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Economics Group

Special Commentary

John Silvia, Chief Economist
john.silvia@wellsfargo.com • (704) 374-7142
Azhar Iqbal, Econometrician
azhar.iqbal@wellsfargo.com • (704) 383-6805
Sarah Watt, Economic Analyst
sarah.watt@wellsfargo.com • (704) 374-7142

The Evolution of Economic Relationships: The PMI and Growth

Past Success Is No Guarantee of Future Success

The ISM manufacturing report's headline index—the PMI—has long been an important gauge of current economic conditions. However, a structural shift in the economy means that the relationship between the PMI and GDP growth has changed in recent years; strong PMI readings no longer translate into the same strength in GDP growth as they did in the past. The PMI's timely release on the first business day of the month provides one of the earliest glimpses into the current pace of economic activity and is subject to few revisions. Moreover, the PMI correlates closely with overall GDP growth, not just one component of the economy.[1] The robust PMI readings seen in this recovery, and particularly during the first half of 2011, do not lend themselves to the GDP growth we might have expected based upon past expansions.

A structural shift in the economy means that the relationship between the PMI and GDP growth has changed in recent years.

As the economy has changed over the past 60 years, so has the relationship between GDP and the PMI. In the 1950s, the manufacturing industry accounted for 27 percent of value-added GDP versus 12 percent in the 2000s. As the service sector has become a larger part of the economy in recent decades, the historical relationship between GDP and the PMI must be revaluated to reflect the current composition of the economy and the changing nature of business cycles.

Figure 1

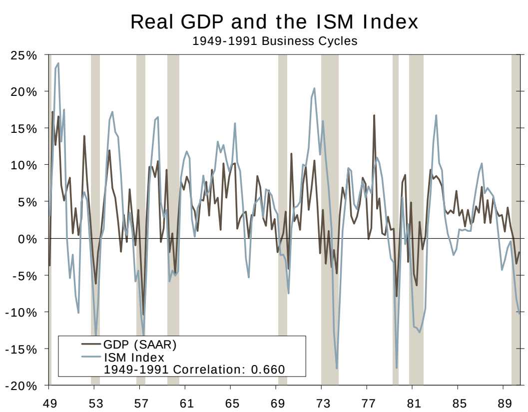
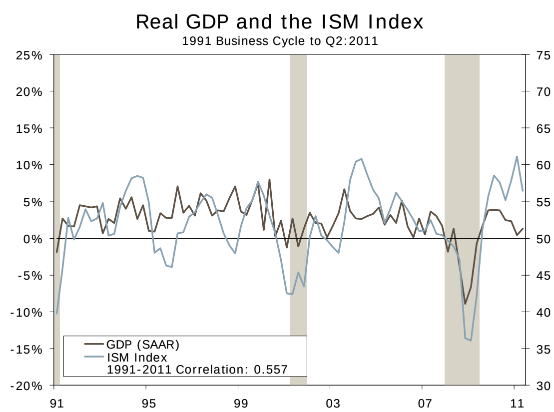


Figure 2



Source: U.S. Dept. of Commerce, Institute for Supply Management and Wells Fargo Securities, LLC

[1] In the post-WWII era, the relationship between GDP growth (measured by a seasonally adjusted annualized rate) and the PMI has had a correlation of 0.646.

Together we'll go far

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To evaluate the relationship between the PMI and GDP, we can compare the average value of each indicator at various stages of the business cycle. Over the post-WWII era, GDP has averaged a 3 percent annualized rate of growth, while the PMI has averaged a reading of 52.4. However, when comparing the business cycles in the earlier part of the period to the post-1991 cycles, the relationship has been altered. We divide the data into two eras and look at business cycles before the Great Moderation (1948-1989) and after the Great Moderation (1990-2011) since the economy has exhibited significant changes over the past 20 years.[2] First, since the onset of the Great Moderation, the correlation between GDP and the PMI has fallen to 0.557 compared to 0.661 in the earlier post-WWII business cycles. Second, average GDP growth has downshifted from 3.2 percent to 2.4 percent between the two periods, while the PMI has moderated only slightly to 51.4 from 52.7 (Table 1). This suggests a significant long-term reduction in what can be expected for GDP growth despite a modest decline in the average value of the PMI.

Table 1

ISM Manufacturing and GDP Over the Business Cycle

Trough-to-Trough Averages of ISM PMI and GDP (SAAR)

	ISM Manufacturing	Real GDP
1949-1954	52.8	4.88
1954-1958	53.1	2.40
1958-1961	53.9	3.92
1961-1970	55.7	4.32
1970-1975	56.7	2.57
1975-1980	52.9	3.18
1980-1982	44.1	0.69
1982-1991	52.6	3.68
1991-2001	51.5	3.29
2001-2009	51.3	1.47
1949-1991	**52.7**	**3.21**
1991-2011	**51.4**	**2.38**

Source: U.S. Dept. of Commerce, Institute for Supply Management and Wells Fargo Securities, LLC

The change in the relationship between GDP growth and the PMI stems from a change in the expansion and recovery patterns over the past two decades, rather than the nature of recessions during the business cycle.

The change in the relationship between GDP growth and the PMI over the past 60 years stems from a change in the expansion and recovery patterns over the past two decades, rather than the nature of recessions during the business cycle. During recessions, the average rate of GDP contraction and the PMI have been consistent when comparing pre- and post-1990 recessions. GDP has contracted at an average rate of 1.35 percent during both periods, while the average PMI readings during pre-1990 recessions printed 43.9 versus 43.4 in the past three recessions (Table 2). As such, using a PMI reading of 42.5 as the threshold for a contraction in GDP output sets the bar too low.[3] In the past, readings above 43 have been consistent with outright declines in GDP.

