Anatomy of a Bull Market

Bull markets come in all shapes and sizes.

INVESTMENT RESEARCH: MARKETS

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This article originally appeared on Flirting With Models, *a blog by the firm Newfound Research, a quantitative asset manager.*

We recently found "History of U.S. Bear & Bull Markets Since 1926,"[1] a one-pager from First Trust. In our opinion, it offers a nice visualization of market expansions and contractions over the past 90 years. We've recreated the graph below (**EXHIBIT 1**). There are some slight differences in what we show versus the First Trust data, because we use a different data source[2] and stick to monthly data. We also go back to the beginning of the first bull market of the 20th century.
Over the period from 1903 to 2016, there were 12 bull markets in the S&P 500. The average bull market lasted 8.1 years, with a total return of 387%. The average bear market lasted 1.5 years, with a total loss of 35%.

The current bull market, which began in March 2009, is the seventh longest and the sixth strongest. For it to be the longest ever, it would have to continue through the fourth quarter of 2023. For it to be the largest ever, the S&P would have to return another 665%. While this analysis is informative, it's still an incomplete picture of the anatomy of bull (and bear) markets. Below, we will examine this same data from four other perspectives:

1. Velocity: How fast do bull and bear markets unfold?
2. Sources of return: How much of bull market returns are composed of inflation? Dividend yield? Earnings growth? Valuation changes?
3. Experience: What was the experience of an investor using a balanced 50/50 asset allocation during these bull and bear markets?
4. Context: How does the experience of bull and bear markets in the United States compare to other markets around the world?

Velocity

More often than not, market-cycle analysis focuses on duration and magnitude. We can change the focus to velocity by graphing the annualized return experienced in each bull and bear market (**EXHIBIT 2**).

This snapshot highlights three important characteristics of the historical behavior of U.S. equity markets.

First, we don't experience the average. Over the 113-plus-year period we considered, the U.S. equity market returned an annualized 9.8%. Yet,

EXHIBIT 1

U.S. Bull and Bear Markets: 1903 to 2016

Bull markets are defined from the lowest close reached after the market has fallen 20% or more to next market high.
Bear markets are defined from the last market high before the market closing down at least 20% to the lowest close after it's down 20% or more.

Source: Robert Shiller's data library. Calculations by Newfound Research.

1 https://www.ftportfolios.com/Common/ContentFileLoader.aspx?ContentGUID=4ecfa978-d0bb-4924-92c8-628ff9bfe12d
2 We use data from Robert Shiller's website. This data was used in Shiller's book, *Irrational Exuberance* (Princeton. Shiller presents monthly data. Before January 2000, price data is the average of the S&P 500's (or a predecessor's) daily closes for that month.

the path of returns has been defined by thrilling bull markets and crushing bear markets.

Consider this: Since 1903, there has not been a market cycle with a single-digit annualized return.

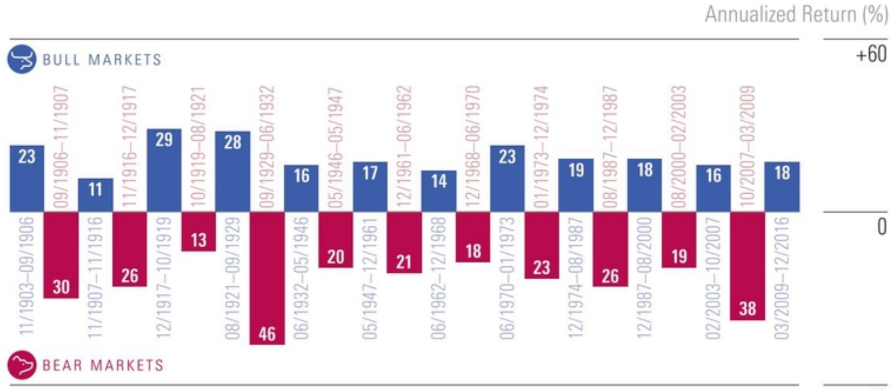
Ten of the 12 bull markets had annualized gains greater than 15%. Similarly, annualized losses exceeded 15% in 10 of the 11 bear markets.

