

Special Report

Essays On The Federal Reserve & Markets

Abstract: As the Federal Reserve debates shifting toward the exit phase, there remain hotly contested areas of debate on a multitude of issues that are all germane to the outlook for bond, equity and currency markets. Our aim in this publication is hardly to answer all or even most of them, but to assemble condensed views on several of the most important issues. The purpose to doing so is to collect together a broad thesis that stock, bond and currency markets are capable of adapting to a different phase of Fed policies and that delaying tightening due to low-for-long soft growth expectations carries risks that probably outweigh benefits.

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The Fed Can Step Away With The Confidence That Markets Will Adapt

As the Federal Reserve debates shifting toward the exit phase, there remain hotly contested areas of debate on a multitude of issues that are all germane to the outlook for bond, equity and currency markets. Our aim in this publication is hardly to answer all or even most of them, but to assemble condensed views on several of the most important issues. The purpose to doing so is to collect together a broad thesis that stock, bond and currency markets are capable of adapting to a different phase of Fed policies and that delaying tightening due to low-for-long soft growth expectations carries risks that probably outweigh benefits.

To this latter point, an important issue concerns whether popular 'this time is different' or 'new normal' or 'secular stagnation' views of the US economy and markets are correct and offer appropriate justifications of continued emergency stimulus. One way of considering this issue is explored in the second article that follows this overview. This article reviews the track record of past forecasts for potential US GDP growth (the noninflationary speed limit, not actual GDP growth). That track record is not pretty. Since the early 1990s, forecasters have demonstrated a repeated tendency to get caught up in the moment and forecast perpetually weak potential growth coming out of soft spots in the economy, and perpetually strong growth coming off periods of strength. Yes the recent global crisis has been worse than most predecessors, but the current common view that potential growth will be permanently blighted by debt shocks and less favourable demographics was also prevalent in the early 1990s coming off of the combined effects of the LDC debt crisis, the junk bond financing wave and its aftermath, the thrift crisis, and the completed entry of baby boomers into labour, housing and consumer markets — only to be fully revised away later. Indeed, that view was eventually sharply rewritten in 1994 in that year's sharp bond market sell-off as the Fed aggressively raised the fed funds target rate. This is not intended to be a forecast publication but suffice it to say that we're encouraged enough by what we see in the US economy to believe that the risks are skewed toward the consensus and the Fed repeating the same mistake.

The third article explains why the Federal Reserve's policies are not — or rather, not yet — creating material inflation upsides. The issues boil down to tools that the Federal Reserve is already employing to counteract the effectiveness of its own expansionary programs in a way that differs markedly from the 1970s, and how to define 'money.' The fact that such policies have, in our opinion, removed sharp inflation downsides is nevertheless part of why we think monetary stimulus can be reduced.

The fourth article offers a different perspective to recent Fed research ([here](#)) on why the labour force participation rate has declined. Much of this valuable research is strictly US-centric, and yet the international evidence suggests somewhat different evidence. Canada, for instance, has a virtually identical population pyramid to that of the United States, and yet Canada's participation rate has declined by considerably less which may be due to a more resilient economy.

That said, how much of an issue is it if labour market slack is being underestimated? The connecting debate is what it means to wage growth, and to what extent that matters. In the fifth article, we argue that we don't think that weak wage growth is a reason for the Fed to hold back on normalizing interest rate policy: wages only tend to rise later in economic cycles, and the economy can progress a great deal — so much so that it no longer requires emergency levels of monetary accommodation — well before wages rebound at which point it is often too late and ill-timed shifts in monetary policy risk amplifying boom-bust cycles.

The rest of the articles address policy linkages with various aspects of financial markets beyond previously expressed views on why the Fed cannot let EM concerns hold it back ([go here](#)). The sixth article extends our longstanding argument that Fed policy would not debase the USD and therefore one might be cautious toward the flip side of the argument that it will strongly appreciate along a straight line versus all comers going forward. By extension, this means that the Federal Reserve could likely reduce stimulus without worrying excessively about currency effects on US exports which, in turn, could continue to get a boost in net terms from supply side developments in the US energy sector.

The seventh article argues that the Fed's role in driving stock markets is often over-stated. Fears that money supply will shrink as Fed policy unwinds would require large net asset selling which is contrary to most guidance from the Fed. In any event, stock valuations are much more about the earnings outlook than poor historical connections to money supply measures.

The eighth article updates a longstanding thesis of ours (like [here](#)) that the Fed can shut down its bond purchase program without significantly deleterious implications for bond markets since the supply side marked by net Treasury issuance has also vastly reduced compared to peak episodes of bond buying by the Federal Reserve. The fact that bonds have only rallied during the 'tapering' phase supports this view and provides the Fed cover for further stepping away from markets.

Finally, one of the accomplishments of the Fed's emergency monetary policies has been to help reflate the housing market by leaning on MBS yields. We expect that even as the Fed raises rates, it will only cautiously exit the MBS market as it does its best to maintain an accommodative policy for homeowners even as policy tightens in money markets.

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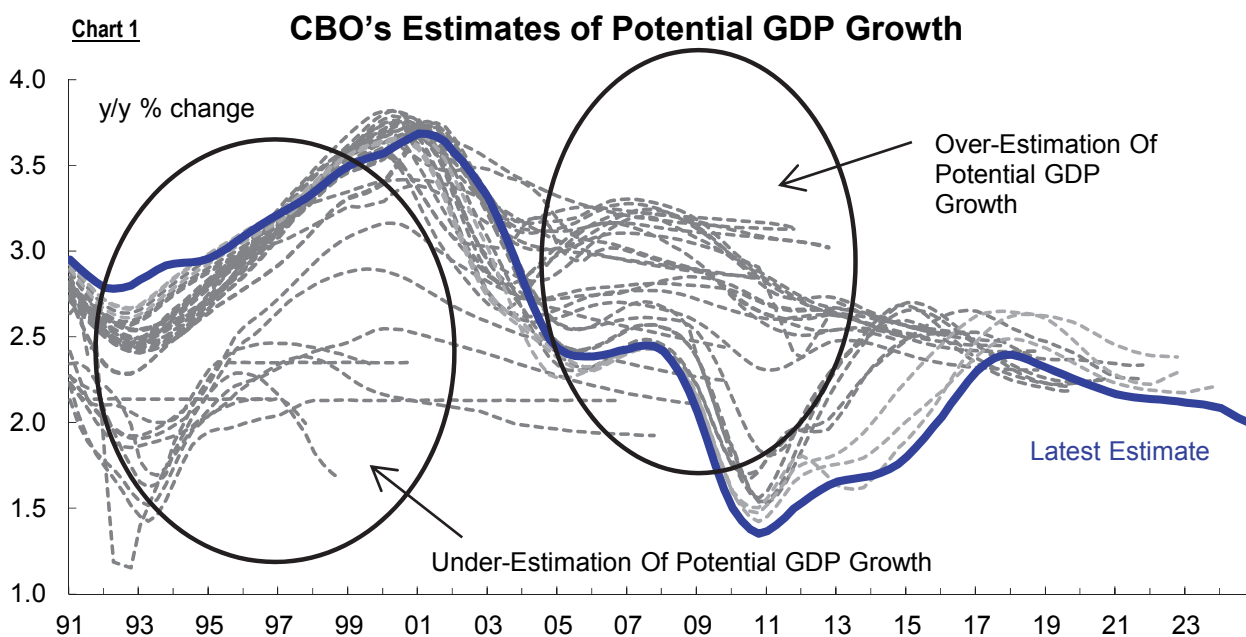
'New Normal', Or Simply The Same Old Mistake?