[2] The Great Moderation refers to the 1995-2007 time period, during which U.S. output and price levels showed a more stable pattern, and productivity increased at a faster pace compared to the 1948-1989 period. There are a number of factors that account for the Great Moderation, including the longest expansion period since the end of World War II, better inventory controls, and less frequent recessions.
[3] In the monthly Manufacturing ISM *Report on Business*, the report states, "A PMI in excess of 42.5 percent, over a period of time, generally indicates an expansion of the overall economy."

Table 2

ISM Manufacturing and GDP During Recessions
Peak-to-Trough Averages of ISM PMI and GDP (SAAR)

	ISM-Manufacturing	Real GDP
1948-1949	41.4	-1.08
1953-1954	44.1	-1.38
1957-1958	41.9	-2.04
1960-1961	45.0	-0.96
1969-1970	47.6	-0.47
1973-1975	50.7	-1.47
1980	40.9	-2.47
1981-1982	39.6	-0.90
1990-1991	42.4	-1.80
2001	43.4	0.41
2007-2009	44.4	-2.66
1948-1982	**43.9**	**-1.35**
1990-2011	**43.4**	**-1.35**

Source: U.S. Dept. of Commerce, Institute for Supply Management and Wells Fargo Securities, LLC

The recovery and expansion phases of the business cycle are where the changes in the relationship between GDP growth and the PMI over the post-WWII era are most evident. A moderation in GDP growth and the PMI can be seen in the first two years following the end of a recession, indicating that manufacturing activity and overall growth are slower to rebound after a downturn in today's economy than they have been previously. Looking at the third year of recovery, which is helpful to determine what the PMI can tell us about current economy activity, GDP growth has been notably slower in the post-1990 era, despite higher PMI readings (Table 3). This suggests a structural shift in the economy. A slower pace of GDP growth is associated with a mid-50s value of the PMI since 1990 compared to recoveries before the Great Moderation (see for example 1960-1961 and 1973-1975). Users of the PMI should be cautious in placing the same emphasis on current PMI levels that they have in the past in judging the pace of GDP growth.

Looking at the third year of recovery, GDP growth has been notably slower in the post-1990 era despite higher PMI readings.

Table 3

ISM Manufacturing and GDP in 3rd Year of Recovery/Expansion
Averages of ISM PMI and GDP (SAAR)

	ISM-Manufacturing	Real GDP
1948-1949	48.3	5.28
1953-1954	49.7	1.93
1960-1961	57.3	6.30
1969-1970	65.9	4.41
1973-1975	56.6	4.21
1981-1982	49.2	4.18
1990-1991	52.9	3.51
2001	59.1	2.90
1948-1982	**54.5**	**4.38**
1990-2011	**56.0**	**3.20**

Source: U.S. Dept. of Commerce, Institute for Supply Management and Wells Fargo Securities, LLC

Despite a weaker relationship over the past two decades, we believe the PMI is still a valuable indicator of economic growth. The direction still works, but the precise thresholds have shifted. As the relationship has changed in recent business cycles, so must the way we look at the PMI as an indicator of growth in the economy. No longer are readings of 56 consistent with a steady 4 percent economic growth. Rather, solid PMI readings are now associated with more modest GDP growth during the recovery and expansion phases of the business cycle. The PMI remains a reliable indicator, but less weight should be placed on the index as a gauge for GDP growth as strength in the manufacturing sector does not translate into commensurate strength in the rest of the economy.

Strength in the manufacturing sector does not translate into commensurate strength in the rest of the economy.

Wells Fargo Securities, LLC Economics Group

Diane Schumaker-Krieg	Global Head of Research & Economics	(704) 715-8437 (212) 214-5070	diane.schumaker@wellsfargo.com
John E. Silvia, Ph.D.	Chief Economist	(704) 374-7034	john.silvia@wellsfargo.com
Mark Vitner	Senior Economist	(704) 383-5635	mark.vitner@wellsfargo.com
Jay Bryson, Ph.D.	Global Economist	(704) 383-3518	jay.bryson@wellsfargo.com
Scott Anderson, Ph.D.	Senior Economist	(612) 667-9281	scott.a.anderson@wellsfargo.com
Eugenio Aleman, Ph.D.	Senior Economist	(704) 715-0314	eugenio.j.aleman@wellsfargo.com
Sam Bullard	Senior Economist	(704) 383-7372	sam.bullard@wellsfargo.com
Anika Khan	Economist	(704) 715-0575	anika.khan@wellsfargo.com
Azhar Iqbal	Econometrician	(704) 383-6805	azhar.iqbal@wellsfargo.com
Ed Kashmarek	Economist	(612) 667-0479	ed.kashmarek@wellsfargo.com
Tim Quinlan	Economist	(704) 374-4407	tim.quinlan@wellsfargo.com
Michael A. Brown	Economist	(704) 715-0569	michael.a.brown@wellsfargo.com
Tyler B. Kruse	Economic Analyst	(704) 715-1030	tyler.kruse@wellsfargo.com
Joe Seydl	Economic Analyst	(704) 715-1488	joseph.seydl@wellsfargo.com
Sarah Watt	Economic Analyst	(704) 374-7142	sarah.watt@wellsfargo.com

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