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INVENTORIES WILL SHAPE THE NEXT U.S. BUSINESS CYCLE

Swings in inventories may seem mundane in comparison to the risks to the U.S. economy from a possible housing bubble and ballooning foreign indebtness. Yet inventory swings have been a critical factor in almost all past business cycles. It is, therefore, important to understand the recent, unusual behaviour of inventories and the implications for future growth. The second and third quarters of last year mark the first time corporate America has liquidated inventories for two consecutive quarters when the economy has not been in recession. Many analysts have concluded that the liquidation was unintended and re-stocking will contribute to growth going forward. Indeed, firms did re-build stock levels in the fourth quarter. But our analysis suggests that much of the inventory liquidation was intended. Therefore, re-stocking will not continue to contribute to growth. The flip side is that inventories will act as less of a drag when growth in the U.S. economy slows, as we expect to occur by the third quarter of this year. This is a critical factor behind our call that the slowdown will be relatively mild, with GDP growth in the 2 1/4 to 2 1/2 per cent range from mid-2006 through mid-2007. More generally, our analysis suggests that there has likely been another structural break in the desired ratio of inventory stocks to sales and this could make future business cycles shorter and shallower.

A blast from the past

There are some lessons from the past that are useful in explaining recent developments. First, inventory adjustments tend to be procyclical, meaning inventories will rise during periods of economic expansion and fall during recessions. As simple as this statement may seem, the importance should not be overlooked. Economists had often theorized that inventories should be counter-cyclical, acting to smooth out production schedules from the volatility of sales. Firms would run down stock during periods of strong sales growth and accumulate stock during slower periods of demand growth, thereby limiting costly alterations in employment and production. In practice, however, the opposite occurs.

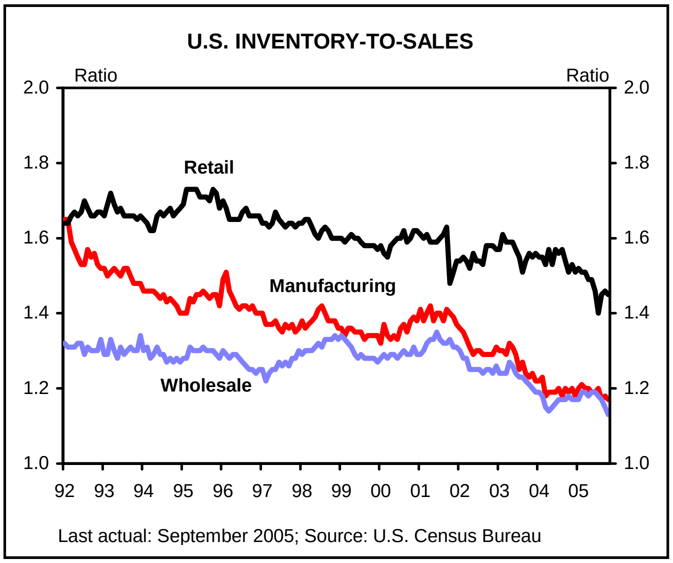
INVENTORIES AND RECESSIONS: THE HISTORICAL RECORD

Recession episodes	Peak-trough change in real GDP (%)	Change in GDP due to inventory investment (%)	Change in GDP due to final sales (%)
1952 through 1982	-2.0	-1.4	-0.6
1990-1991	-1.3	-0.8	-0.5
2001	0.3	-0.7	1.1

Source: Federal Reserve Bank of St. Louis

This is partly related to a second defining feature of the inventory cycle, in that firms tend to target a relatively fixed ratio of inventories to sales (I/S ratio). And, this ratio has exhibited a downward tendency ever since the mid-1980s when improved inventory management technology (i.e. 'just-in-time') and production controls allowed firms to be more timely in incorporating sales results into production schedules, thereby reducing the need to keep higher inventory levels on hand. The structural downshift in the I/S ratio first took hold in the durable goods manufacturing sector, but retailers and wholesalers were also on board by the early 1990s.