Second, bear markets typically unfold more rapidly than bull markets. The average annualized returns for bull and bear markets are 19% and negative 25%, respectively.

Third, the current bull market is slow by historical standards. It ranks 17th in velocity out of the 23 market cycles that we studied. This same phenomenon occurred in the bull market that followed the Great Depression, the only bear market that was more severe than the financial crisis of 2007–08.

EXHIBIT 2

Velocity: Annualized Return of Bull and Bear Markets



Source: Robert Shiller's data library. Calculations by Newfound Research.

Sources of Return

Equity returns can be decomposed into four components:

- Inflation
- Dividend yield
- Earnings growth
- Valuation changes

Using this framework, it quickly becomes clear that not all bull markets are created equal (**EXHIBIT 3**).

For example, the bull market of the 1970s and 1980s was driven largely by inflation. On a nominal, or preinflation, basis, this was the second-largest bull market of all time. On a real, basis or postinflation, basis, however, it drops to just the fifth largest.

Both of the two most recent bull markets are unique in their own right.

The bull market before the global financial crisis—lasting from February 2003 to October 2007—had the largest share of return driven by earnings growth at just north of 30%. The current bull market is only the third instance of a large (greater than 100%) bull market where more than half the gains have come from expanding valuation multiples.

The contribution from valuation expansion is larger than even the buildup of the tech bubble.

What happens if we decompose U.S. equity returns over rolling 10-year periods? **EXHIBIT 4** presents the data. To perform these calculations, we determined the annualized return generated by each source (inflation, dividends, earnings growth, and valuation changes), took the absolute value, and then normalized so that the total sums to one.

On average, over all rolling 10-year periods, each source contributed the following percentage to total return (ordered from biggest to smallest contributor):

1. Dividends: 31%
2. Valuation changes: 28%
3. Inflation: 25%
4. Earnings growth: 16%

We also performed the analysis for shorter (three-year) and longer (30-year) rolling periods (**EXHIBIT 5**).

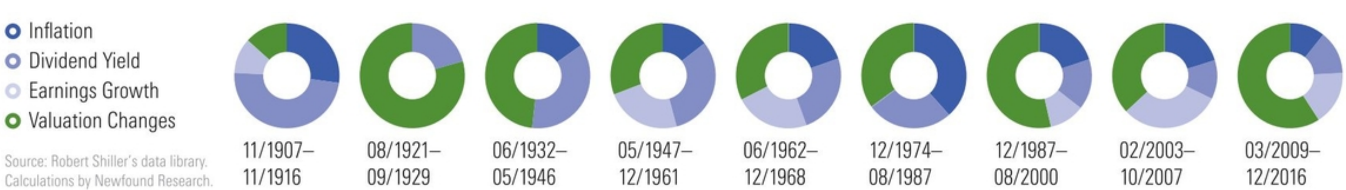
Over shorter time horizons, valuation changes start to dominate returns:

1. Valuation changes: 40%
2. Dividends: 25%
3. Inflation: 21%
4. Earnings growth: 15%

But over longer periods, the impact of valuations starts to approach zero as shorter-term fluctuations

