The Basics of October's Sell-off

CIO *View*Point

ROBERT VANDERHOOFT, CFA
Chief Executive Officer & Chief Investment Officer

In our view, the recent sell-off reflects a late-cycle correction rather than an end of cycle bear market. For a number of quarters we have been trimming our equity overweight in balanced accounts with an understanding that higher interest rates and central bank tightening can introduce greater market volatility, particularly as consensus earnings growth expectations were strong. We believe that while there may be more downside with the market correction, investors should keep an eye on harvesting attractive pricing and rebalance back to equity targets.

Basics of Asset Pricing Formulas

Einstein's famous E=MC2 formula describes how matter can be converted to energy and energy back to mass. It's an elegant insight into the complex workings of nature within a simple formula.

Despite the complexities of the financial world, there are fundamental formulas that describe asset pricing.

For example, one common viewpoint is that all long asset holdings can be priced using a discounted cash flow model where the market value of the asset is a function of the income it produces, a required rate of return (including risk premiums) and future growth expectations.

For a perpetual holding, the formula can be simplified to:

MV = CF / (R-G)

Where:

MV = Market Value

CF = Cash flow, earnings or income

R = Required Rate of Return (including risk premiums)

G = Expected growth rate of CF

This should be familiar for anyone holding bonds as fixed income implies that CF does not change (i.e. there is no growth factor). For government bonds, we can see why an increase in interest rates (R) results in a decrease in market value. For example, if the market value of bonds held is $100 and the coupon earned is 3%, a rise in interest rates from 3% to 3.4% for a perpetual (long-term) government bond would see its price fall from $100 to $88.24 as follows:

MV = $3 / 3.4%

MV = 88.24.

[1] WorldBank.

The movement in yields from 3% to 3.4% highlighted in Figure 1 below aligns with the trough to peak move in 30-year U.S. Treasury yields from August 24 to October 5. This move surprised market consensus, which anticipated rising short-term yields, but expected long-term yields to remain stable.

Figure 1: Long-Term Interest Rate Spike Surprises Market

Source: Bloomberg Finance L.P.

The impact of interest rates is less evident in equities, as higher interest rates over the last 30 years have been connected to rising expectations for the economy, lower risk premiums and higher earnings growth expectations. Therefore, we have tended to see higher interest rates associated with higher expected growth rates for cash flows and a fall in the (R-G) factor. Nevertheless, equities are exposed to changes in the required rate of return. As mentioned, the move in long-term rates was largely unanticipated by the market; therefore, what we have seen through October is a shift in required returns without an associated increase in earnings growth expectations.

We can apply this to provide some insight into recent market movements for equities, which have sold off despite continued economic expansion, stable credit spreads and otherwise accommodative financial conditions.

Let's run the recent move through our simplified discounted cash flow model:

At its peak on September 20, the S&P 500 Index traded at a level of 2930. If we take this as the market value (MV), we can calculate implied earnings of approximately 143 (CF) from the trailing price-to-earnings ratio of the index at the time (roughly 20.5). While it's difficult to calculate the exact required rate of return (R) and growth rate (G), we can calculate the combined (R-G) by modifying the discounted cash flow formula.

(R-G) = CF / MV

For the S&P 500 at its peak:

(R-G) = 143 / 2930

(R-G) = 4.9%

Applying an unanticipated 0.4% shock to the R factor (surprise move in long-term interest rates) results in the following market value for the S&P 500 if there is no associated increase in earnings growth expectations.

MV = 143 / (4.9% + 0.4%)

MV = 2698

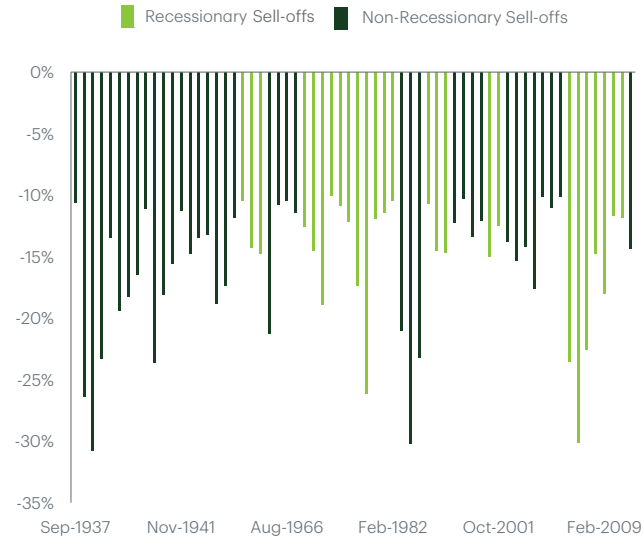
This would equate to a return of -9.2% for the S&P 500 from the peak, simply due to the change in long-term interest rate expectations, which were not associated with an increase in earnings growth expectations. This is not far from the value of the S&P 500 at time of writing on October 26 (2667).

This is a simplification of the real world dynamics as higher volatility can introduce additional shifts in the required rate of return due to evolving risk premiums. In actuality, the growth rate is also not static and expectations for growth rates may also be shifting. A simple stress test for the downside may involve your expectations for shifting risk premium / falling growth expectations. For example, stress testing equity markets with an additional 0.5% shift to the (R-G) factor would place the S&P 500 Index at 2423, an 18% fall from the peak.

Conclusion

A market correction in the 10-20% range would not be outside of the range for equity movements during periods of economic expansion. We can see in Figure 2 that quarters with a loss of 10% or more can occur frequently, even in periods of expansion (blue bars). The challenge for many investors is that we haven't seen such a quarterly move since 2011.

Figure 2: S&P 500 Quarterly Sell-offs of 10% or More



Source: Bloomberg Finance L.P.

On a positive note, we have observed that the fourth quarter has historically experienced the strongest average returns. The S&P 500 has finished positively 73% of the time in fourth quarters, with an average price return of 2.7%, going back to 1928.

While we acknowledge that momentum can drive additional losses from here, we also separate the impact of mid-to-late cycle corrections from the impact of a potential recession. The former, which is our current view, calls for setting targets to re-enter the market, whereas the latter would advocate for a reduction to equity targets.

Jafer Naqvi, CFA
Vice President and Director,
Fixed Income & Multi-Asset
416.309.2586 | jafer.naqvi@greystone.ca

Sean Collins, CFA
Vice President and Director,
Institutional Relationships
416.309.2183 | sean.collins@greystone.ca

Greystone.ca

(10/2018)