Executive summary. This paper aims to help long-term investors better understand how to evaluate economic information in forming expectations about the stock market. Given the tight long-run relationship between the stock market and the economy, investment commentary routinely suggests that the market’s short-run prospects have changed in response to observed changes in macroeconomic expectations. Of course, such logic presumes a predictive relationship: that today’s expectations for tomorrow’s economy are correlated with tomorrow’s stock returns. Is this valid?

We begin by examining the link between macroeconomic expectations and the subsequent near-term performance of the U.S. stock market. Specifically, we run quarterly predictability regressions for excess stock returns on expectations for real growth and inflation derived from (1) economist surveys and (2) financial market indicators. We repeat these regressions for two stock-return spreads: (1) value minus growth and (2) small-cap minus large-cap.

We show that the consensus view of future macroeconomic conditions—whether derived from professional forecasters or financial indicators—has explained virtually none of the short-term volatility in stock returns over the past 40 years. While this may be surprising to some given the considerable attention paid to such expectations, our results are consistent with the view of a stock market that is reasonably efficient (it tends to “price in” the mainstream macro outlook), that is forward-looking (as a leading indicator, it tends to anticipate economic shifts rather than lag them), and that can be quite volatile in the short run.
The link between the economy and the stock market

The value of a broad stock index reflects current and expected earnings and dividend growth and other systematic return and valuation factors. A simplified version of the well-known Gordon model, for instance, expresses the expected excess return of the stock market (over cash) as the dividend yield plus expected real earnings growth. All else being equal, the higher the earnings yield at purchase and the higher the expected long-term real earnings growth, the higher the expected stock return (Asness, 2003).

The building blocks of the stock market’s long-run performance—earnings and dividends per share—are ultimately co-integrated with the economy’s performance. Figure 1 illustrates that the trend of the broad U.S. stock market has historically tracked the productivity level of the U.S. economy, measured here as gross domestic product per capita. In the past, the trend growth rate in real corporate earnings has paralleled the economy’s real productivity growth, while dividend yields have been highly correlated with the level of inflation expectations.

Of course, stock market risk premiums vary significantly in the short run. Given the tight long-run relationship between the stock market and the economy in Figure 1, it is perhaps not surprising that news stories and investment analysts focus keenly on expectations for an economy’s near-term performance to gauge the future prospects of its stock market.

Recently in the United States, expectations for future economic growth have declined appreciably, in part as a result of the subprime-mortgage and financial crisis. At the same time, certain measures of inflation expectations have risen because of record-high commodity prices and the weak U.S. dollar. This unwelcome combination of lower growth and higher inflation expectations has led some analysts to warn of disappointingly low U.S. stock market returns in coming quarters.

2 For an excellent discussion of alternative ways to decompose long-run stock returns, see Ibbotson and Chen (2003).
Yet is the link between expected macro variables and future stock returns as strong as commonly suggested? In the following section, we examine this link in detail with the goal of helping long-term investors better understand the implications of macroeconomic expectations for the stock market.

**Do macroeconomic expectations predict near-term stock returns?**

Academic researchers (e.g., Chen et al., 1986; Fama and French, 1989; Schwert, 1990) have long argued that business conditions should be positively correlated with future stock returns, because an economy’s business cycle should affect corporate cash flows and discount rates.\(^3\)

Of course, such logic assumes a *causal relationship*: that today’s expectations for tomorrow’s economy are strongly correlated with tomorrow’s stock returns.

To test this logic, we run regressions to examine the correlation between macroeconomic expectations (for real growth and inflation) and the subsequent performance of the U.S. stock market over four decades. We consider two distinct sources for macro expectations: (1) professional surveys and (2) financial market indicators. We first focus on survey-based macro expectations.

Consensus forecasts for real GDP growth and inflation come from the Federal Reserve Bank of Philadelphia’s *Survey of Professional Forecasters* (SPF). Conducted since 1968, the SPF is the oldest quarterly survey of macroeconomic forecasters in the United States. Each quarter, the survey asks a group of these professionals to provide quarter-by-quarter forecasts on a variety of macroeconomic variables.\(^4\)

The median SPF forecast—hereafter the *consensus forecast*—has historically been highly correlated with the actual reported values for various macro variables.\(^5\) For example, the correlation coefficients between the quarter-ahead consensus forecast and actual value for both real GDP growth and the inflation rate have been close to 60% since the inception of the SPF program in 1968. Indeed, the professional forecasters, as a group, appear to incorporate relevant forward-looking information in their macroeconomic projections in that the consensus SPF forecast is more accurate than a random-walk forecast.

