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WELLS FARGO SECURITIES

Economics Group

Special Commentary

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Do Too Many Dollars Make Us an Inflation Nation?

Over the past four years, the U.S. monetary base has grown from roughly $850 billion in the autumn of 2008 to more than $2.6 trillion at present (**Figure 1**). The primary driver of this expansion has been implementation of quantitative easing as the FOMC endeavored to breathe life into the U.S. economy. One question that we very often hear at presentations and in panel discussions is: "Doesn't all this extra money sloshing around in the system diminish the value of the U.S. dollar and ultimately lead to higher inflation?" There is a legitimate basis to this question in the Classical Theory of Inflation which essentially suggests that prices are a function of the money supply. The noted monetarist Milton Friedman famously observed in 1963 that "inflation is always and everywhere a monetary phenomenon."[1]

Figure 1

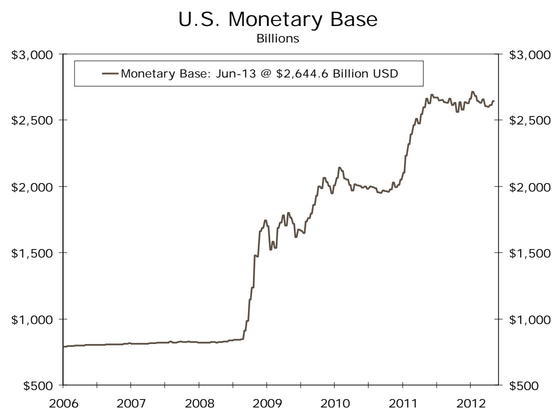
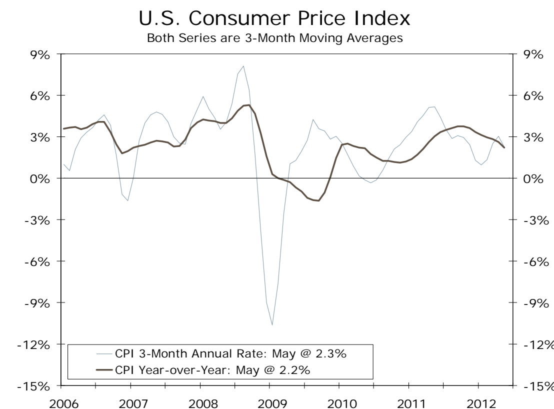


Figure 2



Source: Federal Reserve Board, U.S. Department of Labor and Wells Fargo Securities, LLC

When thinking about inflation today, economists benefit from the work of the many great thinkers over the years who have advanced the body of knowledge in our field. A complete analysis of the evolution of thinking about the relationship between the money supply and prices is beyond the scope of this paper. Suffice it to say that from Irving Fisher's *Quantity Theory of Money*, to John M. Keynes' *Liquidity Preference Theory* and Milton Friedman's *Modern Quantity Theory of Money*, there is no shortage of explanations for, or argument about, the sometimes esoteric relationship between money and prices.

While there remains some degree of disagreement among modern economists, the Classical Theory of Inflation which considers prices exclusively in the context of the money supply, has generally given way to a more nuanced interpretation which makes allowances for other variables. Indeed, if prices were exclusively a function of the money supply, the near tripling of the monetary base between late 2008 and 2011 should have given way to runaway inflation, but that

[1] **Friedman, Milton, *Inflation: Causes and Consequences*, New York: Asia Publishing House, 1963.**

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has not nearly been the case. Barring the run-up in gas prices and a few other commodities, price growth has been in check with the Consumer Price Index (CPI) averaging nearly 2.5 percent on a year-over-year basis for the past two years. Clearly something else has to be at work. What dynamic other than money supply growth has been factoring into inflation these past two years?

The Money Multiplier and the Velocity of Money

When it comes to the impact of the growth of the money supply and the impact on prices, one major consideration is the money multiplier. If the banking system simply holds money in deposits on reserve and makes no loans, the banking system does not affect the money supply.

