Georgia Tech Financial Analysis Lab
800 West Peachtree Street NW
Atlanta, GA 30332-0520
404-894-4395
http://www.mgt.gatech.edu/finlab

Dr. Charles W. Mulford, Director
Invesco Chair and Professor of Accounting
charles.mulford@mgt.gatech.edu

Dr. Narayanan Jayaraman
Professor of Finance
narayan.jayaraman@mgt.gatech.edu

Seeking Guidance for the Dow? Try GDP

(Updated through the second quarter, 2007)

By Charles Mulford and Narayanan Jayaraman

EXECUTIVE SUMMARY

With recent market volatility, investors are understandably concerned about where blue-chip stocks are headed next. An interesting long-term perspective on the subject can be gained by examining the extent to which Nominal Gross Domestic Product has explained the movement of share prices, in particular, the Dow Jones Industrial Average, over time. In this report, we look at the relationship between the two metrics since 1916, updated with data through the second quarter, 2007. We find strong support for the Dow to be trading in the vicinity of 13,700 to 14,000.

The authors appreciate the assistance provided by HyungSuk Choi.

August, 2007

Georgia Tech Financial Analysis Lab
College of Management
Georgia Institute of Technology
Atlanta, GA 30332-0520

Georgia Tech Financial Analysis Lab

The Georgia Tech Financial Analysis Lab conducts unbiased stock market research. Unbiased information is vital to effective investment decision-making. Accordingly, we think that independent research organizations, such as our own, have an important role to play in providing information to market participants.

Because our Lab is housed within a university, all of our research reports have an educational quality, as they are designed to impart knowledge and understanding to those who read them. Our focus is on issues that we believe will be of interest to a large segment of stock market participants. Depending on the issue, we may focus our attention on individual companies, groups of companies, or on large segments of the market at large.

A recurring theme in our work is the identification of reporting practices that give investors a misleading signal, whether positive or negative, of corporate earning power. We define earning power as the ability to generate a sustainable stream of earnings that is backed by cash flow. Accordingly, our research may look into reporting practices that affect either earnings or cash flow, or both. At times, our research may look at stock prices generally, though from a fundamental and not technical point of view.

Contact Information

Charles Mulford	Invesco Chair, Professor of Accounting and the Lab's Director Phone: (404) 894-4395 Email: charles.mulford@mgt.gatech.edu
Elizabeth Thomson	Graduate research assistant and MBA student
James Jayko	Graduate research assistant and MBA student
Mark Gram	MBA Student
Scott Bouchette	MBA Student
Ryan Swanson	MBA Student

Website: http://www.mgt.gatech.edu/finlab

Seeking Guidance for the Dow? Try GDP

By Charles W. Mulford
and Narayanan Jayaraman

August, 2007

With recent market volatility, investors are understandably concerned about where blue-chip stocks are headed next. An interesting long-term perspective on the subject can be gained by examining the extent to which Nominal Gross Domestic Product has explained the movement of share prices, in particular, the Dow Jones Industrial Average, over time. In this report, we look at the relationship between the two metrics since 1916, updated with data through the second quarter, 2007. We find strong support for the Dow to be trading in the vicinity of 13,700 – 14,000.

Historical Links

As the accompanying figure attests, the per-year mean Dow Jones Industrial Average tracks quite closely annual nominal GDP, or the total market value measured in billions of dollars of all goods and services produced in the U.S. Reviewing the figure, which was drawn on a logarithmic scale to highlight percentage changes, it can be seen that since 1916, the year in which the Dow industrial average was expanded to a more representative twenty stocks from the original twelve (the Dow average was increased to thirty stocks in 1928), the Dow Jones Industrial Average has departed significantly from GDP on only a couple of occasions.