To examine the correlation between macroeconomic expectations (for real growth and inflation) and near-term U.S. stock returns, we estimate *predictability regressions* of the general form:

\[
R_{t+1} - R_{t+1}^{\text{cash}} = f[E_1 \{\text{SPF}_{t+1}\}],
\]

where next quarter’s excess return of the U.S. stock market, \(R_{t+1} - R_{t+1}^{\text{cash}}\), is defined as the total return of the aggregate, market-cap-weighted stock market less the return of the 3-month U.S. Treasury bill. That is, the dependent variable in the regression is the *equity risk premium*, or the expected excess return of stocks over the return of a risk-free investment (i.e., cash). *Table 1*, on page 4, demonstrates that virtually all of the annual *volatility* in stock returns observed since the 1870s has come from changes in the equity risk premium.

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**Notes about risk and performance data**

*Investments are subject to risk. Investments in bonds are subject to interest rate, credit, and inflation risk. Prices of mid- and small-cap stocks often fluctuate more than those of large-company stocks. Foreign investing involves additional risks including currency fluctuations and political uncertainty.*

*Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.*

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3 More recently, however, certain academic studies have argued that expected excess stock returns are *negatively correlated* with the business cycle, because either systematic risk or risk-aversion increases during recessions. For an overview, see Andersen et al. (2005) and citations therein.

4 See Croushore (1993) for more details about the *Survey of Professional Forecasters*.

5 We construct the median growth-rate forecast by aggregating the individual survey responses; our empirical results are nearly identical using the mean forecast.
The variables on the right hand side of the regression, $E_t[SPF_{it}]$, include the median forecast surveyed in quarter $t$ for real GDP growth and inflation for either the next quarter ($i = 1$) or the next four quarters ($i = 4$). A statistically significant coefficient on any right-hand-side variable in this regression would provide evidence of in-sample stock market predictability, meaning that today’s expectations for tomorrow’s economy are correlated with tomorrow’s stock returns.\(^6\)

Table 2 presents the future stock return regressions on the SPF macro expectations data. The sample period begins in the first quarter of 1969 (1969Q1), since the first available SPF observation is in 1968Q4. The regression coefficients in Table 2 reveal that none of the SPF consensus series significantly predict next-quarter stock returns. The correlations between today’s expectations for future macroeconomic conditions and tomorrow’s excess stock returns are not statistically significant for either real GDP growth or inflation. The regressions in Table 2 are so weak, in fact, that the average adjusted $R^2$ is negative. This is true whether one focuses on the median expectation for the next quarter or for the next year.\(^7\) Forecast dispersion, a proxy for disagreement or uncertainty among professional forecasters, is uncorrelated with future stock returns, too.\(^8\)

Robustness checks
One explanation for the weak empirical results could be that survey expectations—which tend to be quite smooth and persistent—may be distorted by a trend specific to the sample period.\(^9\) Table 3 thus repeats the stock-return regressions using changes in SPF macroeconomic expectations. A positive and statistically significant regression coefficient on, say, real GDP growth would indicate that an upward revision today to future growth expectations would be associated with higher stock returns next quarter.

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\(^6\) Inoue and Kilian (2004), Campbell and Thompson (2005), and others argue that this type of stock-return regression is more meaningful than out-of-sample methods in investigating whether a right-hand-side variable (i.e., SPF) predicts future stock returns.

\(^7\) Although the regression coefficients are insignificant, they tend to be negative and countercyclical, as suggested by Andersen et al. (2005) and others: Stock returns are generally higher when either growth or inflation expectations are lower.

\(^8\) The cross-sectional dispersion among individual forecasts is a common proxy for forecaster uncertainty about future outcomes, although variation in predictions need not imply disagreement among forecasters. For details, see Mankiw et al. (2003).

