredients. The first is that some market participants are irrational in some particular way. In the context of the low-risk anomaly, we believe that an important subset of investors have a preference for risky stocks. This preference derives from the biases that afflict the
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In this article, we review in more detail the long-term performance of low-risk portfolios, present our behavioral explanation and some associated evidence, and discuss the practical implications for investors and investment managers. Perhaps the most important practical implication is that unless individual investors' preference for volatile stocks and the use of benchmarks are somehow reversed, the low-risk anomaly is likely to persist.