One year of departure was 1929, when the Dow industrials averaged 311.2, exceeding GDP of 103.9($Billions) by nearly 200%. By 1932, this discrepancy had been all but erased, with the Dow industrials averaging 64.6 as compared with GDP for the year of 58.5($B). After another brief departure in the late 1930s, the Dow industrials correlated closely with GDP through the late 1960s. Even in the bull market year of 1966, the Dow industrials averaged 873.6 in a year in which GDP came in very closely at 787.8($B). In 1968, the two measures were almost identical. After 1968, the Dow industrials and GDP parted company again. GDP moved upward as the U.S. economy continued to grow, at least in nominal terms. However, the Dow industrials lagged, as the market doldrums of the late 1960s, 1970s and early 1980s gained a stronghold. The disparity between the two grew as oil shocks, inflation, and high interest rates took their toll on share prices. In 1982 the Dow industrials averaged 73% below GDP. That year, 1982, was the first year of the super-bull market that ran into 2000.

In this light, the bull market of the 1980s and 1990s can be seen as having been a case of catch-up, where the Dow worked its way back toward GDP after having been left behind sometime in the late 1960s. For example, as recently as 1994, the Dow industrials averaged more than 46% below GDP. However, by 1998, as the bull market accelerated, the difference between the two was eliminated.

In 1999 and 2000, the Dow industrials exceeded nominal GDP. During 2001, however, with declines in the Dow and increases in nominal GDP, the two measures were once again, nearly identical. Continued weakness in stock prices during 2002 resulted in the Dow averaging about twelve percent less than nominal GDP. Then, beginning in early 2003, with the Dow average trading below 8,000, the most recent bull market began, moving the Dow to close the gap with nominal GDP. The Dow's recent peak above 14,000 was slightly higher than nominal GDP of 13,700($B), annualized through the second quarter of 2007. Depending on growth of the U.S. economy during the third and fourth quarters of 2007, nominal GDP for 2007 will likely be reported somewhere between 13,700($B) and 14,000($B), suggesting a Dow trading in the vicinity of 13,700 – 14,000 would be about right.

A Stable Share of the Economy

On the surface, nominal GDP, which in recent years replaced GNP as our preferred measure of total economic output and is closely tied to it, would appear to be too simplistic to provide a good indicator of the direction of our stock market. However, as a measure of economic output, it is, at the company level, the equivalent of a measure of revenues. And share prices are often valued, though admittedly somewhat crudely, as a multiple of revenues.

Interestingly, even with changes in the component companies, over the past 50 years, the share of GDP represented by the revenues of the firms comprising the Dow industrials has been rather stable, averaging approximately 14 percent. More recently, revenues of the Dow companies comprise approximately 18.9 percent of GDP - on the high end of average, but very close to where it was as far back as the 1970s. Thus, using GDP as a model to value the shares in the Dow industrials is tantamount to using a revenue multiplier - crude but useful. Moreover, there is a certain intuitive appeal to the observation that the value of the companies comprising a significant component of our overall economy should be expected to grow at a rate commensurate with the economy's growth.