- **Potential GDP growth forecasts for the US economy tend to be sharply underestimated during downturns, and overestimated during boom periods. This should serve as a strong caution to fans of 'new normal', 'this time is different', 'secular stagnation', and low-for-long schools of thought.**

Many debates on the outlook for economic growth and the neutral rate of interest over the full cycle ahead hinge upon the ability to forecast potential GDP growth which represents the non-inflationary speed limit of the economy. For instance, the 'new normal' catch phrase argues that the potential speed limit of the economy is lower than it used to be and we should simply get used to this such that the long-run neutral rate of interest is biased to be lower than previously. 'This time is different' proponents would argue something similar. Fans of the secular stagnation school of thought — including views expressed by highly regarded economists like Larry Summers ([here](#)) and Paul Krugman ([here](#)) — believe that developments over recent years have "cast a substantial shadow on the economy's future potential" to quote Summers. They cite persistent downward revisions to US potential GDP growth since 2007 in likening today's US situation to estimates of potential GDP growth in Japan that were revised steadily downward from the early 1990s onward as expectations were steadily lowered. This view then motivates Keynesians to promote policy recommendations that are geared toward forcing a lower real rate of interest and/or taking tangible steps to increase demand including via fiscal policy in an effort to raise the economy's speed limit.

Such views therefore substantially rest upon the ability to forecast potential GDP growth. The broad observation in what follows is that we've heard much of this same reasoning before — and in stark contrast to the one Japan parallel, — we have forgotten the lesson on how wrong it was in the past.

To this effect, the accompanying chart might be accused of resembling something to be found hanging on a wall inside the New York Museum of Modern Art or perhaps Medusa's flowing locks, but it speaks volumes in the debate. Each individual line represents the Congressional Budget Office's (CBO) forecasts for potential real GDP growth starting when first published in 1991 (data available on request). The thick dark blue line is the latest forecast for potential GDP growth from 2014-onward spliced onto the latest historical estimates of past years' potential GDP growth and therefore captures all revisions to date. Each dashed grey line represents potential GDP growth forecasts and revised past estimates drawn up in prior years. Three powerful observations ensue.



Source: CBO, St. Louis Fed, Scotiabank Economics.

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Potential Growth Is Under-Estimated Coming Out Of Periods Of Weakness...

The first key observation is that potential GDP growth was sharply underestimated in past periods of economic weakness like the early 1990s and perhaps like it may be underestimated today. All of the grey dashed lines progressively shifted higher during each round of forecast revisions for potential GDP growth in the 1990s up to today's estimates. The recession and ensuing softness during the early 1990s was very similar to today in that the first estimates of the speed limit of the US economy started off very low and pushed down to just above 1%. As the economy improved, forecasters then progressively revised estimates higher in backcasting efforts such that today's estimate for potential GDP growth back in the early 1990s lies in the 2 ¼ - 3% range.

...Over-Estimated During Periods Of Strength...

The second observation is that potential GDP growth is overestimated at points of cyclical strength like much of the 2000s. All of the grey dashed lines over this period progressively shifted lower in each forecast revision. Note that the latest estimates for potential GDP growth during that decade (again, the thick dark blue line) are persistently lower than the initial estimates for that period. Whereas much of the emphasis in the literature is upon the period of 2007 onward during which potential GDP growth estimates were revised lower, this was actually the case for several years prior to 2007.

...And Thus Heavily Pro-Cyclical

Juxtaposing the first observation with the second observation makes it such that one should be very careful about putting the emphasis upon persistent downward revisions to potential GDP growth since just before the crisis, while ignoring persistent upward revisions to potential growth over prior periods. This emphasis upon selectively sampling revision periods risks resulting in flawed policy prescriptions and market perspectives, and over-reacting during such periods just when forecasters may be overreacting to contemporary circumstances themselves.

In all, the message we're left with is that long-term estimates of potential GDP growth are heavily pro-cyclical in that they are too low when devised during periods of softness and too high when devised during periods of economic strength. Forecasting potential GDP growth is a complex exercise that is fraught with enormous uncertainty and forecasters may repeatedly fall into the trap of convincing themselves that 'this time is different' only to discover that it really wasn't. **This same mentality was in place in the early 1990s and ended in disaster for bond investors in 1994.** Coming off the period of excess in the 1980s and ending it with Resolution Trust, large numbers of failed thrifts, a junk bond melt-down, and the technical insolvency of a large money center bank motivated a comparable forecast bias that US growth would never rebound and the Fed wouldn't be able to tighten monetary policy for a very long period of time. Later during the 2000s we convinced ourselves as a profession that the economy's speed limit was higher so monetary policy could be relatively loose for longer and we know how that play ended. With revision risk to potential GDP growth forecasts that can be measured in orders of magnitude, it's simply not clear that views on public policy steps or long-term borrowing costs should rest upon the ability to forecast the speed limit of the economy.

Special thanks to Neil Tisdall and Andrew Gorsky for their assistance.

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Why The Fed Is Not Creating Inflation

- **It all boils down to what the Fed has been doing to counteract the effectiveness of its own expansionary programs in a way that differs markedly from the 1970s, and how to define 'money'.**

As the Federal Reserve's balance sheet has expanded by more than four times since 2008, why is it that we have not seen inflation pick-up? One might surmise that such a rapid increase in money supply should have created the problem of too much money chasing too few goods and services and thus stoking destabilizing price pressures in a replay of past periods like the 1970s. If so, then one would worry about the risk that Fed policy falls behind building inflationary pressures as a by-product of its own policy actions.

There are two broad counter-arguments against this interpretation that we have tended to offer for years throughout the crisis period but which are now updated with at best only small evidence of change in the works. The aim is not to explore the myriad influences on an inflation forecast but to explain why a comparison to Fed policy in, say, the 1970s is off-base and also a one-sided assessment of the Fed's past policy mistakes compared to, say, the 1930s.

1. Defining money supply

The connection between inflation and the money supply is partly dependent upon how one defines money supply. Even though a narrow money measure which is the Federal Reserve's total assets may have exploded, broader monetary aggregates have not done likewise (chart 1).