When banks make loans, however, the net affect is essentially an increase in the money supply. In a fractional-reserve banking system, banks create money through lending. When a customer like a small business gets a loan from a commercial bank, they might use that money to purchase a piece of new equipment. The seller of the equipment now has cash that she might invest in another bank. That new deposit provides the second bank the reserves necessary to make another loan, which creates more money and the cycle continues. The dynamic described in this example is the money multiplier. This cycle continues, but is limited at some point by the amount a bank is required by the Federal Reserve to keep on hand, the reserve-deposit ratio (rr). For each additional $1 in reserves, the money multiplier is: $1 x (1/rr). So if the reserve ratio is, say 10 percent, then an additional $100 in reserves could add $1,000 to the money supply.

As **Figure 3** shows, bank lending has a tendency to slow in the immediate wake of a recession. Given that the most recent recession was caused to a large extent by a credit bubble, it is not surprising that banks' propensity to rein in lending was even more pronounced in this cycle. In the immediate wake of the credit crisis, various "stress tests" essentially considered the fate of banks in the event of widespread defaults in their respective loan portfolios. This contributed to a broadly based tightening in lending standards and a growing reticence to engage in lending among senior loan officers at commercial banks (**Figure 4**).

Figure 3

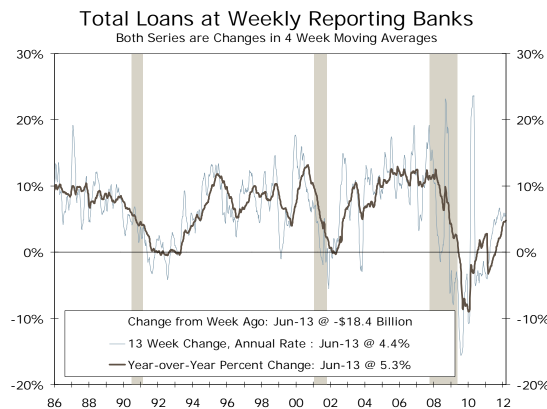
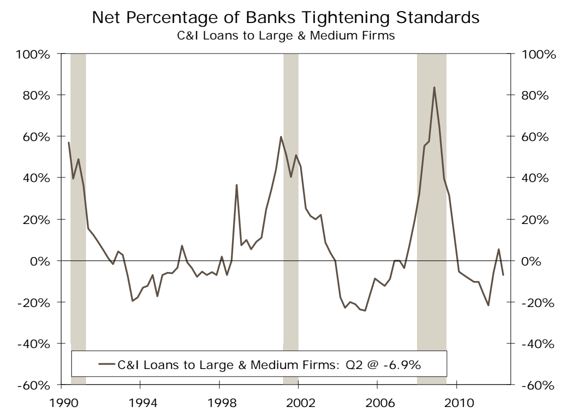


Figure 4



Source: Federal Reserve Board, U.S. Department of Labor and Wells Fargo Securities, LLC

For the better part of the roughly three year period between the financial crisis in the autumn of 2008 and late in 2011, banks in general were not actively seeking to grow their loan portfolios. During that period there were, no doubt, plenty of business and individuals who struggled to find credit at a difficult time in the economic cycle, but most banks reported weaker loan demand for most of that period as well. Indeed, between bank write offs and a deliberate strategy of de-levering on the part of many U.S. consumers, the debt-to-income ratio for consumer and mortgage debt fell from 123.5 percent in the summer of 2007 to 103.9 percent as of the end of March 2012.

With lending growth essentially stagnant, there was little impact on the money supply from the banking sector. More than anything else, it is for this reason that the traditional relationship between the money supply and inflation seemed to break down.

In addition to the monetary base and the reserve-deposit ratio, there is one additional factor to consider when thinking about the money supply: the cash-deposit ratio. Essentially this is the cash in your wallet, or cash that is squirreled away under a mattress. To the extent that this money is not in a demand deposit account at a bank, it deprives the bank from the reserves that might otherwise be used to make loans and expand the money supply. We have little doubt that many savers in the past few years opted to put cash in a safe or just hold more currency than they might have otherwise. However, given the banks' hesitancy to make a lot of loans in this cycle, the currency-deposit ratio did not likely play a significant role in inhibiting growth in the money supply.