The ability to satisfy customer demand with a lower level of inventories is deemed instrumental in 'taming' the U.S business cycle. Research by the New York Federal Reserve determined that a structural break (Q1 1984)



in the quarter-to-quarter volatility of GDP growth stemmed from a break in the volatility of durable goods production, which, in turn, coincided with that proportion of output accounted for by inventories.[1] Before 1984, it was common place to see GDP growth swing by more than 3 percentage points (annualized) from one quarter to the next. In fact, this occurred roughly 60 per cent of the time. Since 1984, these wild quarterly swings have occurred only 20 per cent of the time.[2]

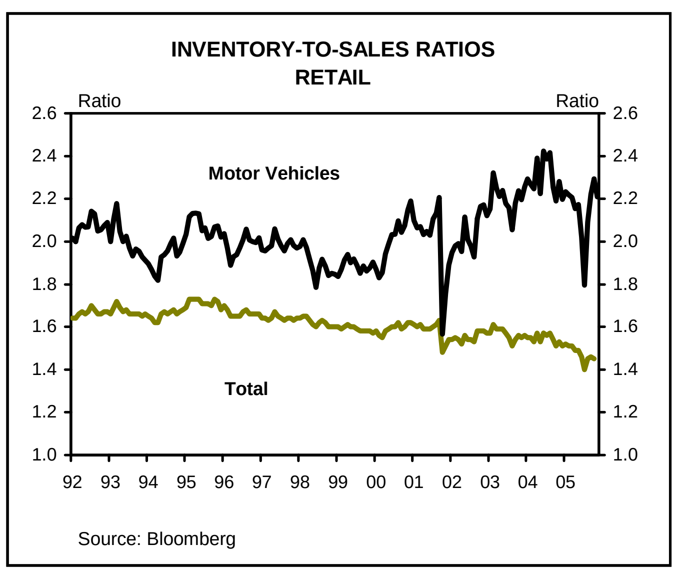
Broad decline in I/S ratios not an accident

True to form, inventory adjustments did wield a heavy hand on economic activity in 2005. Inventory liquidation shaved a combined 2.5 percentage points off GDP growth in the second and third quarters, all of which is expected to be reclaimed in the fourth quarter on a rebound in stock levels. Beyond this near-term bounce, however, we see only limited potential for inventory restocking to act as a big contributor to economic activity. When we disaggregated the data into its three main components – manufacturing, retail and wholesale – recent inventory liquidation behaviour was consistent with attempts to maintain targeted I/S ratios, meaning the action was largely intended.

For instance, even though manufacturing firms liquidated inventories in both the second and third quarters of 2005 to the tune of $12.4 billion, the I/S ratio was little different to 2004 levels. In this context, it's hard to believe that the stock runoff was due to firms being caught "off guard" by a surge in demand.

An even stronger case can be made with the retail sector. Once again, the I/S ratio is flirting with record lows and firms drew down inventories over the two-quarter period. In fact, liquidation was far more aggressive at a combined value of $28 billion. But, the inventory drawdown was driven predominantly by one industry – autos. And this was no accident. The auto industry has shed inventories for an unprecedented 5 straight quarters for a total net value reduction of $63 billion. Even so, the level of auto inventories relative to sales has remained somewhat high, especially when compared to pre-2000 levels. It may very well be that this industry has more inventory shedding still to do.

The wholesale sector was the only one to buck the inventory liquidation trend. Yet, the respective I/S ratio declined sharply at the end of the third quarter and stayed there in the two months that followed. This is one sector where an ultra low I/S ratio may lead to significant restocking efforts, but even here the scope is limited. Although there was a simultaneous drop in the I/S ratio for the durable and non-durable sectors, downward pressure on the durable side emanated specifically from the metal & mineral and professional equipment industries. In the case of the former, both inventories and sales were in retreat, providing little reason to expect aggressive restocking efforts. The opposite occurred for the professional and commercial equipment industry, which absorbed a jump in product demand in the third quarter – a likely consequence of destruction from hurricanes Katrina and Rita that increased demand for items like medical, engineering and architectural goods. This industry is one example where inventory accumulation may provide a longer term economic kick, but it probably represents the exception



rather than the norm.

