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HIGHLIGHTS

- **Manufacturing has been the star of the economic recovery. While making up around 12% of total economic output, manufacturing has contributed over 30% of the economy's growth since the recession ended.**
- **The outsized contribution of manufacturing to growth is due to three factors: inventory investment, rising demand for durable goods, and an under-performance from housing and services relative to past economic recoveries.**
- **Recent data suggest that manufacturing momentum may slow in the months ahead, but this is likely to be a short-lived phenomenon. With low interest rates and pent up demand supporting demand for manufactured goods at home, and a continued global recovery supporting exports, manufacturing is likely to remain a key source of economic growth in 2011.**
- **This disproportionate contribution is destined to fade in 2012 as others sectors show a stronger performance.**

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AMERICA'S MANUFACTURING-LED RECOVERY

The Great Recession has ended, but the U.S. economy is nowhere near full health. As many areas of the economy continue to limp along, the manufacturing sector has bounced back with a vengeance.

Rebounding manufacturing activity was pivotal in driving the U.S. economy out of the recession in mid-2009, and strength in the sector continues to buoy economic growth to this day. While recent weakness in new durable goods orders and the disaster in Japan have suggested that manufacturing momentum may be slowing, growth has continued to impress in recent months. February's data from the Institute for Supply Management (ISM) showed manufacturing activity at its highest level since May 2004.

The outsized contribution of manufacturing to the economic recovery is due to three factors: an initial strong contribution from inventory investment, rising demand for durable goods both at home and abroad, and an underperformance in housing and services relative to past economic recoveries.

Supported by record low interest rates and stimulative tax policy, manufacturing will continue to play a leading role in the recovery over the next year. But, this disproportionate contribution is destined to fade in 2012, as others sectors show a stronger performance.

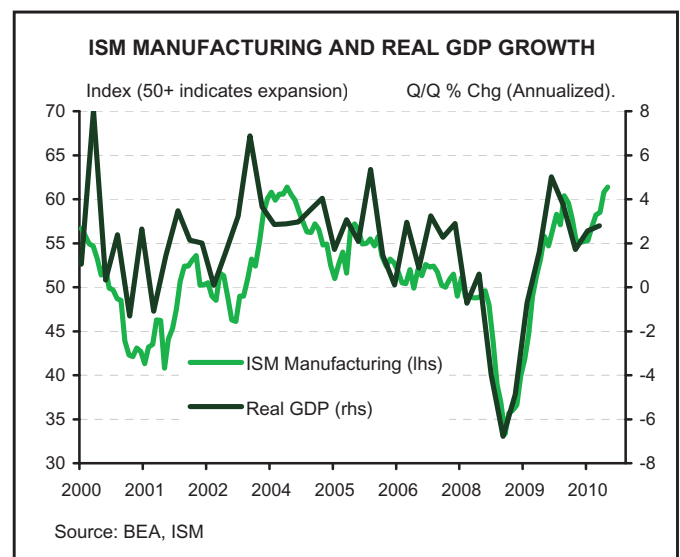
Manufacturing – Almost V-Shaped

Manufacturing has been the star of the economic recovery. Conservative estimates suggest that the sector, while making up around 12% of total economic output, has contributed close to 30% to the economy's growth since the recovery started.

By these metrics, it seems like manufacturing activity is turning in a stronger

performance relative to past recovery experiences. However, on closer viewing it is performing exactly as it should.

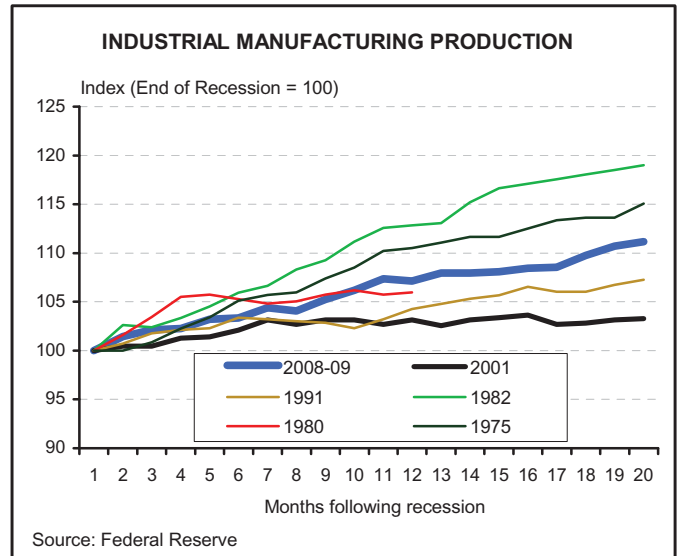
When the global recession started, manufacturing sales declined dramatically as consumers delayed big ticket purchases and global trade collapsed. This unexpected decline in sales left firms with large inventories of unsold goods. In order to bring them down, firms cut production to a level below the pace of sales and inventories declined. As the financial crisis subsided and sales stabilized, the need