\(^9\) Stambaugh (1999), for instance, argues that the regression coefficients in stock predictability regressions will be biased when the right-hand-side variables are highly persistent and correlated with future stock returns. Campbell and Yogo (2003) document the presence of “Stambaugh bias” for slow-moving series such as the dividend yield, and the year-ahead SPF variables appear to possess similar characteristics.
Table 2. Survey-based macro expectations and future stock returns: 1969Q1–2008Q1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant term</td>
<td>1.84</td>
<td>1.81</td>
<td>3.32</td>
<td>3.36</td>
</tr>
<tr>
<td></td>
<td>0.95</td>
<td>0.92</td>
<td>1.51</td>
<td>1.52</td>
</tr>
<tr>
<td>Expected real GDP growth for next quarter</td>
<td>–0.13</td>
<td>–0.13</td>
<td>–0.13</td>
<td>–0.38</td>
</tr>
<tr>
<td>Expected inflation rate for next quarter</td>
<td>–0.13</td>
<td>–0.10</td>
<td>–0.10</td>
<td>–0.19</td>
</tr>
<tr>
<td>Expected real GDP growth for next year</td>
<td>–0.65</td>
<td>–0.68</td>
<td>–1.48</td>
<td>–1.47</td>
</tr>
<tr>
<td>Expected inflation rate for next year</td>
<td>0.01</td>
<td>0.09</td>
<td>0.04</td>
<td>0.17</td>
</tr>
<tr>
<td>Forecast dispersion</td>
<td>0.84</td>
<td></td>
<td>1.35</td>
<td></td>
</tr>
<tr>
<td>(A proxy for forecast uncertainty)</td>
<td>0.15</td>
<td></td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>Adjusted R² (in %)</td>
<td>–1.2%</td>
<td>–1.9%</td>
<td>–0.4%</td>
<td>–1.0%</td>
</tr>
<tr>
<td>Standard deviation of dependent variable</td>
<td>8.66</td>
<td>8.66</td>
<td>8.66</td>
<td>8.66</td>
</tr>
<tr>
<td>Standard error of model equation</td>
<td>8.71</td>
<td>8.74</td>
<td>8.68</td>
<td>8.70</td>
</tr>
<tr>
<td>Model’s F-statistic p-value</td>
<td>0.95</td>
<td>0.99</td>
<td>0.49</td>
<td>0.69</td>
</tr>
</tbody>
</table>

Notes: SPF data reflect the median survey response. The regression’s dependent variable is the quarter-ahead excess return of U.S. stocks over the 3-month T-bill return. Listed beneath the regression coefficients are the Newey-West-corrected t-statistics (in italics). No coefficients in the table are statistically different from zero at 10% level.

Source: Author’s calculations.

Table 3. Changes in survey-based macro expectations and future stock returns: 1969Q1–2008Q1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant term</td>
<td>1.39*</td>
<td>1.39*</td>
<td>1.38*</td>
<td>1.38*</td>
</tr>
<tr>
<td></td>
<td>1.93</td>
<td>1.92</td>
<td>1.94</td>
<td>1.93</td>
</tr>
<tr>
<td>Change in expected real GDP growth for next quarter</td>
<td>–0.52</td>
<td>–0.52</td>
<td>–0.70</td>
<td>–0.68</td>
</tr>
<tr>
<td>Change in expected inflation rate for next quarter</td>
<td>1.37</td>
<td>1.37</td>
<td>0.89</td>
<td>0.87</td>
</tr>
<tr>
<td>Change in expected real GDP growth for next year</td>
<td>1.11</td>
<td></td>
<td>–0.69</td>
<td>–0.69</td>
</tr>
<tr>
<td>Change in expected inflation rate for next year</td>
<td>0.32</td>
<td>0.26</td>
<td>0.14</td>
<td>0.11</td>
</tr>
<tr>
<td>Change in forecast dispersion</td>
<td>0.30</td>
<td></td>
<td>1.86</td>
<td></td>
</tr>
<tr>
<td>(A proxy for forecast uncertainty)</td>
<td>0.05</td>
<td></td>
<td>0.33</td>
<td></td>
</tr>
<tr>
<td>Adjusted R² (in %)</td>
<td>0.3%</td>
<td>–0.3%</td>
<td>–0.5%</td>
<td>–1.1%</td>
</tr>
<tr>
<td>Standard deviation of dependent variable</td>
<td>8.68</td>
<td>8.68</td>
<td>8.68</td>
<td>8.68</td>
</tr>
<tr>
<td>Standard error of model equation</td>
<td>8.67</td>
<td>8.70</td>
<td>8.70</td>
<td>8.73</td>
</tr>
<tr>
<td>Model’s F-statistic p-value</td>
<td>0.29</td>
<td>0.48</td>
<td>0.54</td>
<td>0.71</td>
</tr>
</tbody>
</table>