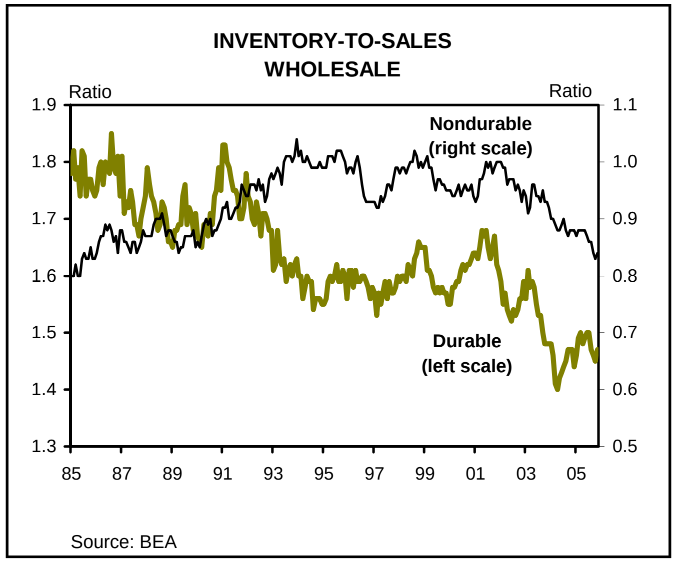
In particular, the I/S ratio has been on a downward trend among most wholesale industries (both durables and non-durables) for some time. Between 1992 and 2001, there were only temporary cyclical deviations of inventory levels from an average of 1.31 months' of sales. By 2003, however, it became clear that a movement away from the status quo was not going to be short-lived. Between May 2003 and April 2004, the wholesale I/S ratio declined by nearly 9 per cent, which was the largest percentage change on record over the course of any single year. Although three industries in particular drove the I/S ratio lower – machinery and equipment, metal and minerals, and, to a lesser extent, hardware and plumbing – there's no escaping the fact that all durable and non-durable industries reduced their I/S ratios. And, many of these ratios continue to hover at 2004 levels today. The broadly based downward trend must have been deemed desirable, otherwise firms could have reversed course by now in the absence of capacity constraints.

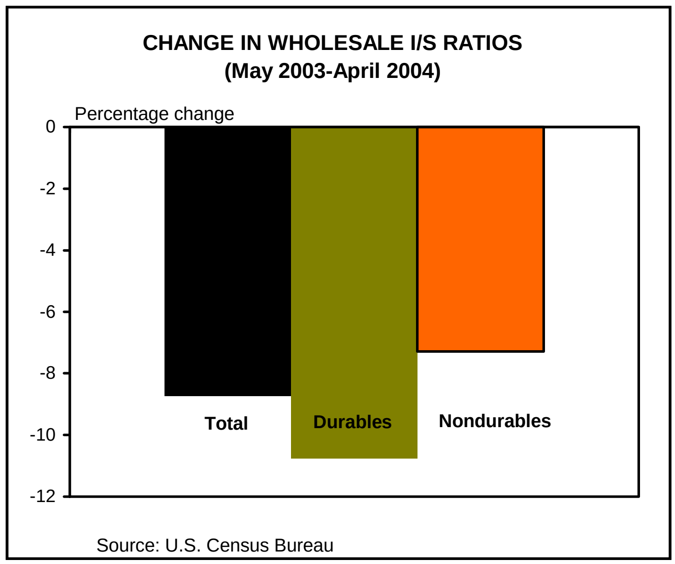
The bottom line is that irrespective of the sector, a low and declining I/S ratio is not a new phenomenon. But, unlike the late-1980s experience, the current movement is being reflected simultaneously within all three sectors and is not predominantly centered in durable industries. What's more, most sectors have sustained these lower I/S ratios for more than a year. The fact that record lows are being tested makes it quite possible that we are witnessing the fruit of further IT improvements within inventory management systems.