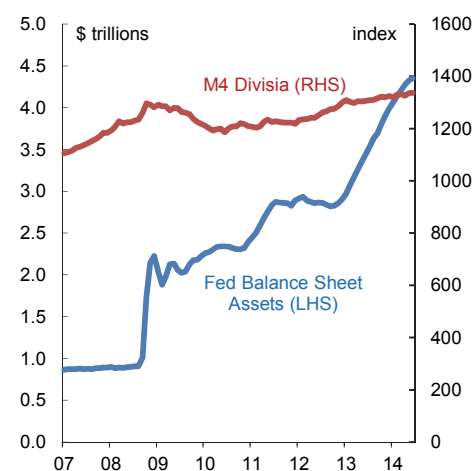
Indeed, it took until November 2012 for a money concept called M4-Divisia to return to its prior peak in 2008 before the crisis led to the broad destruction of money. Since then it has only grown by a cumulative 5.9% for a compound annual rate of growth of 3.6% from November 2012 until June of this year. Some might argue that even this is not a broad enough definition, but the point is that the Fed's balance sheet captures a relatively small amount of the total money stock. Fed balance sheet expansion only at first filled the void created by the implosion of the shadow banking sector and its impact upon broader money aggregates and thus averted a worse outcome for the global economy. Others would argue that narrower measures of money supply are better long-run determinants of inflation risk and so we turn to our second argument.

2. Going right back to the Fed

Relating inflation risk to the size of the Fed's balance sheet over time assumes that what the Fed has been pumping into the financial system has remained there when, in fact, it has not. As chart 2 depicts, the vast majority of what the Fed has pumped into the financial system has been returned to the other side of its balance sheet in the form of excess reserves that banks have placed there. Indeed, of the roughly US\$3.5 trillion increase in the size of the Fed's balance sheet since 2008, about 78% has been returned to the liability side of the Fed's balance sheet through excess reserves. This lies in contrast to prior periods of expansion in the money supply — like the 1970s — when gross monetary aggregates could be more easily relied upon as signs of inflation risk because the funds were more likely to go out into the system and stay there in the absence of the vicious deleveraging we've witnessed over recent years.

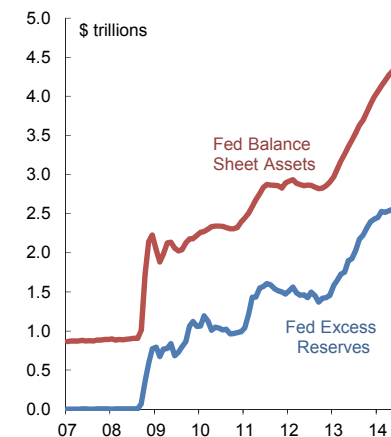
This largely owes itself to the fact that the Federal Reserve began paying interest on excess reserves (IOER) deposited with it in October 2008 and therefore this has restrained the flow of money through other channels. In essence, Fed policy has been pushing and pulling on markets. The Fed buys Treasuries and MBS from the financial system and pays for them with expanded money supply which

Chart 1 Defining Money Isn't Easy



Source: U.S. Federal Reserve, Bloomberg, Scotiabank Economics.

Chart 2 Not Staying In The Economy



Source: U.S. Federal Reserve, Bloomberg, Scotiabank Economics.

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results in higher reserves at banks which are then deposited at the Fed to earn interest on excess reserves. The aim has been more conservative than often recognized — bond buying has partially contributed to lower borrowing costs while ensuring that the full proceeds do not flow through short-term channels by retaining much of it at the Fed which limits inflation risk. The main point here is that this is not monetary policy as it was in the 1970s in America or throughout various periods in Latin America, due in no small part to the IOER tool.

In turn, this is why we have seen very little progress in terms of improvements in money multipliers (defined as broad money divided by a narrower measure like M1) and the velocity of money which captures the number of times the volume of goods and services produced in the economy turns over the amount of money within it, or inflation-adjusted GDP divided by, say, M1. Witness chart 3.

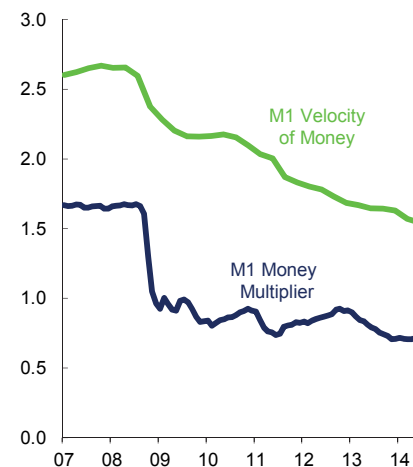
This is not to say that the Federal Reserve's policies have had no effect on inflation thus far, or that they will not in future. Helping to avert a worse outcome for the US and global economies avoided deflation. Also, placing downward pressure on interest costs mitigated a form of potential cost-push inflation. On net, however, it is difficult to argue that there is any obvious connection between an expanding Federal Reserve balance sheet and what must happen to inflation.

3. Market inflation expectations could well be reasonable

Viewed in this manner, the market's pricing of long-run inflation expectations (chart 4) does not appear to be unreasonable. One measure that is shown is the 10 year breakeven rate on Treasury Inflation Protected Securities. This measure can be susceptible to mixing inflation expectations with liquidity distortions during periods when bond market flows shift in or out of nominal Treasuries. That's one reason why the Fed has tended to prefer a 5 year forward breakeven measure for five years from now as it can be less influenced by liquidity distortions. This measure has been much more stable in the roughly 2.5-3% range throughout the entire crisis period.

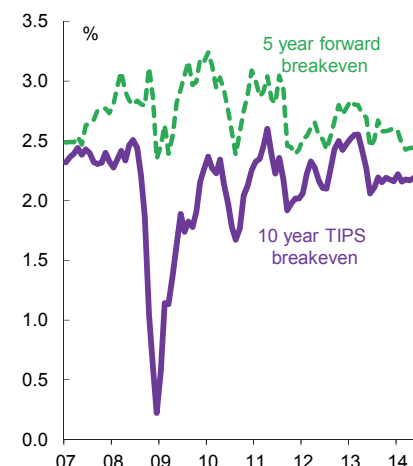
This is not meant to be a full explanation of the sources of inflation risk going forward as opposed to Fed-determined factors. On the latter note, however, the factors that should be watched carefully in order to determine whether inflation risks are materially changing may include money multipliers, velocity, credit growth, and changes to interest on excess reserves. Insofar as the latter measure is concerned, the next move is more likely to be up than down, but **the question going forward is whether it may be raised quickly enough in the face of a long-hypothesized return of expansionary credit growth that at best is characterized by little supporting evidence.**

Chart 3 Transmission Channels Are Still Broken



Source: U.S. Federal Reserve, Bloomberg, Scotiabank Economics.