EXHIBIT 3

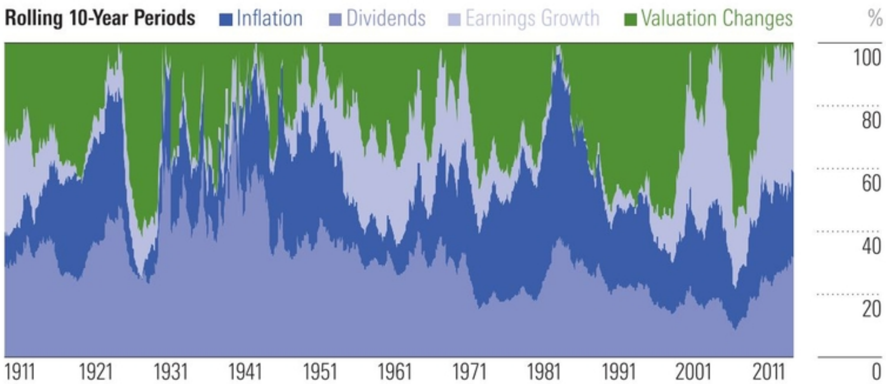
Sources of Return: Nine of the Largest U.S. Bull Markets



Source: Robert Shiller's data library. Calculations by Newfound Research.

EXHIBIT 4

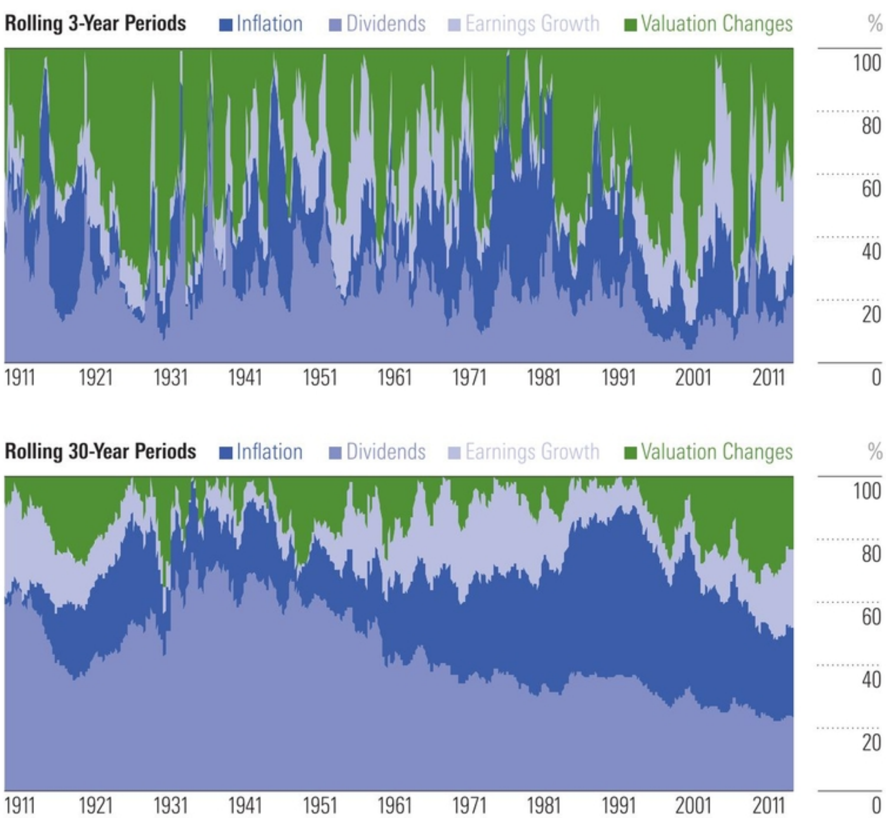
U.S. Equity Market Sources of Return: Rolling 10-Year Periods



Source: Robert Shiller's data library. Calculations by Newfound Research.

EXHIBIT 5

U.S. Equity Market Sources of Return: Rolling 3-Year and 30-Year Periods



Source: Robert Shiller's data library. Calculations by Newfound Research.

offset each other. Inflation and dividend yield together drive more than 70% of 30-year returns on average:

1 Dividends: 44%
2 Inflation: 28%
3 Earnings growth: 15%
4 Valuation changes: 13%

Going beyond headline shock and awe, however, we recognize that classifying all valuation changes into a single bucket is probably painting with too broad of a brush. Valuations returning to normal after a market crash is not the same as valuations expanding from historical averages to all-time highs.

