How Do Stock Markets React to U.S. GDP Releases?

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Equity prices have rebounded strongly from their sudden drop on February 27. Friday's advance GDP release will be an interesting test of whether the market really has priced in the below-trend growth that most economists are forecasting for the next few quarters.

Economists' estimates for real GDP growth for 2007Q1 are quite low compared to recent quarters. Bloomberg reports that the consensus forecast for real GDP growth for 2007Q1 is 1.8%. The U.S. economy has grown by more than 2% for 14 of the past 15 quarters, since 2003Q1. The exception was 2005Q4, when GDP grew by 1.8%. However, there were important special factors then, mainly the aftermath of Hurricane Katrina, but also unusual behaviour in the auto sector, and a rare decline in government spending.

At present, large sectoral shifts rather than special factors are driving the low consensus forecasts for GDP growth. Most economists expect a period of below-trend growth while the effects of the housing sector decline and auto sector production changes work through the economy. Growth forecasts of about 1.8% seem sensible given the current macroeconomic conditions. **But, has the stock market really priced in that degree of economic slowing?** Or will worries of recession or stagflation flare up again if the actual data confirm economists' predictions?

The effect of GDP releases on equity prices is difficult to predict in part because there are two potentially offsetting effects. Stronger than expected GDP growth implies potentially stronger dividend growth and higher equity prices, however, the accompanying inflation and interest rate concerns tend to have a negative effect on equity prices.

Table 1 below summarizes simple one-day percentage changes in the S&P 500 index closing values on GDP release dates and non-GDP release dates from Jan.30, 2002 to Mar.29, 2007. In this relatively short period we have only 21 separate advance, preliminary or final GDP release dates, and 63 GDP release dates in total. We chose this period to see the effect of GDP releases in the years since the last recession, but that sample period is really too short to allow formal statistical tests. Nonetheless, the price change data do show some interesting patterns.

Table 1: S&P 500 Close, 1-day percentage change

	Advance	Preliminary	Final	Any GDP Date	Non-GDP Dates
Mean	-0.12	0.32	0.06	0.08	0.02
Median	-0.11	0.28	0.17	0.17	0.05
Min	-2.28	-3.23	-2.10	-3.23	-4.15
Max	1.65	2.16	1.14	2.16	5.73
Range	3.94	5.38	3.23	5.38	9.89
Std Dev.	1.00	1.11	0.82	0.99	1.01
Number	21	21	21	63	1260
Positive	10	13	14	37	670
Negative	11	8	7	26	590
% Positive	48%	62%	67%	59%	53%
% Negative	52%	38%	33%	41%	47%

Overall, GDP dates have an average increase of 0.08% compared to 0.02% on the non-GDP dates, but t-tests indicate that these differences are not statistically significant.

Turning to individual GDP releases, the average and median Advance GDP release days have corresponded to a *decline* in the S&P closing price over our sample period. However, there were nearly as many Advance release days with upward price movements (10) as downward movements (11).

More interesting is that preliminary and final GDP release dates typically correspond to larger than average increases in equity prices. This seems somewhat surprising given that the direction and often the magnitude of the GDP release can often be fairly accurately predicted from the source data, which is published after the advance report. Nevertheless markets still seem to react to these later GDP releases.

The BEA (2006) reported that the average real GDP revision from advance to preliminary release was 0.1%, but the average revision from preliminary to final GDP release was 0.0%.[1] Therefore it is surprising is that the even the final GDP release also seems to correspond to larger mean or median price change than observed on a non-GDP release day. One would expect that the final GDP release has the least information content of the three reports. Nevertheless, of our 21 final GDP release day observations fully 67% had positive stock price movements, compared to 53% of non-GDP release days.

Several studies in the macroeconomics and finance literature have examined this question with sufficiently large datasets to allow for more rigorous methods. These studies test for the effect of the surprise component of various macroeconomic releases (i.e. actual less consensus or survey estimates) on asset price movements on that day, or intraday around the time of the release. See for example Bernanke and Kutter (2003), Fair (2003), and others. In general, these studies tend not to find a significant effect of the GDP release news and equity price movements due to the offsetting effects noted above and difficulty measuring the true "news" contained in the data release. Nevertheless, the disconnect between equity prices and GDP release surprises remains a puzzle.

A recent study by Rigobon and Sack (2006) tries to address some of these problems. Using data from 1994 to 2006, they find no significant effect from advance GDP release surprises on equity prices using a standard OLS regression. However, they do find a slightly positive effect that is statistically significant when they use a more advanced econometric method which controls for censoring effects. The coefficient was tiny, so it would take a large surprise to generate even a small movement in stock prices according to their findings.

The econometric analysis does not find a clear relationship between Advance GDP release dates and particular patterns in stock prices. However, economists are predicting a slowdown in economic growth and, the recent data show a slight downward tendency in stock prices on Advance release dates. These two admittedly weak factors suggest that the risks for stock prices are to the downside on Friday.

References:

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Rose Cunningham, Ph.D.
President,
Independent Economic Advisers.
rcunningham@iearesearch.com

[1] Bureau of Economic Analysis. July 28, 2006. p. 9.