Valuation's Usefulness for Forecasting and Setting Asset Allocation

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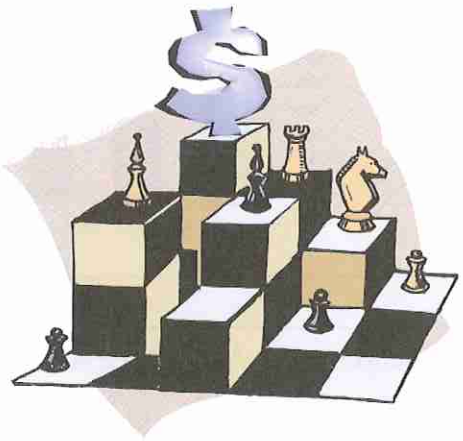
Article Highlights

- Valuation multiples are useful tools for forecasting long-term returns, but poor tools for making short-term asset allocation decisions.
- The more paid per dollar of earnings or dividends, the lower the subsequent 10-year returns will be.
- A 60% stock/40% bond portfolio had similar returns to valuation-based strategies but required less frequent rebalancing.

Dividend yields, price-earnings ratios and cyclically adjusted price-earnings ratios have long been used to forecast long-term stock returns, which may lead some investors to believe that these multiples can also be valuable tools for asset allocation.



A dividend yield (D/P) is defined as a company's dividends per share divided by the current stock price; a price-earnings ratio (P/E) is the current stock price divided by the company's earnings per share. Both dividends per share and earnings per share are typically, but not always, measured over the previous four quarters. The cyclically adjusted price-earnings (CAPE) ratio, is typically, but not always, defined as the current stock price divided by an average of earnings per share over the previous 10 years; often both the price and the average earnings per share are adjusted by inflation, but that is not the case in this article.

These multiples have forecasting ability in the long term, but investors often adjust their portfolios as a response to short-term signals. For this reason, it is conceivable that multiples could be useful tools to forecast long-term returns and, at the same time, poor tools to determine short-term asset allocations. This is precisely what is suggested by the evidence discussed here (which is based on my article "Multiples, Forecasting, and Asset Allocation," forthcoming in the Summer 2015 issue of the Journal of Applied Corporate Finance).

To elaborate, the evidence suggests that when multiples that provide reliable long-term strategic signals are (mis)used as short-term tactical tools, the resulting valuation-based portfolios do not outperform a simple 60%/40% stock-bond portfolio. Therefore, because a static allocation requires less attention than valuation-based strategies, investors may want to stay away from tactical adjustments based on multiples and stick to a simple balanced portfolio.

Multiples and Forecasting

The usefulness of multiples to forecast long-term stock returns is on display in the upper half of Figure 1, which relates the inverse of D/P (panel A) and P/E (panel B) to 10-year forward annualized returns over the December 1899 to December 2014 period. (The data used is described at the beginning of the next section.) As the figure makes clear, the more an investor paid per dollar of dividends per share or earnings per share, the lower the returns he or she received in the subsequent 10 years were.

The bottom half of Figure 1, on the other hand, relates P/D (panel C) and P/E (panel D) to one-year forward returns. As is clear from both graphs, the usefulness of multiples to forecast long-term returns displayed in the upper half largely vanishes in the short term. In fact, Figure 1 is consistent with previous evidence that suggests that entering the market at

Figure 1. Valuation Ratios and Market Returns

Stock market performance following various levels of valuations as measured by the price-to-dividends and the price-earnings ratios.

a high or low multiple does provide fairly reliable information about the long-term expected return, but very little information about the short-term expected return.

The fact that multiples provide useful valuation signals in the long term, but very noisy and rather useless signals in the short term, suggests some interesting questions: Given that investors tend to adjust their asset allocation in response to short-term conditions, among them changes in multiples, are these multiples a useful tool to determine a portfolio's asset allocation? Is it the case that multiples enable investors to devise valuation-based strategies with superior performance? Or is it the case instead that multiples lead investors to needlessly and frequently tweak their asset allocations, thus simply increasing transaction and tax costs? These are empirical questions, and they are addressed in the following section.