We can address this by modifying the previous graphic. Specifically, we break the "valuation changes" category into two parts:[3]

- Valuation normalization: valuations increasing from historically low levels to the long-term median.
- Valuation expansion: valuations increasing from the long-term median to higher levels.

When all valuation changes are lumped together, the five most valuation-centric bull markets of the nine in the graphic are (EXHIBIT 6):

1 August 1921 to September 1929 (79%)
2 March 2009 to December 2016 (59%)
3 December 1987 to August 2000 (53%)
4 June 1932 to May 1946 (48%)
5 February 2003 to October 2007 (37%)

When we focus, however, on only valuation expansion, the top five changes to:

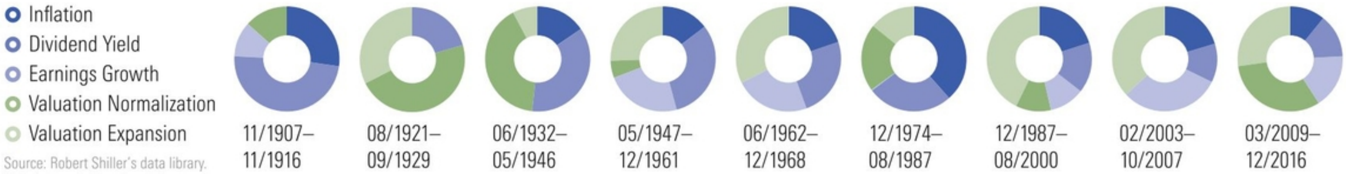
1 December 1987 to August 2000 (43%)
2 February 2003 to October 2007 (37%)
3 June 1962 to December 1968 (32%)
4 August 1921 to September 1929 (32%)
5 March 2009 to December 2016 (27%)

When we ignore valuation normalization, the current bull market drops from the second-most valuation-centric to the fifth-most valuation-centric. The majority of the valuation gains in this cycle were the result of the recovery from the bottom of the financial crisis.

3 To avoid hindsight bias when calculating the historical median, we used rolling 50-year periods.

EXHIBIT 6

Sources of Return: Nine of the Largest U.S. Bull Markets, Valuation Normalization and Valuation Expansion



Source: Robert Shiller's data library. Calculations by Newfound Research.

Experience

Many investors do not hold 100% stock allocations. As a result, their experience during equity bull markets will also depend on bond returns. **EXHIBIT 7** shows the upside capture for a 50/50 stock/bond investor during the 12 equity bull markets since 1903.

Despite the continued secular decline in interest rates, the past two bull markets (February 2003 to October 2007 and March 2009 to December 2016) have actually been below average for balanced investors.

Why? Because the relative performance of a balanced investor versus a stock investor will not only depend on the path of interest rates (i.e., do rates increase or decrease), but also on the average interest rate over the period.

For ideal bull market up-capture, balanced investors should hope for high and declining interest rates. Recently, we've had the latter, but not the former (**EXHIBIT 8**). In the future, we may move toward the bottom right-hand corner, which has historically had the lowest up-capture.

Context

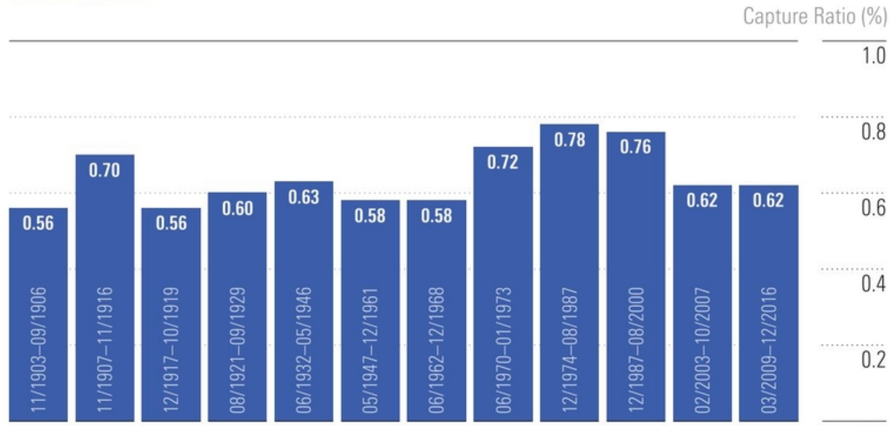
How does the experience of bull and bear markets in the United States compare with other markets around the world?