Chart 4 Steady Inflation Expectations



Source: U.S. Federal Reserve, Bloomberg, Scotiabank Economics.

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US Labour Slack May Be Greater Than The Fed Figures And Canada Shows Why

- Evidence from Canada shows why a sharp decline in the US labour force participation rate is heavily cyclical and not mostly demographics.

There may be more slack in the US labour market than commonly accepted and Canada's experience helps to assess this point. This conclusion figures prominently into the debate over the efficacy of Federal Reserve policy actions and the pace of withdrawing monetary policy stimulus particularly on the heels of the release of a recent [research paper](#) by Fed economists that addressed the issue in a useful manner that nevertheless ignored international evidence.

That's because the two countries offer a unique way of testing the theory that an aging workforce explains most of the drop in the US labour force participation rate by virtue of the fact that the age structures of their populations are nearly identical. As chart 1 depicts, the two countries' population pyramids are very close to one another. The US is a little heavier in the younger tail thanks to a higher fertility rate particularly across the southern states (to the greater benefit of US housing and consumer markets than Canada's), but the share of the populations represented in all other age cohorts are a near-perfect match to one another. Therefore, if demographics really is such an obvious and dominating influence on movements in the labour force participation rate, then both countries should have experienced comparable declines in their labour force participation rates as baby boomers age into retirement.

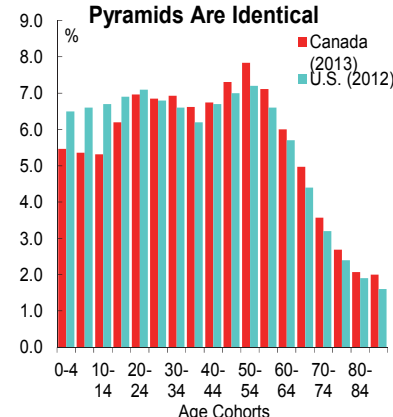
Not so, however, in that the steep decline in the US participation rate has exceeded Canada's by several orders of magnitude (chart 2), and this is true even after accounting for measurement differences. Canada's participation rate has dropped from a peak of 67.8% in late 2007 to 66.1% as of last month. The US participation rate has declined from 66.4% in early 2007 to 62.8% now. The decline of 1.7 points in the Canadian rate is less than half of the 3.6 point decline in the US over this similar period. Furthermore, some of the decline in the Canadian labour force participation rate is also likely to have been cyclical itself, and the slightly older age structure of the Canadian population should mean that Canada would have a bigger participation rate problem than the US if demographics really were the main culprit.

One might retort that the smaller decline in the Canadian rate is because the two economies have performed very differently over the crisis era as Canada ran a better banking sector, had a stronger fiscal position, prospered under supportive commodity prices, and had its deep crisis in the 1990s. That's precisely our point! It's the economy and non-demographic factors that matter more than demographics. Indeed even the disastrous early 1990s Canadian experience taught us that.

It may well be that over time an additional insulating factor against demographic change could be that older cohorts are choosing to remain attached to the work force longer than previously. Chart 3 makes this point and what's remarkable is how rising participation rates for workers aged over 55 fly in the face of the broader decline in the economy's participation rate even though there remains a steep drop-off on participation rates from the under-50 cohorts into the over-55 groups.

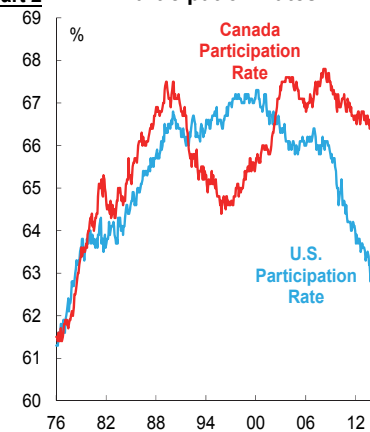
The broadest implication here is that by using the Canadian example we view the decline in the participation rate as more cyclical than argued in solely US-centered research on the topic. That, in turn, could keep the pace of monetary belt tightening relatively slow in terms of this one consideration.

Chart 1 US and Canadian Population Pyramids Are Identical



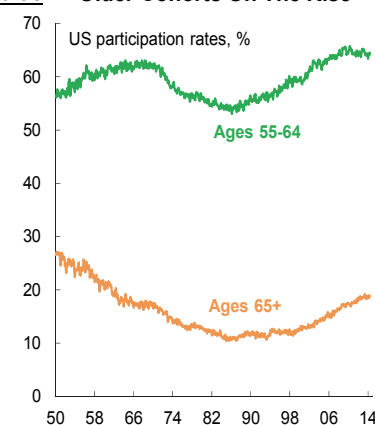
Source: Statistics Canada, U.S. Census Bureau

Chart 2 Participation Rates



Source: BLS, Statistics Canada, Scotiabank Economics.

Chart 3 Older Cohorts On The Rise



Source: BLS, Scotiabank Economics.

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The US Labour Recovery: It's Not All About Wages

- **An emphasis by the Fed on wage growth would be misplaced — on both sides of its mandate.**

Too much emphasis on wages by monetary policy officials risks: a) lagging developments on the inflation side of the Fed's mandate, and b) following a procyclical policy when it comes to employment. Regarding the inflation side of the Fed's mandate, there are many different causes of inflation and nominal wages are just one — and not necessarily the most impactful. When it comes to employment, with the Fed turning its attention to "a range of labor market indicators" which suggest "that there remains significant underutilization of the labor market" it's important to revisit first principles when it comes to the relationship between jobs, wages, growth, and inflation. Although there remains substantial slack in the U.S. labor market, and there is plenty of improvement still needed, wages will be the wrong metric to follow in order to judge the extent of the labor market's recovery. Trying to positively impact nominal wages via inflation is a dangerous game.

Back to the 1970s

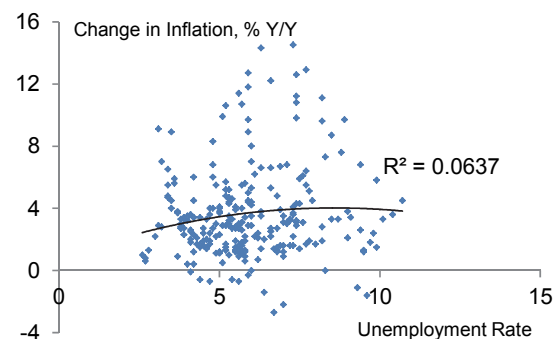
Starting in the late 1950s, economists led by Robert Lucas and Milton Friedman argued that the principle cause of labor market strength is real economic growth and that high inflation is deleterious to economic growth and hence to the labor market. This argument broke with the then-dominant Keynesian view that inflation and unemployment were negatively related along the Phillips curve, i.e. that inflation generates labor gains simply.