Notes: SPF data reflect changes in median survey response versus previous survey. The regression’s dependent variable is the quarter-ahead excess return of U.S. stocks over the 3-month T-bill return. Listed beneath the regression coefficients are the Newey-West-corrected t-statistics (in italics). Bolded coefficients with an asterisk are statistically different from zero at 10% level.

Source: Author’s calculations.
The pattern in Table 3 parallels that for Table 2: None of the SPF consensus series significantly predict next-quarter stock returns. Quarter-to-quarter revisions to the median SPF forecasts for current growth and inflation expectations are not significantly correlated with next-quarter excess stock returns. This is true whether the revised forecasts are for the next quarter or the next year. As in Table 2, the average regression-adjusted $R^2$ is slightly negative: Changes in consensus macroeconomic expectations explain none of the volatility in future stock returns.

We checked the results in Tables 2 and 3 against other expectation variables derived from the Survey of Professional Forecasters, including (but not limited to): (1) corporate profits, (2) industrial production, (3) nominal GDP growth, and (4) housing starts. The regressions were similarly weak for all four of these variables at various SPF forecast horizons. The “expectations spreads” between the next-quarter and next-year median SPF forecasts were insignificant, too.

In addition, we verified the robustness of our results using a monthly sample of macroeconomic expectations provided by the Blue Chip Survey. Although the Blue Chip sample does not begin until 1977, the monthly predictability regressions parallel our results displayed in Tables 2 and 3. Finally, we ran regressions of annual stock market returns on the previous year’s median SPF expectation. The results were similarly weak, and the adjusted $R^2$ was again slightly negative.

Macro expectations: Economist surveys versus financial market proxies

Another potential explanation for the zero correlation documented in Tables 2 and 3 could be that economist surveys are either “stale” or biased in that they do not incorporate all information available in the financial market. If that were true, then we would expect the stock market to lead (1) changes in the median SPF forecast (particularly for real GDP growth) and (2) “surprises” to the median SPF forecast, meaning outcomes that the forecast did not predict. These two patterns should be related, since announcements of surprising economic data often lead to revisions in economist forecasts.

Figure 2 reveals the correlation between “surprises” to the median SPF forecasts for two values—real GDP growth and inflation—and past, present, and future excess stock returns. Here, we define “surprises” as the difference between what was actually reported for those values and the consensus expectation for them in the prior quarter’s survey.

Perhaps not surprisingly, the cross-correlation patterns demonstrate that the U.S. stock market anticipates “shocks” to real GDP growth at least two quarters ahead of the SPF survey. Figure 2 shows that excess stock returns at a given point in time are positively correlated (at a statistically significant 30%) with real GDP growth surprises announced three quarters later. The stock market does a somewhat poorer job of anticipating inflation surprises, although stock returns are likelier to lead SPF inflation surprises than to lag them. Indeed, Granger causality tests reveal that excess stock returns predict changes in survey-based macroeconomic expectations, not vice versa.12

10 We should note that our SPF survey results contradict Campbell and Diebold (2005), who find that consensus real GDP growth expectations from the biannual Livingston Survey significantly predict future stock returns (controlling for other variables). For a number of reasons, it is likely that the Campbell and Diebold results suffer from Stambaugh bias and thus are overstated. For one, the time series for real GDP growth expectations derived from the biannual Livingston Survey is highly persistent; tests fail to reject the presence of a unit root. Second, we can show that the Campbell and Diebold (2005) results do not hold when their real GDP expectation term is expressed in changes, as we do in Table 3. Third, Campbell and Diebold use the original Lettau and Ludvigson (2001) consumption-to-wealth ratio, rather than a version that is calculated in real time and appropriately lagged to avoid look-ahead bias. Finally, the positive Campbell and Diebold results are not observed using either the quarterly SPF or the monthly Blue Chip expectations databases.