We recreated the First Trust graph for Japan, the United Kingdom, Europe ex-UK, and Asia ex-Japan (**EXHIBIT 9**).

Looking beyond the United States can be a useful reminder that the future behavior of the S&P 500 is not constrained by past experiences.

EXHIBIT 7

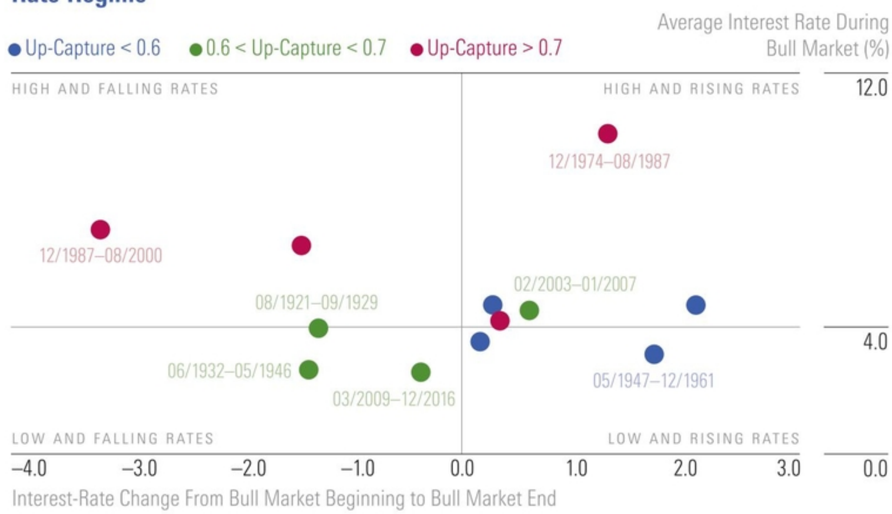
Experience: Upside Capture for 50/50 Stock/Bond Investors During Stock Bull Markets



Source: Robert Shiller's data library. Calculations by Newfound Research.

EXHIBIT 8

Experience: Balanced Portfolio Up-Capture vs. Equity Market by Interest-Rate Regime



Source: Robert Shiller's data library. Calculations by Newfound Research.

It’s possible to have larger bull markets than what we have seen in the United States, as evidenced by the 1970s and 1980s in Japan and the United Kingdom.

It’s also possible for bear markets to drag on for years. The longest bear market in the United States since 1903 lasted slightly less than three years. Japan, on the other hand, saw a bear market that lasted the entirety of the 1990s and 2000s.

Conclusion

While long-term average stock returns have been high, they smooth over the bull and bear markets that investors experience along the way. These large directional swings have many characteristics that make them unique, including their durations and magnitudes. Velocity, sources of return, and investor experience have also shown significant variation across market cycles.

This current bull market has been slow by historical standards and has largely been driven by normalization of equity valuations after the financial crisis. Balanced investors have benefited from declining interest rates, but saw muted up-capture since interest rates started declining from a relatively low level.