There is a construct that builds on the best traditions of classical monetarists, but acknowledging that there are other dynamics than just monetary base. We encourage interested readers to consult the appendix for an equation that shows how the money supply is a function of three exogenous (outside) variables: the monetary base, the reserve-deposit ratio, and the cash-deposit ratio.[2] Without getting into the weeds, suffice it to say that the reason why growth in the monetary base did not result in runaway inflation over the past two years is that banks, in aggregate, have not been lending. But that dynamic is changing.

Lending is Picking Up, Is That a Problem?

With the recovery now entering its fourth year, the U.S. economy continues to slowly heal. Job growth, while anemic compared to prior recoveries, continues to expand and has slowly contributed the improving household financial picture. Businesses have also been healing, with many firms restructuring their balance sheets to better position themselves for a feast or famine type scenario–either a credit market tightening due to the negative ramifications of a potential European "blow up" or conversely to take advantage of a potential opportunities to expand in their market space. While deleveraging across households, businesses and governments remains an overall theme in today's cautious economic environment, we are seeing bank lending growth pick up in selected sectors.

One such area has been in commercial and industrial (C&I) lending. As seen from Figure 5, C&I lending has increased for 19 straight months and is up nearly 13 percent on a year-over-year basis. The latest Federal Reserve Senior Officer Loan Survey reported demand for C&I loans remains healthy as large and middle-market firms continue to tap lines of credit for inventory financing needs, accounts receivable, investment in plant and equipment, and mergers and acquisitions. While a European credit shock would certainly have the potential to derail the recovery, it appears that unless a shock of that magnitude were to unfold, business lending is on a sustainable improving pace that is consistent with rising demand and improving credit conditions.

[2] **Mankiw, N. Gregory, Macroeconomics, 8th edition, Worth Publishers, 2010, page 548.**

Figure 5

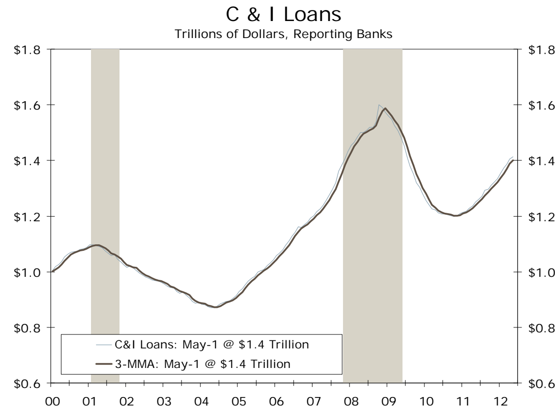
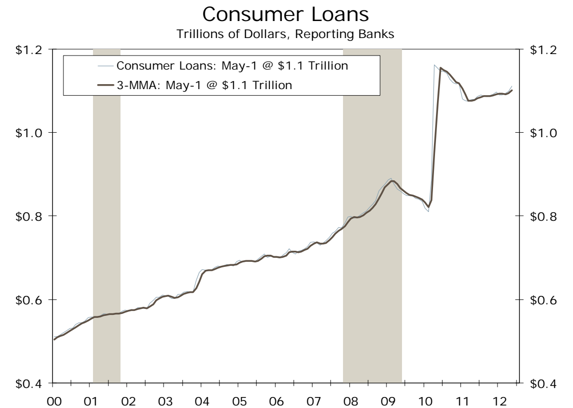


Figure 6



Source: Federal Reserve Board and Wells Fargo Securities, LLC

While households, on the other hand, have been a little more reluctant to take on additional debt, we are seeing some signs of life here too. Bank consumer loans, which include credit cards, automobiles, student loans and other personal loans, have increased six of the past eight months and are up at a 2.9 percent year-over-year pace in May. Total nonrevolving credit growth has increased 11.7 percent since the trough back in mid-2010 to $1.69 trillion as of April. While student loan debt has accounted for a substantial amount of this growth, pent-up demand for motor vehicles has also contributed to nonrevolving credit growth as consumers feel relatively better about their personal financial situation to take on this additional debt burden.