to continue to liquidate inventories diminished and production picked up again. In typical business cycle fashion, the initial upswing in manufacturing production was not to a dramatic rebound in sales, but rather to a slowing in the pace of inventory liquidation. As the recovery continued, rising sales both to consumers and to businesses stepped in to support further increases in manufacturing production.

Nowhere is this process more evident than in the U.S. motor vehicle sector. In February of 2009, U.S. light weight vehicle sales reached a cyclical low of 9.3 million units (seasonally adjusted annual rate), a decline of 42% from the 16.1 million sold in 2007. As a result, the inventory of unsold vehicles rose from around two vehicles in inventory for every sale to over four. In response, between the third quarter of 2007 and the second quarter of 2009, the production of motor vehicles was cut in half. With this cut in production, auto makers were able to bring their inventories back in line with historical norms. As the need to liquidate inventories diminished, output rebounded strongly. And, with pent up demand building, auto sales have steadily improved, and are now at 13.4 million units (a 44% increase since 2009). As one would expect, this has fueled a continued rebuilding of inventories and a big boost in auto production.

International factors have also played a big role in the manufacturing rebound. The global nature of this recession led to an unprecedented slump in trade, including huge declines in manufactured exports. While domestic demand struggled to gain traction during the initial stage of the U.S. recovery, economic activity rebounded quickly in many other parts of the world (especially China) and led to a massive surge in manufactured exports. Export growth has since slowed, but robust global growth remains an ongoing



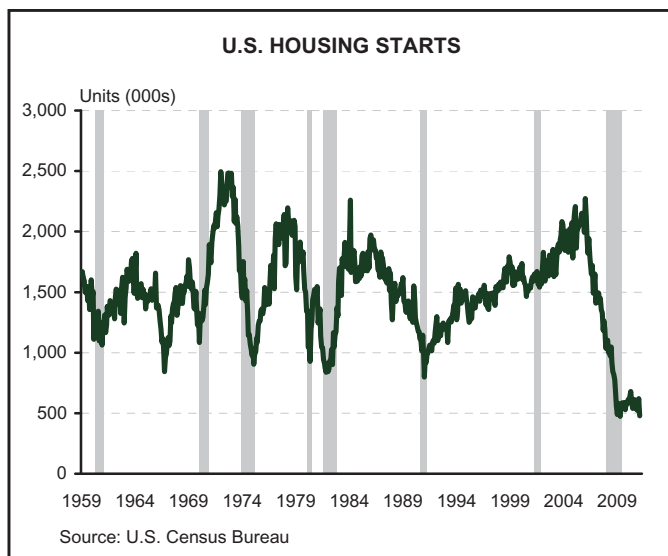
source of demand for American manufacturers.

So, while it seems that manufacturing is in a stronger position in this cycle versus past recovery experiences, the data show this to not be the case. Data on industrial production show that the post-recession performance of manufacturing has mirrored the average pace following the last four recessions. What is more, if the rebound in manufacturing is considered in the context of the size of the decline that took place during the recession, this recovery has fallen on the weak side. On average it has taken 15 months for manufacturing production to return to its pre-recession peak, but even now – twenty months after the recession ended – manufacturing activity is still 6.5% shy of its pre-recession levels.

This naturally leads to the question: if manufacturing has been performing in line with its historical average since the recession ended, why has it played such an outsized role in supporting economic growth? The answer lies not in the performance of manufacturing; but rather, in the performances of the true outliers in the recovery – housing and services.