Putting the current market environment into context by considering other geographies can lead to a more thorough understanding of how to position our portfolios and develop a plan that can be adhered to regardless of how a given market cycle unfolds. M

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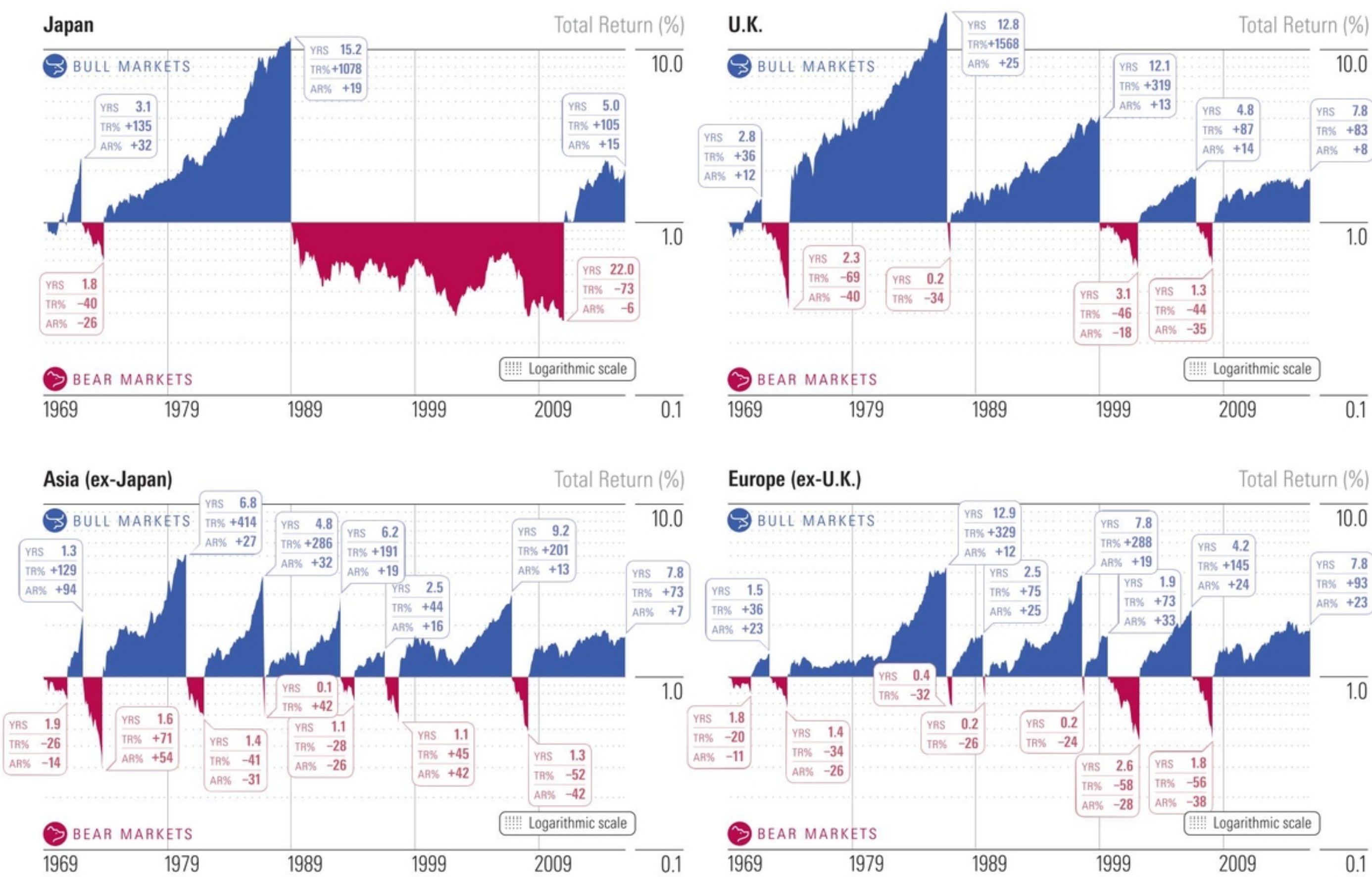
EXHIBIT 9

Context: Regional Bull and Bear Markets: 1969 to 2016



Source: Robert Shiller’s data library. Calculations by Newfound Research.