The coincidence of rising inflation and high unemployment in the 1970s seemed to settle the matter. The Phillips curve looked increasingly like a post-war social science fad. As chart 1 shows, the empirical data that should validate the Phillips curve resemble a Rorschach inkblot, one of the main tools of psychoanalysis, another post-war intellectual trend. And like a Rorschach inkblot, one can see in the Phillips curve data whatever one might wish. The consensus of economists moved to an 'expectations augmented Phillips curve' that incorporates the insight that high inflation as well as deflation are deleterious to the labor market.

Wage growth has causes other than inflation ...

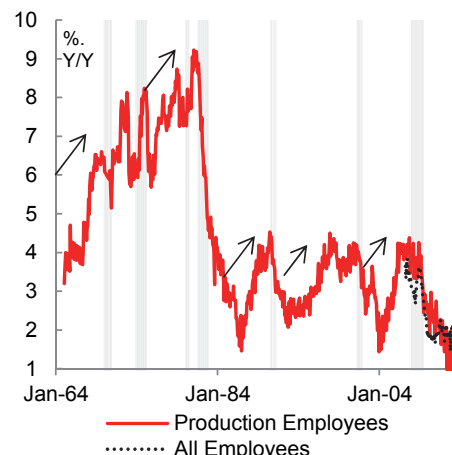
The reason for the lack of correlation between jobs and inflation is that inflation above certain levels has negative economic effects that hinder growth and demand for labor. The transmission mechanism between employment and inflation is supposed to be that without rising inflation, assuming that wages are 'sticky', it is hard to induce hiring after periods of economic weakness at old too-high nominal prices (and wages). The assumption here is that inflation in the general price level carries into wage growth, and in fact, is required to make ongoing hiring palatable. The empirical problem with this theory is that rising inflation can also come with slow real economic growth — and therefore lower levels of demand for labor, less competition for labor, and ultimately higher unemployment and stagnant or lower wages. As chart 2 shows, nominal wage gains in the U.S. have tended to be highly pro-cyclical, rising most when the economy reaches peaks in economic growth and growing slowly when economic growth is weakest. Moreover, as the chart 3 shows, there is only a limited correspondence between developments in nominal wages and

Chart 1 Looking for the Phillips Curve
 U.S. Inflation and Unemployment, 1949-2014,
 Quarterly Averages



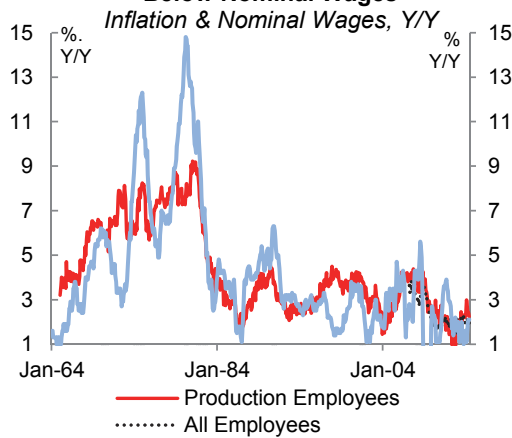
Source: Scotiabank Economics, BLS, BEA

Chart 2 Nominal Wages: Highly Procyclical



Source: Scotiabank Economics, BLS

Chart 3 Inflation Can Run Above or Below Nominal Wages



Source: Scotiabank Economics, Statistics Canada

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developments in inflation, and some periods of high inflation have coincided with low nominal wage growth and deeply negative real wage growth.

... and inflation has causes other than wages

This points to the fact that wage growth is not the only cause of inflation, and that inflation can come from a variety of different channels. Currency depreciation can be one channel that causes a uniform change in the price level; a commodity price shock can be another; high deficits and excess cost push pressure from the government channel can be a third. Others include weak productivity, taxes and regulations, monetary policy – these are just some potential factors. In any event, a mix of these factors impacted the U.S. economy in the 1970s as the U.S. left the gold standard, ran deficits, and OPEC embargoed crude exports while low interest rates prevented the USD from strengthening adequately to compensate. Today the U.S. federal budget deficit is stabilizing, commodity prices are flat, and the USD is likely to appreciate in the medium term, so inflation pressure from these channels is likely to be subdued. Higher services costs, particularly the rebound in home prices, should have a countervailing effect. The point is that there is a lot more for inflation hawks to watch than just wage growth. It would be totally possible to see inflation increase without substantial nominal wage gains, and probably imprudent to maintain an extraordinarily accommodative monetary policy justified by slow wage growth — at least from an inflation perspective.

The focus needs to be on real wage growth

The priority for those trying to encourage a healthier labor market shouldn't be inadequate inflation, but rather maintaining low and stable inflation. After all, the kind of wages that matter the most are real wages adjusted for inflation — and high inflation has a pernicious impact on real wages. Nothing matters more for real wages than inflation, with economic growth landing in second place and the overall level of employment coming in third. As chart four shows, most instances of falling real wages are associated with spikes in inflation. The point is that if one wishes to see wages rise on a real basis, growth in a context of price stability is the way to go.

This insight is not really different from the lesson of the 1970s: monetary policy authorities who have an earnest concern regarding wages and employment are best served by targeting low and stable inflation while maintaining a flexible policy outlook that doesn't choke growth. For the time being, that can still mean a highly accommodative monetary policy. As chart 5 shows, the U.S. output gap is massive. The economy still has to make up for years of subpar growth. The impact of the financial crisis on the U.S. economy was severe and the economy is not yet back to normal. Although the unemployment rate has fallen, alternate measures of employment, such as the U-6 rate of unemployment which includes discouraged workers and the underemployed, reflect tremendous weakness (see chart 6). Nonetheless, the economy is at least improving, and policy makers may be playing with fire if they think that focusing on nominal wages or nominal growth via the inflation channel will have a positive effect on the economy or labor market.