11 While Croushore (2006) finds the median SPF inflation forecasts to be unbiased, Rudebusch and Williams (2007) show that the average SPF forecaster places too little weight on financial-market information—especially the Treasury yield curve—when projecting real GDP growth.

12 We cannot reject the null hypothesis that changes in the median SPF forecast do not Granger-cause excess stock returns, but we can reject at the 1% significance level the null hypothesis that excess stock returns do not Granger-cause changes in the median SPF forecast.
An alternative measure of macro expectations: Financial variables

For these and other reasons, many researchers use financial indicators as a proxy for expected macroeconomic conditions. One could certainly argue that the financial markets’ expectations for future U.S. economic performance are more “representative” than any one survey, as the number of participants in the global financial markets dwarfs the 50 or so forecasters canvassed by the SPF in any quarter. Since they are available in real time, financial indicator-based expectations should be at least as up-to-date as the quarterly SPF surveys.

Academic studies contend that a select number of financial market indicators significantly predict future stock returns precisely because they represent real-time expectations for (and uncertainty about) future macroeconomic conditions. According to Campbell and Diebold (2005) and Goyal and Welch (2006), the four most common and significant indicators include:

- The shape of the Treasury yield curve (\(TERM_t\)), defined as the difference between the 10-year Treasury yield and the 3-month Treasury bill yield.
- The default spread (\(DEF_t\)), defined as the difference between yields of high-grade AAA-rated and riskier BBB-rated corporate bonds.
- The dividend yield of the S&P 500 Index (\(DIV_t\)).
- The consumption-to-wealth ratio (\(CAY_t\)), calculated in real time and appropriately lagged.\(^{13}\)\(^{14}\)\(^{15}\)

\(^{13}\) See, among many others, Campbell and Shiller (1988), Fama and French (1989), and Goyal and Welch (2006).

\(^{14}\) Lettau and Ludvigson (2001) show that the consumption-wealth ratio (\(CAY_t\))—the error term from the cointegration relation among consumption, net worth, and labor income—forecasts stock market returns out of sample because it summarizes expected returns on aggregate wealth. However, Avramov (2002) shows that when the consumption-wealth ratio is calculated in real time to avoid look-ahead bias, the resultant variable (\(CAY_{t-1}\)) does not significantly predict future stock returns.

\(^{15}\) When we run a contemporaneous regression of the SPF data (both one and four quarters ahead) on the values for the four financial indicators above, we find that the survey-based and financial indicator-based measures of U.S. macroeconomic expectations are indeed positively correlated. Specifically, the regression reveals that the SPF inflation expectations series are highly and positively correlated with the dividend yield and negatively correlated with the term spread, producing an adjusted \(R^2\) exceeding 80%. This nearly one-to-one conditional relationship between dividend yields and inflation expectations would seem to accord with the dividend discount model, which predicts that the dividend yield should rise when necessary to offset higher expected inflation (Asness, 2003). The financial indicators are also positively correlated with SPF expectations for real GDP growth, although the relationship is weaker, with an adjusted \(R^2\) of approximately 15%. Consistent with the above discussion, the weaker correlation can be explained by the fact that the financial indicators—especially the shape of the Treasury yield curve—are updated before the SPF real GDP growth forecast. Indeed, the \(R^2\) on the real GDP regression more than doubles to over 30% when the financial indicators are regressed on the median SPF response for the following quarter, rather than on the contemporaneous forecast.
Table 4. Financial indicator-based macro expectations and future stock returns: 1969Q1–2008Q1

<table>
<thead>
<tr>
<th>Dependent variable and time period</th>
<th>Financial proxies for macro expectations/risk</th>
<th>Equation Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Constant</td>
<td>DIVₜ</td>
</tr>
<tr>
<td>Excess stock returns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full sample: 1969Q1–2008Q1</td>
<td>−4.03</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>−1.35</td>
<td>1.12</td>
</tr>
<tr>
<td>1st subsample: 1969Q1–1988Q4</td>
<td>−13.67*</td>
<td>2.21*</td>
</tr>
<tr>
<td></td>
<td>−2.72</td>
<td>2.27</td>
</tr>
<tr>
<td>2nd subsample: 1989Q1–2008Q1</td>
<td>−3.76</td>
<td>3.53</td>
</tr>
<tr>
<td></td>
<td>−0.63</td>
<td>1.67</td>
</tr>
</tbody>
</table>

Notes: The regression’s dependent variable is the quarter-ahead excess return of U.S. stocks over the 3-month T-bill return. Bolded coefficients with asterisks are statistically significant at the 10% level. Listed beneath the regression coefficients are the Newey-West-corrected t-statistics (in italics). Source: Author’s calculations.