Looking Ahead

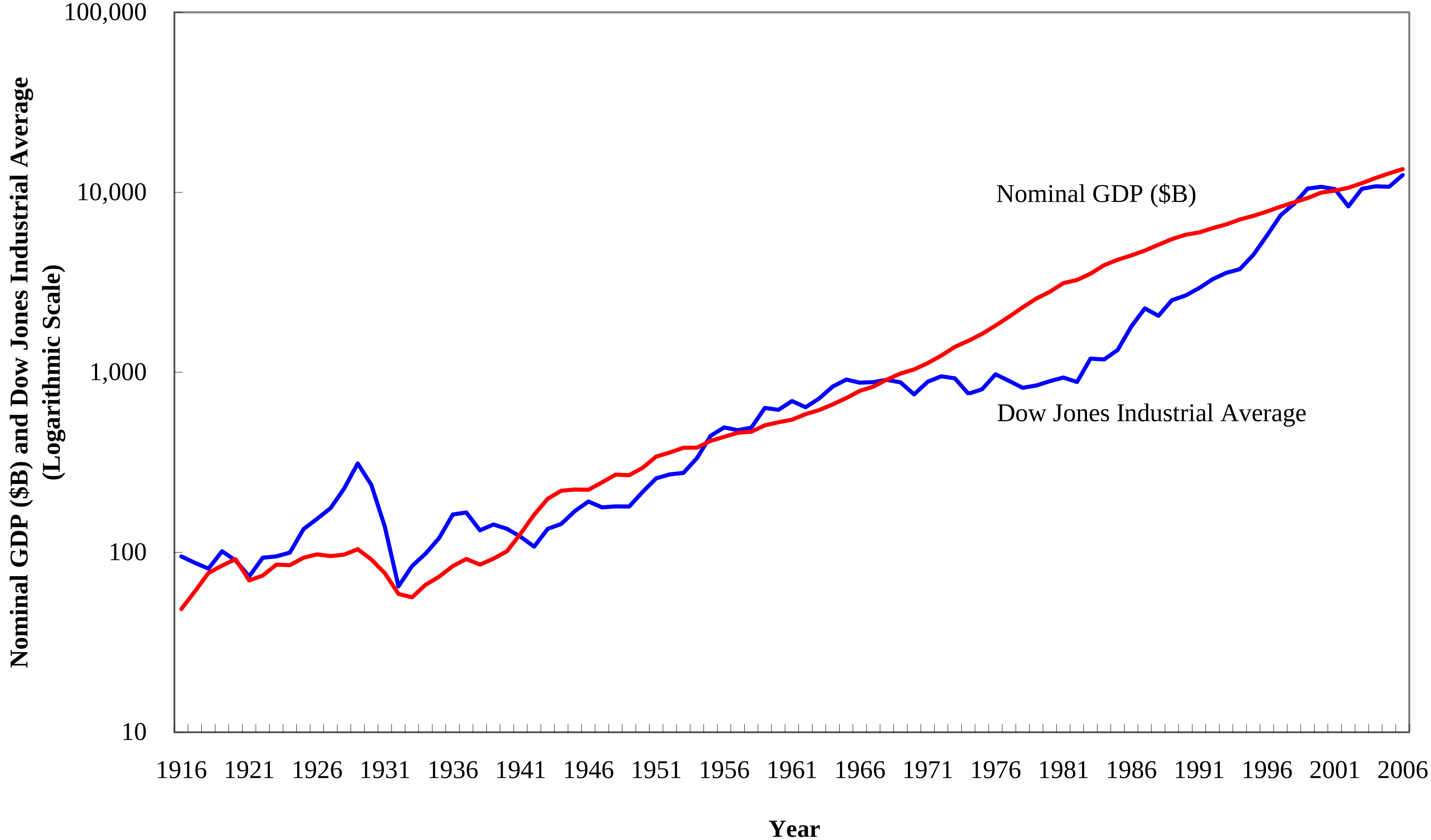
So what does GDP as a stock market barometer imply about the future direction of stock prices? The implication is that as long as we are able to maintain economic growth with low inflation and interest rates, a significant run up or decline in share prices would not appear to be likely.

Using the accompanying figure, it can be seen that there are periods when share prices, as represented by the Dow industrials, may grow either faster or slower than nominal GDP and move above or fall below the GDP line. However, the figure also indicates that these above or below-average returns are followed by returns that adjust to the average rate of growth in nominal GDP.

What level of stock-market returns can investors in the blue chips comprising the Dow expect in future years? Using GDP as a market barometer would imply that something on the order of 7% to 9% should be anticipated. That would allow, depending on one's forecast, for 5% to 6% nominal GDP growth and, assuming an eventual return to a more historical level, 2% to 3% for an annual dividend yield.

Dr. Mulford is Invesco Chair and professor of accounting and Dr. Jayaraman is professor of finance in the College of Management, Georgia Institute of Technology.

Whither the Dow?
The Dow Jones Industrial Average Tracks Nominal GDP in $Billions



Sources: Dow Jones & Co., The Value Line Investment Survey, and U.S. National Income and Product Accounts

Seeking Guidance for the Dow? Try GDP. August 2007.