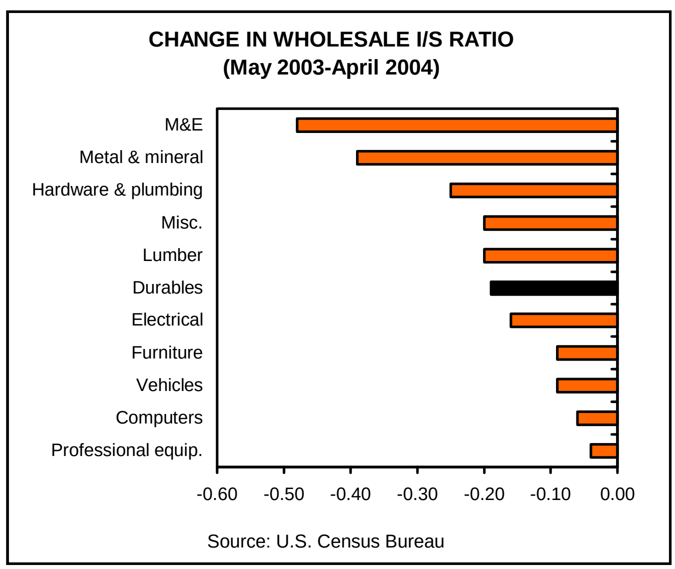
Why does this matter?

Though some industries may have gone a little too far in depleting inventories, the broader movement in favour of lower I/S ratios was intentional and limits the degree of future economic stimulus one would expect from production boosts in restocking. We believe that the strong bounce back in inventory investment that materialized in the fourth quarter will be a one-time adjustment, and the influence of net inventory investment on GDP growth in 2006 will be neutral-to-slightly negative.

On the flip side, the significance of lower I/S ratios may prove more meaningful in the longer run, as it could blunt economic volatility when demand growth drops off. I/S ratios tend to rise during recessions when firms encounter a sudden drop in demand growth. In response, companies will aggressively liquidate on-hand stock in or-







der to return I/S ratios to industry norms. This adjustment process has a notorious reputation for batting around GDP growth. The Fed estimated that slowdowns in inventory investment accounted for, on average, one-quarter of the overall slowdown in GDP growth during postwar recessions – a David-and-Goliath relationship given that, on average, net inventory investment accounts for only 0.5 per cent of GDP. With I/S ratios already flirting with record lows, the economic cost from an inventory adjustment may be more tempered this time around. This is all the more likely if I/S ratios are being held down as a proactive response on the part of firms in *anticipation* of slower demand growth. I/S ratios have been extremely lean since 2004, which happens to correspond with the start of the Fed tightening cycle. We, like many other forecasters, are expecting a mid-cycle economic slowdown to take hold by late 2006. And, it's probably safe to say that Corporate America is bracing for that outcome too.

A final word

There are three main conclusions to take away from this paper. First, in spite of recent lows in I/S ratios, the fact that it is broadly occurring across sectors suggests some intent on the part of firms. Second, although the pro-cyclical and volatile nature of inventory investment makes it a highly destabilizing force on the economy, low I/S ratios relative to past norms could limit the severity of an eventual economic downturn. Lastly, if low I/S ratios were indeed planned, forecasters may be overestimating the magnitude and length of time inventory rebuilding will act as an economic stimulus.

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Endnotes:

[1] McConnell, Margaret and Gabriel P. Quiros, "Output Fluctuations in the United States: What has Changed Since the Early 1980s?", Federal Reserve Bank of New York, February 2000.

[2] Granted, improved inventory management is not solely to credit for taming the U.S business cycle. Other factors include (but are not limited to) broader and deeper financial markets and an improvement in the conduct of monetary policy that has helped stabilize inflation expectations.