Table 5. Financial indicator-based macro expectations and future U.S. equity style returns: 1969Q1–2008Q1

<table>
<thead>
<tr>
<th>Dependent variable and time period</th>
<th>Financial proxies for macro expectations/risk</th>
<th>Equation Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Constant</td>
<td>DIVₜ</td>
</tr>
<tr>
<td>Value stocks minus growth stocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full sample: 1969Q1–2008Q1</td>
<td>1.85</td>
<td>−0.62</td>
</tr>
<tr>
<td></td>
<td>0.80</td>
<td>−1.14</td>
</tr>
<tr>
<td>1st subsample: 1969Q1–1988Q4</td>
<td>5.06</td>
<td>−1.01</td>
</tr>
<tr>
<td></td>
<td>1.48</td>
<td>−1.47</td>
</tr>
<tr>
<td>2nd subsample: 1989Q1–2008Q1</td>
<td>7.94</td>
<td>−3.32*</td>
</tr>
<tr>
<td></td>
<td>1.44</td>
<td>−1.93</td>
</tr>
<tr>
<td>Small-cap stocks minus large-cap stocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full sample: 1969Q1–2008Q1</td>
<td>−3.75*</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>−2.36</td>
<td>0.74</td>
</tr>
<tr>
<td>1st subsample: 1969Q1–1988Q4</td>
<td>−10.74*</td>
<td>2.40*</td>
</tr>
<tr>
<td></td>
<td>−3.20</td>
<td>2.63</td>
</tr>
<tr>
<td>2nd subsample: 1989Q1–2008Q1</td>
<td>−1.79</td>
<td>−1.37</td>
</tr>
<tr>
<td></td>
<td>−0.46</td>
<td>−1.31</td>
</tr>
</tbody>
</table>

Notes: Bolded coefficients with asterisks are statistically significant at the 10% level. Listed beneath the regression coefficients are the Newey-West-corrected t-statistics (in italics). Value minus growth is measured as the difference between the MSCI US Investable Market Value Index and the MSCI US Investable Market Growth Index. Small-cap minus large-cap is measured as the difference between the MSCI US Small Cap 1750 Index and the MSCI US Large Cap 300 Index. Source: Author’s calculations.
We reran the predictability regressions for future excess stock returns, this time with macroeconomic expectations represented by the four financial proxies. The results are shown in Table 4. As was the case in Table 2, the financial markets’ current expectations for future U.S. macroeconomic conditions explain less than 2% of the future volatility in the next quarter’s stock returns over the full sample period. Consistent with various academic studies, Table 4 shows that dividend yields are poor indicators of future stock returns over short horizons. Only the term spread has been significantly related to future stock returns: The steeper the Treasury yield curve is today, the higher stock returns should be next quarter, all else equal.

Table 4 also reveals that the full-sample relationships change through time. For instance, Fama and French (1989) document that the dividend yield, the default spread, and the term spread predict future excess stock returns. In our 1989–2008 subsample that spans the 20-year period since the publication of Fama and French’s research, we fail to uncover any significant relationship between these proxies for expected business conditions and next quarter’s stock returns.16 We observe that the statistical significance of the coefficients, including the term spread, is period-dependent.

Robustness check: Style and size returns
A critic of the disappointing results in Table 4 could argue that consensus macro expectations have meaningful—albeit offsetting—correlations with the four primary style and size categories of the U.S. equity market: value and growth styles, and large- and small-cap size indexes. That is, even if consensus expectations do not meaningfully predict next quarter’s absolute stock returns, they might predict future relative returns.

As an example, large-capitalization stocks are believed to outperform small-cap stocks when economic growth is expected to be weak and/or when inflation is expected to be high. Kao and Shumaker (1999) claim that it can be extremely profitable to exploit changes in expected business conditions by tactically shifting the allocation of growth stocks and value stocks in a portfolio based on the shape of the yield curve (TERM). Table 5 presents the results of regressing the future return spreads for (1) value minus growth and (2) large-cap minus small-cap on the four financial indicators. Overall, the regressions are as weak for style and size premiums as they are for future stock market returns. Consensus expectations explain nothing of the time-series volatility of the value premium over our sample period. For the size premium, we do find some evidence of predictability. However, the size, magnitude, and statistical significance of the financial proxies for expected business conditions change between the two subsamples.