Chart 4

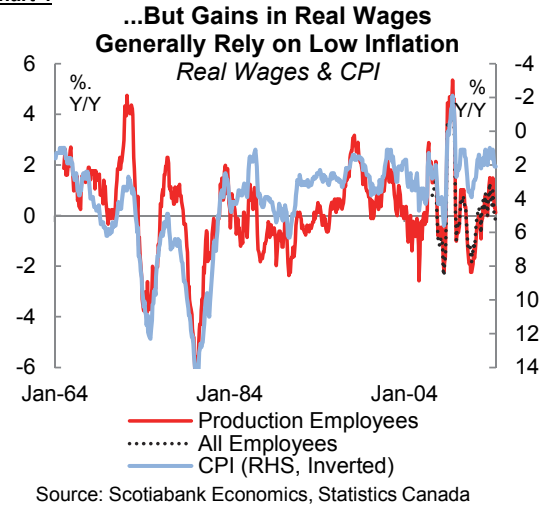


Chart 5

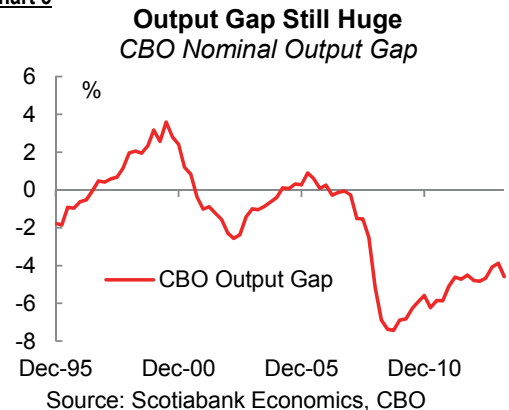
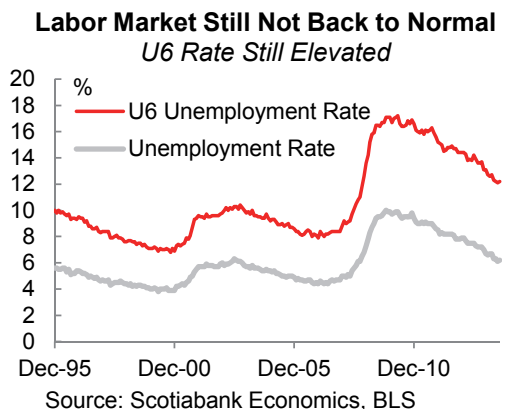


Chart 6



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Fears Of Currency Debasement By The US Federal Reserve Are Off Base

- We've argued this for years, and the flip side is that it might temper USD enthusiasm during the exit phase.

For years now, Fed policy has been accused of debasing the USD and driving up capital flows into other countries leading to concomitant currency appreciation in those other economies. While there may be some truth to these concerns over time, we have consistently argued that the effects are very much overstated and that those capital flows would have largely occurred irrespective of US monetary policy. There are several key reasons.

The Evidence

First it's worth considering a freshened take on how the USD has actually responded to successive waves of quantitative easing from the Federal Reserve. Chart 1 shows that there has been no directional break-out in the USD on either a trade-weighted, narrower DXY, or EURUSD basis. While controlling for multiple effects on the currency is difficult, this is precisely the point in that successive rounds of QE policy that have been timed differentially from other major central banks have had no obvious directional influence on the currency.

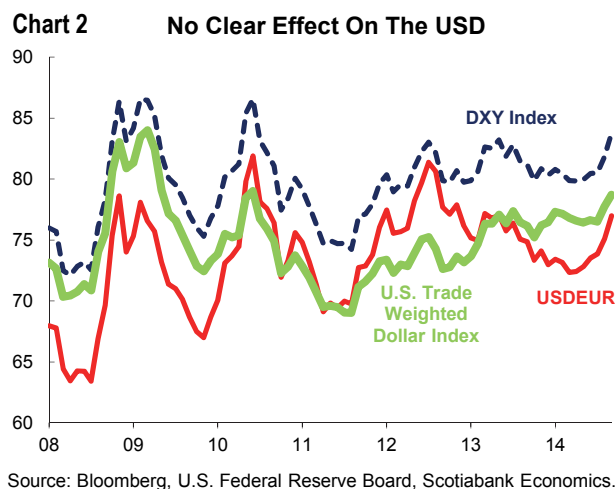
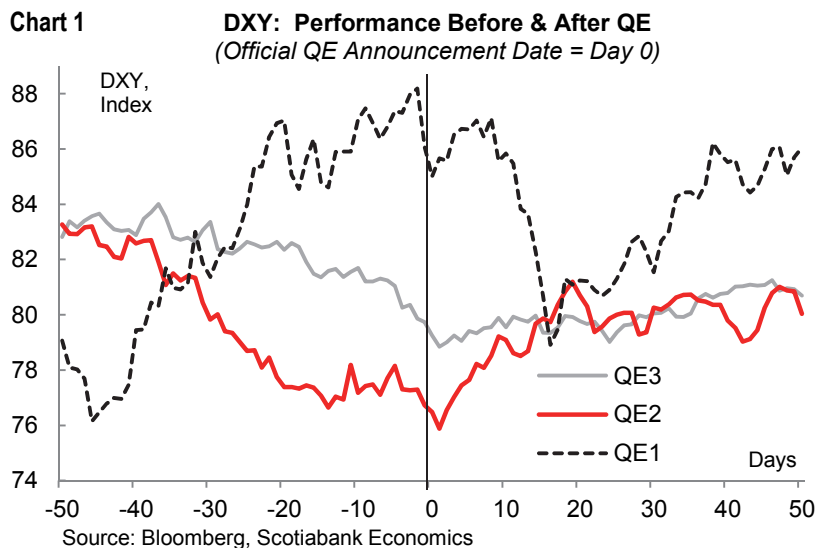
Further, chart 2 shows the USD on a DXY spot basis 50 days before and 50 days after the introduction of new QE programs over the crisis period. The reaction of this broad currency measure surrounding QE announcements has been ambiguous, and never sustained.

Relative Growth Is The Dominant Driver

Why has this been the case? As we argued in our first paper on the topic in 2010 and as former Fed Chairman Bernanke addressed in his 2012 speech on "US Monetary Policy and International Implications", the dominant driver of currency movements is relative capital flows that in turn are principally driven by relative GDP growth. As chart 3 demonstrates, capital inflows into EM and developing economies were surging over the past decade well before the Fed engaged in QE policies or embraced its zero interest rate policy. In the post-QE world, those capital flows have been erratic; they climbed strongly in 2010 but that was likely more to do with the relative resilience of growth in the EM space compared to the western developed economies than Fed policy, and then those capital flows sharply waned thereafter even as the Fed embraced further rounds of quantitative easing.

Debasement Doesn't Work When The Monetary Policy Transmission Channels Are Broken

Second, the assumptions behind how a debasement model would work in normal times do not work under current circumstances. The normal way in which a central bank can debase its currency is to flood the system with expanded money supply that results in more money chasing a similar amount of goods and services so as to put upward pressure upon domestic versus foreign prices. In order to equilibrate relative prices, the nominal exchange rate must depreciate. Thus, monetary policy works through inflation to debase the currency and spark additional challenges such as seigniorage revenues to governments in a transfer of



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wealth from the private sector particularly for those on fixed incomes. Critiquing this classic path to currency debasement spawns the next several arguments against how Fed policy is debasing or could debase the currency.

For one, the arbitrage that leads to a weaker nominal exchange rate via interest parity or purchasing power parity is fraught with uncertainties and can take a very long period to unfold. One would hang a currency view within a finite time period upon a parity argument often to one's own peril.