Housing – The cyclical story that wasn't

Traditionally, the lead role played by manufacturing in the early stages of an economic recovery has been co-led by the housing sector. It may not seem this way now, but housing starts have traditionally been a key leading economic indicator, reaching a trough prior to the recession's end and rising steadily during the initial stages of recovery. Excluding the double-dip recession of the early 1980s, housing starts have rebounded by an average of 20% in the twelve months following the end of a recession. Clearly, this recession has been different – housing starts in February 2011



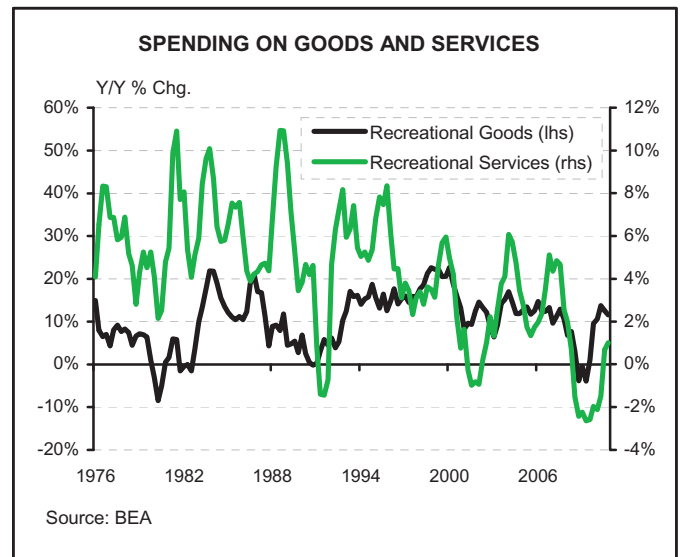
were essentially at their lowest level on record.

Like manufacturing, the cyclical nature of housing is due to the relationship between the inventory created by past levels of activity and the underlying demand for housing services. Unlike manufacturing, the large overhang of unsold homes and resulting steep drop in construction did not succeed in realigning inventories with underlying demand. Instead, the extent of the overbuilding in housing prior to the recession has necessitated a much longer period of subsequent underperformance. As a result, the overweight presence of manufacturing activity in driving GDP growth for the economy as a whole is a reflection of a housing sector that is not pulling its weight. This has caused manufacturing to carve up a bigger piece of the economic growth pie, even though its behavior is little different from the past.

Engaging the services sector

Slow household service spending is the other reason that manufacturing has taken on a larger role in the recovery. As is typically the case, the service sector did not mirror the sharp declines of the manufacturing and housing sectors during the recession. This is because many services are non-discretionary and cannot be held off until the economy improves – like paying rent or visiting the hospital. Nonetheless, since the recovery started, the rebound in consumer services spending has been unusually slow, growing at less than half the pace of past recoveries. Given that the sector makes up 44% of the entire U.S. economy, such sluggish growth is an important reason this recovery has lagged, and manufacturing’s typical rebound has played such a disproportionate role.

Weakness in services spending is hinged on two factors: wealth and jobs. Household wealth fell by \$16.9 trillion from