16 See also Tokat and Stockton (2006) for a discussion of the sensitivity of tactical signals in projecting future stock returns.
The importance of focusing strategically on macroeconomic trends

Figure 3 combines our findings and underscores that the consensus view of future macroeconomic conditions—whether derived from financial indicators or professional forecasters—has provided little insight regarding the near-term direction of stock returns over the past 40 years. We have also shown this to be true for the return spreads of (1) value versus growth style indexes and (2) small-cap versus large-cap indexes. The results in this paper supplement the research of Goyal and Welch (2006), who find little robust evidence of near-term stock return predictability using a wide set of financial variables. In short, foreseeing the stock market’s short-term fluctuations is an extremely difficult endeavor.

These results may be surprising to some, given the considerable attention paid to such expectations by the investment community. However, our results are consistent with the view of a stock market that is reasonably efficient (it tends to “price in” the mainstream macro outlook), that is forward-looking (as a leading indicator, it tends to anticipate economic shifts rather than lag them), and that can be quite volatile in the short run for a number of reasons, including changes in investor sentiment (Fisher and Statman, 2000). In addition, consensus expectations for the economy can prove inaccurate.17

An economic game plan for investors: Four key macro considerations, plus one caveat

How, then, should long-term investors think about the economy when constructing portfolios? For sophisticated investors, a strategic asset allocation will incorporate expectations regarding long-term returns, volatility, and correlations among asset classes. Forming such expectations requires an understanding of the components that make up long-term returns. For stocks, the primary building blocks include growth in corporate earnings per share and dividends per share, as well as changes in market valuations, such as the price/earnings (P/E) ratio. Recalling Figure 1, the trends in these building blocks are highly correlated with fundamental trends for productivity and inflation.

17 See, for instance, Brooks and Gray (2004).
As part of this assessment, investors should focus on
a big-picture view of the global economic landscape.
To do so requires asking several important and related
questions. First, what will be the dominant themes in
the economy and financial markets in the years ahead?
Second, are these macro trends and concerns already
priced in? This step is critical because, as we have
shown, the consensus view has had little correlation
with near-term stock returns. If one’s own assessment
diffs sufficiently from the mainstream view, then one
may have identified the potential macro “surprises”
that may later move the stock market. Naturally, the
future success of such a macro-driven portfolio
strategy will be heavily dependent on one’s accuracy
in forecasting future economic trends.

Below we list four key macroeconomic concepts that
can help investors build reasonable expectations for
long-term stock returns.

Macroeconomic trend 1: Productivity growth
Since the 1870s, the growth in U.S. corporate
earnings and dividends per share has averaged
slightly over 4% per year. Figure 4 demonstrates that
this growth has correlated with the average growth
rate of economic productivity. In the past, productivity
booms—such as those witnessed in the 1920s and
1990s—have coincided with robust growth in
corporate earnings and/or dividends. Productivity
booms are often driven by the rapid diffusion of
general-purpose technologies that raise (at least for
a time) the economy’s natural “speed limit” for
noninflationary growth.

What is the outlook for the U.S. economy’s
future productivity growth? Presently, consensus
expectations match the historical average: Nominal
productivity is expected to grow at approximately
4.5% annually over the next ten years. That figure
combines a real productivity growth rate of 2%
and an average expected inflation rate of 2.5%.
A key consideration for macro-minded investors
is how innovation and technological progress will
influence actual corporate productivity growth in
the years ahead.

Some key terms
The F-statistic reported in the regression output is from a test of the hypothesis that all of the slope
coefficients (excluding the constant, or intercept) in a regression are zero. The p-value of the F-statistic
is the marginal significance level of the F-test.

Predictability regression is a fitted relationship of the future values of the dependent variable regressed
on (or fitted to) past values of the independent variable(s).