Multiples and Asset Allocation

The sample consists of monthly total return indexes of stocks and bonds between September 1899 and December 2014. Stocks are represented by the S&P 500 index and bonds by 90-day U.S. Treasury bills. Returns are nominal and account for capital gains/losses and dividends. Earnings per share and dividends per share for the calculation of P/E and P/D are lagged three months to allow for information availability in real time. Cyclically adjusted earnings per share for the CAPE ratio are calculated as the average earnings per share over the preceding 120 months, again with a three-month lag; neither price nor earnings are adjusted by inflation. All adjustments to asset allocations take place once a year, at the end of the year. Transaction costs and tax costs are not considered.

Three valuation-based strategies—based on P/D, P/E, and CAPE—are evaluated against a simple 60%/40% stock-bond static allocation. This 60/40 portfolio is rebalanced at the end of each year considering 5% tolerance bands. In other words, if at the end of a year the allocation to stocks is between 55% and 65%, no rebalancing takes place; if, on the contrary, the allocation to stocks is below 55% or above 65%, the portfolio is rebalanced back to the 60/40 allocation.

The three valuation-based strategies seek to implement an aggressive portfolio when stocks are cheap and a conservative one when stocks are expensive. Beginning from the benchmark 60/40 allocation, an aggressive portfolio increases the allocation to stocks by 20 percentage points, to 80%, and a conservative portfolio reduces the allocation to stocks by 20 percentage points, to 40%.

Cheap and expensive stocks are determined as follows. At the end of each month, the long-term mean and standard deviation of P/D, P/E and CAPE are calculated with all the data available up to that point. The first mean and standard deviation are calculated at the end of December 1919 for the 20-year period between December 1899 and December 1919; from that point on, one month is periodically added to the calculation of both statistics. At the end of each year, stocks are cheap (or expensive) if a multiple is more than one standard deviation below (or above) its

long-term mean, and fairly valued if the multiple is within one standard deviation of its long-term mean.

When stocks are fairly valued (as just defined) at the end of each year, the same tolerance bands applied to the benchmark 60/40 portfolio are applied to the valuation-based portfolios. In other words, if the allocation to (fairly valued) stocks is between 55% and 65%, nothing is done; if, on the contrary, the allocation to (fairly valued) stocks is below 55% or above 65%, then the portfolio is rebalanced back to the 60/40 allocation.

The results for the four strategies evaluated between the beginning of 1920 and the end of 2014 are summarized in Table 1. The annualized return of the 60/40 portfolio is the same as that of the strategies based on P/E and CAPE (8.1%) and slightly higher than that of the strategy based on P/D (7.9%). Thus, adjusting the asset allocation based on the signals provided by multiples does not enable investors to enhance the return of their portfolios relative to the static allocation.

The 60/40 portfolio has essentially the same annualized volatility as the valuation-based portfolios, all of them right around 11%. The combination of very similar returns and very similar risk produces identical risk-adjusted returns (0.22) for the four strategies considered. Note, however, that the valuation-based strategies are rebalanced almost twice as often as the 60/40 portfolio, which is rebalanced only 37 times in 95 years. Hence, if transaction and tax costs were considered, the 60/40 portfolio would outperform the valuation-based strategies by a small margin in terms of both returns and risk-adjusted returns.

In order to explore whether these results depend on the definition of cheap or expensive stocks, or the definition of an aggressive or a conservative portfolio, some variations of the scenario just discussed were considered. Allocations were tweaked 30 (instead of 20) percentage points when stocks were deemed cheap or expensive; stocks were considered cheap or expensive when multiples were two (instead of one) standard deviation away from the mean; and portfolios were rebalanced monthly (instead of annually). None of these changes had a substantial impact on the results discussed. (All of these results are reported in my longer article in the Journal of Applied Corporate Finance, mentioned earlier.)

Thus, the evidence does not support the superiority of valuation-based strategies; if anything, it mildly points in the opposite direction. In fact, the slight advantage of the 60/40 portfolio does not even take into account that this strategy does not require investors to track the historical performance of multiples and to evaluate whether they signal overvaluation, undervaluation, or fair valuation. In other words, simplicity would add another vote for the 60/40 portfolio.