For another, a key counter-argument to this theoretical path to currency debasement is that it depends upon well-functioning monetary policy transmission mechanisms in order to facilitate expanded money supply going into the system to spark inflation. A naïve look at monetary aggregates like MZM, high-powered money, or even out to M2 might lead one to believe that this is happening in recent years. These are, however, gross concepts. They neglect to consider where the money ultimately lands in net terms. Since the US money multipliers and velocity of money continue to contract as referenced elsewhere in this publication, expanded gross money supply is not working its way through the system and sparking inflation. For every nickel the Fed adds to the asset side of its balance sheet, nearly a nickel is coming right back onto the liability side of its balance sheet via excess reserves. Also note that even when a net adjustment to monetary aggregates is made, it is anything but clear what the relevant definition of money supply is today. The forces of money creation and destruction are vastly more complex today than decades ago and this counsels broader definitions of the relevant monetary aggregates.

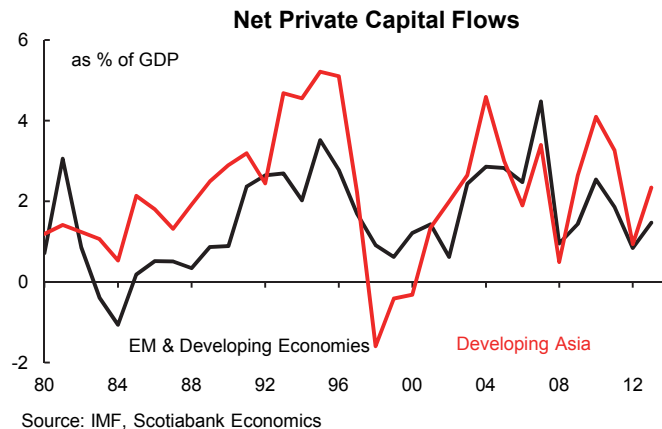
Fed Policy Shifts Could Have Competing USD Positive Influences

Third, the signals sent by Fed easing and their implications for the currency are a tad ambiguous. More unconventional easing may result in concerns for the currency absent all of our critiques above, but there are competing influences. If Fed policy has taken out further downside risks to growth or has had a marginal positive influence over time, then that should be dollar bullish. By corollary, withdrawing some Fed stimulus could soften growth prospects over time relative to what would have otherwise occurred and this could be an offset to USD gains during the tightening phase via relative central bank dynamics.

It's Difficult To Debase A Global Currency

Lastly, even if the Fed wanted to debase its own currency, it is doubtful that it could. To a significant degree, the Fed and the USD are central bank and currency to the world, not just the US economy, and US Treasuries represent the vehicle through which this role is exercised. US dollar denominated Treasuries play a fundamental role as a global funding and liquidity management vehicle and the base security in many leveraged transactions. Because of this role and the sheer size of the US Treasury market relative to other options abroad, the scope for foreign selling of the USD and Treasuries on debasement concerns is vastly more limited than it is for other countries accused of debasing their currencies over time particularly in the Latam space. That is particularly true during the crisis period to date and via the uncertainty that we feel will continue to enshroud the global economy over 2013-14 such that the USD and Treasuries will remain the defense haven of choice.

Chart 3



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Fed's Role In Driving Stocks Is Often Over-Stated

- **The Fed's role in driving the stock market is usually exaggerated, and therefore so may be the stock market risks associated with Fed policy exits all else equal.**

One theory is that as the Federal Reserve has pumped up the size of its balance sheet, these funds have wound their way into the stock market and driven it to unprecedented heights. As such stimulus winds down — so goes the theory — the stock market is doomed.

Money Supply Is A Poor Stock Market Predictor

One immediate problem with this theory is that the size of the Fed's balance sheet has never really been associated with the level of the stock market. Efforts to show as much usually employ the trick of defining the sample period in a way that selectively makes the point. For instance, if one were to take chart 1 and truncate what it shows to the post-crisis period of, say, 2009 onward, then the correlation between the size of the Fed's balance sheet and the level of the S&P500 would be very tight. But test the theory over a longer period of time as chart 1 does and it seems to be a pretty weak relationship.

Which Definition Of Money To Use?

The second problem concerns what is the definition of money that matters? On the theory that it is broad money and not just the narrow definition of what the Fed has pumped into markets that matters, there isn't much of a clear connection here and over a longer sample period. Fed balance sheet expansion has largely just filled in the implosion in broad money during the crisis and averted an even worse outcome (chart 2).

The other column in this collection of articles on Why The Fed Is Not Creating Inflation covers other arguments that won't be repeated at length here. Briefly, they include the use of Interest on Excess Reserves as a policy tool to control how much of the injection of funds into the banking system to purchase bonds stays behind as inflationary hot money flows, and still broken monetary policy transmission channels.

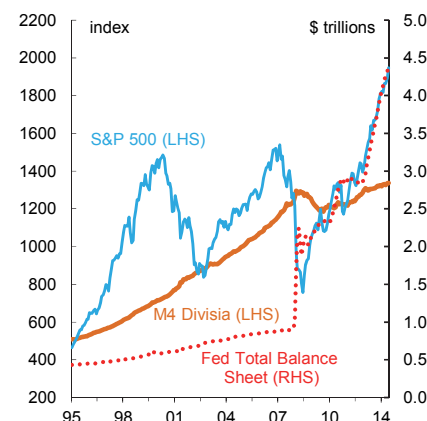
It's Unlikely That Money Supply Will Drop Anyway

Even if the theory that the run-up in the stock market has been caused by the Fed's asset purchases is correct, then forecasting a tumultuous decline in the S&P500 as the Fed exits would require this translating into a large contraction in US money supply. That's highly unlikely unless large scale and concentrated asset sales occur, which broad agreement within the Fed rejects. Through the likely avoidance of large scale asset sales into the market, the Federal Reserve's balance sheet is likely to stay enlarged for an extended period of time.

Earnings Are What Matter

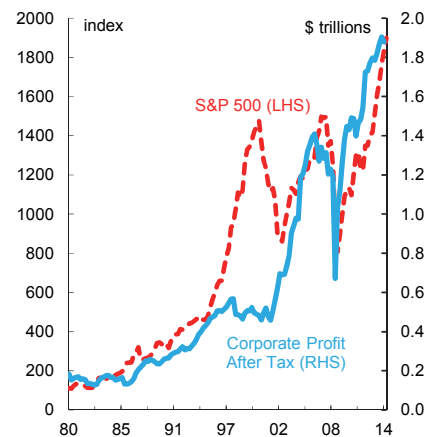
This clearly isn't to say that the Fed doesn't have influence on stocks. It does, through averting a worse outcome, and through influencing carry trades. It has also been influential as a contributing factor — but not the only one — behind generationally low discount rates. Nevertheless, the better stock market relationship is with record high earnings (chart 2). Only the dot-com period represented a break down in this relationship. Regardless, the point is that the Fed's actions do not represent a uni-factor theory of the stock market's rise.

Chart 1 Money Supply Is A Poor Stock Market Predictor



Source: U.S. Federal Reserve, Bloomberg, Scotiabank Economics.