While the recent improvement in consumer credit is encouraging from a growth perspective, we are mindful that deleveraging still rules the day. According to the latest Flow of Funds report, total household liabilities declined by $48.0 billion to $13,433 billion in the first quarter. The ongoing declines in mortgage debt outstandings still overshadows any improvement that has been seen in consumer credit growth. Mortgage debt outstandings declined by around $85 billion in the first quarter and have now contracted for twelve straight quarters. Until we see greater improvement out of the housing market, households, in general, will remain reluctant to take on additional debt in our opinion. Therefore, we do not expect bank lending to accelerate to a pace that would become problematic in terms of inflation anywhere in the immediate future.

Summary of our Inflation Outlook

As we look ahead, our inflation outlook remains very similar to the story we presented in our 2012 annual outlook report back in December. Sluggish domestic demand combined with a substantial amount of economic slack does not create the conditions that would allow for headline inflation to accelerate at an elevated pace. Indeed, the Fed recently downgraded their inflation assessment at their latest FOMC policy meeting acknowledging that lower prices for crude oil and gasoline have helped contain inflation expectations.

With Europe still in recession and growth continuing to slow in China, commodity prices are likely to remain in check for the remainder of the year. As such, we expect the headline measures for import prices, PPI and CPI to continue to moderate on a year-over-year basis for the remainder of the year. Our forecast calls for CPI headline inflation to decelerate from the current 1.7 percent year-over-year pace to 1.2 percent by the end of the fourth quarter. As seen in Figure 8, we expect the headline PCE deflator will also moderate to a 1.2 percent annual pace by the fourth quarter of 2012.

Figure 7

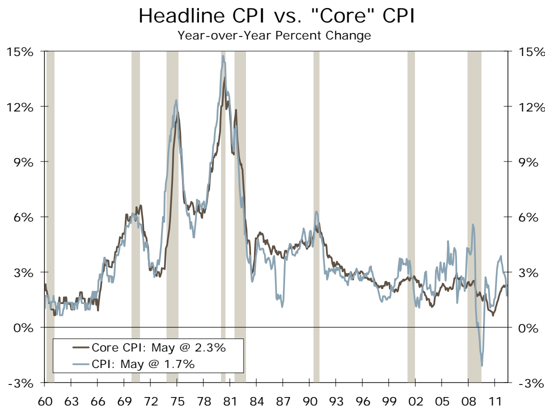
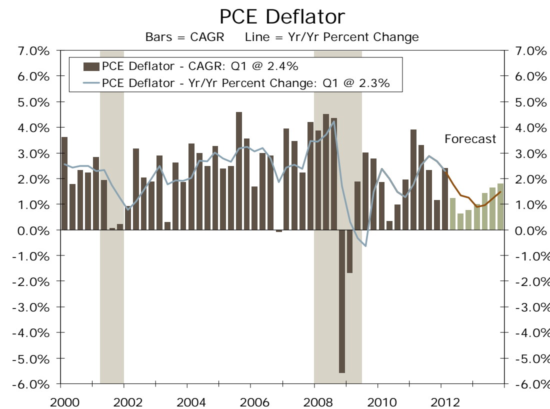


Figure 8



Source: U.S. Department of Labor, U.S. Department of Commerce and Wells Fargo Securities, LLC

Core inflation, however, will likely remain elevated in the near term. Shelter costs, which represents more than 30 percent of the core CPI, have risen on a year-over-year basis over the past 18 months and currently stands at 2.3 percent. This strong underpinning from housing, as well as robust medical care services costs, are likely to prevent core inflation from declining as rapidly as headline inflation. We suspect that core CPI inflation will begin to trend lower in 2013 as the sluggish domestic demand outlook persists.

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