Some may balk at the suggestion of a 60/40 portfolio at a time when interest rates are as low as they currently are. But note, first, that the results discussed highlight the advantages of this allocation relative to the strategies considered; needless to say, for any given individual, a 60/40 portfolio may be too aggressive or too conservative and no argument is made here that this is an appropriate allocation for all investors. Second, although interest rates have much more upside than downside and will increase sooner or later, the subsequent decrease in the value of a bond fund will be at least partially offset by the higher interest payments the fund will make over time. And third, in terms of the multiples considered in this article, stocks are not cheap; at year-end 2014, the D/P, P/E, and CAPE as measured here stand at 1.9%, 19.4, and 29, respectively, relative to their long-term averages of 4.1%, 16.0, and 18.8. [These year-end valuation levels belong to the bar with the lowest expected return in panels A and B of Figure 1. Since the P/D ratio is the inverse of the dividend yield (D/P), a $100 stock paying $1.90 in dividends would have a dividend yield of 1.9% ($1.90/$100 = 1.9%) and a P/D ratio of 52.6 ($100/$1.90).]

Final Thoughts

Multiples such as D/P, P/E, and CAPE have long been used to forecast long-term returns, although their inability to forecast short-term returns is well known. However, over the 95 years between 1920 and 2014, valuation-based strategies and the much simpler 60/40 static portfolio have had a very similar performance before transaction and tax costs. Importantly, this evidence casting doubt on the success of valuation-based strategies is not inconsistent with many previous findings in the literature.

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Table 1. Performance of Asset Allocation Strategies

Results of the four strategies evaluated between the beginning of 1920 and the end of 2014. All strategies start with $100 at the beginning of 1920. The 60/40 portfolio is rebalanced at the end of each year considering 5% tolerance bands; the strategies based on P/D, P/E, and CAPE are rebalanced at the end of each year according to the rules explained in the article.

	Strategy			
	60/40	P/D	P/E	CAPE
Annualized Return (%)	8.1	7.9	8.1	8.1
Annualized Volatility (%)	11.0	11.1	10.9	11.2
Minimum Monthly Return (%)	(17.2)	(19.9)	(19.9)	(17.2)
Maximum Monthly Return (%)	23.1	29.0	23.1	33.2
Risk-Adjusted Return	0.22	0.22	0.22	0.22
Terminal Value* ($)	1,023	987	1,048	1,035
Number of Times Rebalanced	37	71	69	70

**Terminal value of $100 after 30 years invested at the calculated annualized return.*

(continued from page 31)

To be sure, the bulk of the evidence seems to suggest that with the benefit of hindsight, it may be possible to find some valuation-based trading rule that would have outperformed an all-equity portfolio or a balanced portfolio in the past. (Of course, it is always possible to look back, torture the data and find some thresholds for the multiples that would have produced valuable signals and successful strategies, but that was not the goal here; as is often said, if the data is tortured enough, the data will confess.) However, the evidence also seems to suggest that such rules would have been nearly impossible to determine ex ante, on top of being psychologically very difficult to implement.

The fact that multiples are not helpful for asset allocation should not be interpreted as suggesting that they are not helpful for forecasting long-term returns. In fact, the evidence in the top half of Figure 1 suggests that multiples do have predictive power in the long term. In other words, in terms of expected returns, it does make a difference whether long-term investors enter the market when its valuation is high or low.

What explains the failure of multiples to produce useful valuation signals and successful asset allocation strategies? One reason may be that that multiples have forecasting power in the long term, but investors adjust their portfolios frequently. Hence, there is a mismatch between the length of the period for which the valuation signals are useful and the holding period of most portfolios. Put differently, the evidence suggests that although multiples may help long-term investors, they are unlikely to help short-term traders.

Another reason may be that simplicity is often underrated; simple static strategies (balanced portfolios) have been shown to perform as well as—and often better than—more complex strategies in a wide variety of settings. They also require from investors less information, less knowledge and less work to remain on track, and nowadays they even come neatly packaged in low-cost index funds and ETFs (exchange-traded funds). Just as it is better to have the discipline to regularly follow a balanced diet than go from one fad diet to the next, it may be better for investors to avoid excessive trading based on short-term valuation signals and stick to a simple balanced portfolio for the long term. ▲

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