R-squared represents the fraction of the variance of the dependent variable explained by the independent
variable(s).
Macroeconomic trend 2: Inflation

Although Figure 4 shows a tight correlation between productivity growth and stock market fundamentals, this relationship has not always translated into high equity returns. A primary reason has been unexpected accelerations in the rate of trend inflation. In the 1970s, for instance, nominal output and corporate earnings appeared high by historical standards, but they were inflated by the oil-price shocks of the period. The war-related boosts in productivity during the 1910s and 1940s were also associated with a run-up in inflation.

In the short and medium run, unexpected changes in the average inflation rate can have a negative effect on stock returns until monetary policy is able to return inflation expectations to a more stable and desired level. Figure 5 shows a negative correlation between the average realized excess return of U.S. stocks (over cash) in a decade and the change in the average inflation rate over the previous decade. The productivity booms of the 1920s, 1950s, 1980s, and 1990s were all associated with above-average excess stock returns in part because the productivity booms helped to engender disinflation.

What is the secular outlook for U.S. inflation? Presently, the consensus long-run forecast is for an average inflation rate of 2%–3% per year, a rate consistent with the Federal Reserve Board’s objective of price stability. However, some experts challenge this baseline forecast, noting the growing global pressures on commodity prices and other inflationary forces. Certainly the rate of global inflation in the decades ahead will be a critical risk factor for equity investors.

Macroeconomic trend 3: Productivity booms and stock market valuations

Although periods of above-average economic productivity have often helped to push down inflation, they have also, on occasion, been accompanied by a rise in stock market valuation. Most notably, the information technology-related productivity boom in the late 1990s witnessed a sharp rise in P/E ratios, especially for technology-related companies, as investors grappled with the possible long-term benefits of rapidly diffusing technologies.

Over horizons of five or ten years, P/E ratios can be powerful indicators of future stock returns (i.e., Campbell and Shiller, 1988), although Ibbotson and Chen (2003) demonstrate that P/E expansion accounted for only a small portion of the total return of U.S. stocks since 1926. Based on current valuation metrics, what is the outlook for U.S. stocks? Figure 6 reveals that forward-looking P/E ratios (as calculated by Vanguard’s Quantitative Equity Group using analyst corporate earnings forecasts) are near their historical average after having come down from the levels observed in the late 1990s.

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18 See Campbell and Vuolteenaho (2004) and citations therein on the concept of “inflation illusion” and the record of stocks as a long-term inflation hedge.

19 For a discussion of evolving U.S. inflation dynamics, see Davis (2007).
Macroeconomic trend 4: The global economy is increasingly relevant

In the past, growth in real corporate earnings per share has been closely correlated with an economy’s own inflation-adjusted productivity growth rate. In the United States, this real rate of growth has been roughly 2% per year on average. This observation, combined with a current dividend yield of 2%, has led some practitioners to forecast a much narrower return premium for stocks over bonds and cash in the decade ahead (Arnott and Bernstein, 2002).

That prognostication may prove too pessimistic, however, given that U.S. corporations are deriving a greater share of their earnings from overseas, as illustrated in Figure 7. Starting now, investors should be sure to examine trends in global growth, which has been as least twice as high as U.S. economic growth over the past several years.
One caveat: Structural breaks, “black swans,” and long-run predictions
It is important to remember that stock returns over the next decade are not necessarily more predictable than the returns for the next quarter. Kritzman (1994) points out that, although the annualized dispersion of stock returns moderates toward the expected mean, the dispersion of an investor’s potential terminal wealth increases as the investment horizon increases. To put this another way: Although the probability of losing money in stocks is lower over longer investment horizons than over shorter ones, the size of the potential loss increases. In surveying the debate over “time diversification,” Bennyhoff (2008) finds little empirical evidence to support the claim that time moderates the risks inherent in risk assets.

Over the past 200 years, the American economy and its financial system have undergone fantastic changes and challenges. Amazingly, real stock returns have been remarkably similar across long periods, such as between the 19th and 20th centuries. Of course, going forward, an unforeseen structural break or “black swan” could fundamentally alter the U.S. economy and its role in the global financial system. Examples could include major armed conflicts, drastic changes in the tax code or the regulatory environment, technological change that fundamentally alters the nation’s comparative advantages, monetary policy mistakes, or even simply bad luck.

For these reasons, global portfolio diversification remains critical, and it is important for strategic investors to periodically revisit their macro-based assumptions regarding expected long-term stock returns in the years ahead.

References