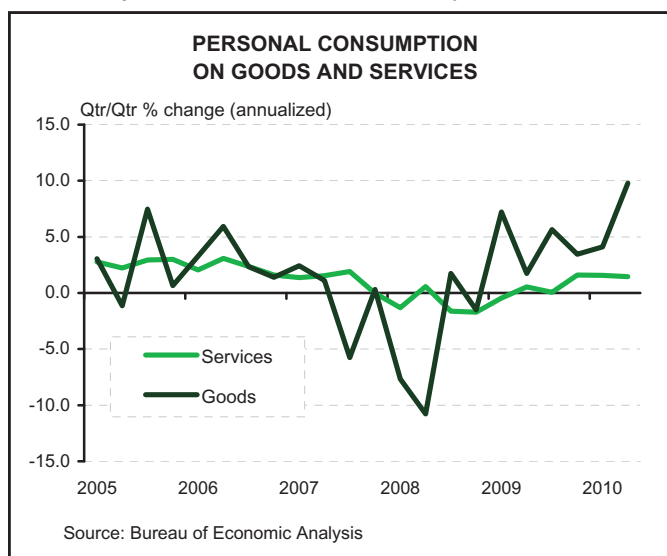


peak-to-trough and even with improvement over the last year, it was still \$8.8 trillion below the peak as of the fourth quarter of 2010. And if the wealth hit were not enough, of the 8.7 million jobs cut from payrolls during the recession, only 1.3 million have made their way back. Consumers have, understandably, responded to the enormous negative wealth shock by saving more. But, slow aggregate income growth (in large part a result of the jobless rate) has meant savings were increased through spending restraint. Many have curtailed discretionary service spending to provide income for spending on goods. For instance, rather than paying for a trip to Pasadena to watch the Rose Bowl in January, a new television is a less expensive investment (which is, conveniently, a durable manufactured good) that will allow the buyer to watch sports, and movies all year round. Such a shift away from discretionary services, towards investments in durable goods that provide a stream of entertainment services has been a common way to increase savings and cope with lower wealth. It has also increased demand for manufactured products.

Outlook

Although this has been a manufacturing-led recovery, it is not the result of unusually strong manufacturing growth. Rather, it is a reflection of lagging growth in the housing and service sectors. Unfortunately, these latter sectors are not ready to take the lead and drive economic growth just yet.

Over the next year, the main challenge for the housing market will be clearing the inventory of unsold homes. The foreclosure process adds an extra layer of complexity to this story, especially when impediments to the legalities around foreclosures are added to the mix. However, there remain positive signs that this process is continuing to take place.



Despite their setback in February, existing home sales – uninfluenced by temporary tax credits – are 26% above their post-recession trough. As in manufacturing, pent-up demand will increasingly become a theme in the housing market. The recession has led to a decline in the formation of new households, especially among the younger population, but this just means a larger pool of potential new homebuyers. While housing should remain weak over the next year, it will at least no longer subtract from economic activity, which is a considerable improvement from the close to 1 percentage point that it was taking away from real GDP growth over the last several years. As home sales slowly rise and inventory is worked off, 2012 should mark the beginning of a multi-year rise in residential construction, helping to pull up the recovery as the manufacturing sector moves back to a pace of growth more in line with the overall economy.

Meanwhile, on the service side, consumer spending growth has improved in recent quarters, but will continue to drag relative to past recoveries. As we noted above, reducing discretionary service spending and investing in durable goods is one way households can maintain their saving rate and gradually restore their lost wealth. While job growth will accelerate in 2011, the high rate of unemployment will keep wage and income growth from rising strongly. Together, this will require American consumers to remain thrifty, preventing a full-fledged rebound in service sector spending growth.

This will leave the onus on manufacturing to continue fueling economic growth and driving the recovery. While the sector is poised to soften in the short-term, conditions are ripe for ongoing manufacturing led growth. Three forces will continue supporting the sector – consumer spending on durable goods, business investment in machinery and capital, and export growth. Durable goods spending and business investment are highly influenced by financing conditions and interest rates. Ongoing improvements in credit conditions will allow many small businesses and households to take

advantage of the low rates that will persist in the coming year, in order to invest in some bigger ticket manufactured durable products. Also, the 2011 investment tax credit will provide additional support to business investment spending.

A different set of factors paints a rosy picture for exporters of manufactured goods in 2011. First off, supply disruptions from Japan will likely prove temporary and as the long process of rebuilding Japan begins, this could eventually increase demand for American capital goods. Even with slower growth in Japan, the global economy is expected to grow by nearly 4% this year and next. Trade and export growth will clearly benefit from this. Second, the U.S. dollar is expected to hold near its currently depreciated value, as low interest rates dampen demand for dollars. What is more, the buck does not stop with the nominal exchange rate. Greater inflationary pressures in the developing world (especially China) relative to the U.S. will also enhance trade competitiveness by making U.S. goods less expensive relative to those produced abroad.

Conclusion

Manufacturing has played a pivotal role supporting economic growth over the past year and a half, and the stage is set for this to continue. Manufacturing's outsized contribution to growth, however, has not come from some herculean strength in the sector. Rather, a lack of engagement from housing construction and household service spending has meant that manufacturing's typical recovery has had an outsized impact supporting economic growth. As we move through 2011, this trend can be expected to continue as the sector presses through some short-term challenges and continues to grow, while foreclosures dampen the housing construction activity, and slow income growth keeps a lid on service spending growth. Ultimately, until the housing and service sectors become more engaged in the recovery, manufacturing will reign supreme in underpinning it.