Chart 2 Record Earnings, Record Stocks



Source: U.S. Federal Reserve, Bloomberg, Scotiabank Economics.

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For Washington, Lower Net Marketable Borrowing Through FY15

- FRNs add to portfolio options as Treasury bills and shorter-term notes are trimmed.

As the U.S. federal deficit continues to narrow from \$680 billion in fiscal 2013 (FY13) to Scotiabank Economics' forecast of \$515 billion in FY14 (*chart 1*)¹, scaling back the red ink to less than half of the FY12 shortfall is resulting in net marketable borrowing dropping well below \$700 billion this fiscal year (*chart 2*). In the April-June quarter when inflows of tax revenues are seasonally high, \$64 billion of net marketable debt was paid down this year, outstripping the year-earlier decrease of \$11 billion. For Q4 FY14, Treasury's estimate of \$192 billion of net marketable borrowing is slightly below the year-ago financing.

Treasury bills outstanding, run up during the recession to almost \$2 trillion by September 2009, will likely be trimmed in FY14 by roughly \$100 billion to about \$1.45 trillion (*chart 3*). Offering some offset going forward is the introduction of two-year Floating Rate Notes in January 2014, with quarterly issuance of \$41 billion to date. Treasury indicates that the weighted average maturity of the debt portfolio is still on track to reach 80 months by 2022, the highest level since the 1950s. Reflecting current market demand, ultra long issuance is one option for the future.

Over the last year, the reduction of issuance also has relied upon two periods of trimming auctions by \$1 billion per month for two- and three-year notes, decreasing their respective auction sizes from \$35 billion to \$29 billion and \$32 billion to \$27 billion as of July. The current plan is to partially reverse the decline in two- and three-year auction sizes early in FY16 in response to a gradual widening of the deficit given spending pressures such as an expanding Seniors' cohort. Yet as the November 2014 elections approach, elevated uncertainty complicates the revenue, and particularly the expenditure outlook, with decisions deferred on a broad range of issues, from immigration to infrastructure funding.

Interestingly, the decrease in two- and three-year auction sizes was halted one month early in July, despite modest overfunding likely this year and next, in order to build structural cash. This precaution reflects events such as Hurricane Sandy which disrupted financial markets for 1½ days. In contrast to Treasury's \$139 billion cash balance at the end of Q3 FY14, Treasury estimates a cash requirement of \$330 billion to cover 1-5 "high demand" days. Further analysis of maintaining a higher cash balance is planned.

Beyond FY15, Treasury's borrowing needs will be impacted by the Federal Reserve's decision to reinvest or redeem maturing Treasuries in the SOMA portfolio. We expect a decision to redeem, which according to Treasury suggests underfunding of more than \$700 billion between 2016 and 2018 with the present financing framework.

Chart 1

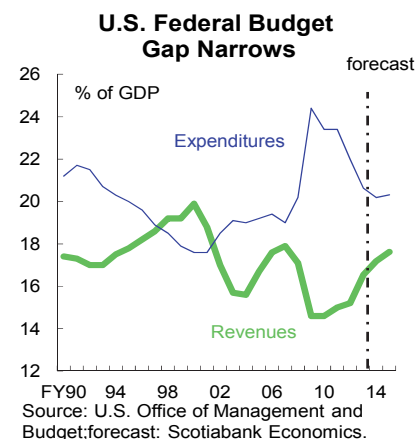


Chart 2

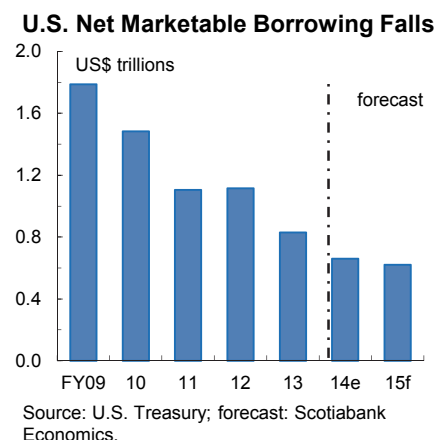
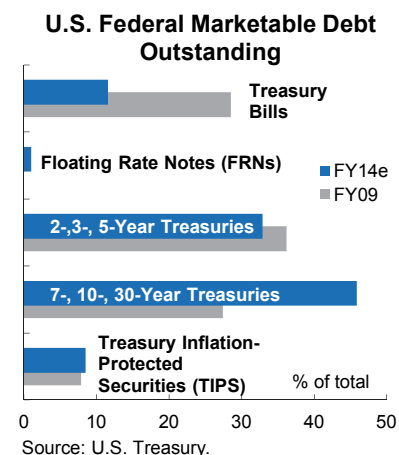


Chart 3



¹ U.S. federal fiscal 2014 ends September 30, 2014. All dollar data in US dollars.

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The Fed's Mortgage Backed Securities (MBS) Holdings: No Easy Way Out

- **The Fed will have to be cautious about diminishing its participation in the agency MBS market.**

The Federal Reserve's holdings of agency MBS have come to make up an exceedingly large share of the total MBS market and represent a very big chunk of the total mortgage stock of the United States. Acquiring USD 1.67tn in agency MBS has driven down agency MBS yields relative to Treasury yields, and in turn reduced mortgage interest rates over and above the decline in interest rates in general. As the Fed moves its policy interest rates off of the zero bound at some point (Scotiabank's estimate is Q2 2015), it will therefore have to be very cautious about managing its MBS holdings so as to avoid amplifying the impact of the outright change in yield levels on the housing market. The Fed will therefore probably tread carefully in managing the run-off of its MBS portfolio and maintain large holdings of securities for an extended period, possibly maintaining its current holding size even after policy rates start to rise.

A single large buyer

The Fed's holdings of agency MBS stood at USD1.671tn and, as the chart to the right shows, constituted 28% of all outstanding agency mortgage backed securities as of the end of Q2 2014 (the last date for which data on the aggregate size of the MBS market was available in late August).

Believe it or not, this understates the significance of the ramp-up in Fed MBS holdings. As Chart 2 shows, agency guaranteed mortgages have gone from representing roughly 30% of all mortgages immediately prior to the financial crisis to more than 50% of all mortgages in the wake of the crisis, making the face value of Fed holdings equivalent in size to 12% of the total amount of mortgages outstanding in the United States.

What does this mean for mortgage markets?

How much does this matter to the MBS market? As the theory goes, MBS purchases are supposed to drive down MBS yields through three channels: a) by signaling the trajectory of Fed interest rate policy, b) via a portfolio effect whereby securities are made more scarce, and c) by reducing liquidity premia on MBS by implying that the Fed is a buyer of last resort. Efforts such as those by Hancock and Passmore (2014) to estimate the impact of MBS purchases via the portfolio channel have empirically established a modest impact (i.e., a 0.5bps reduction in Agency MBS yields per week of purchases for a cumulative ~50bps according to Hancock and Passmore).

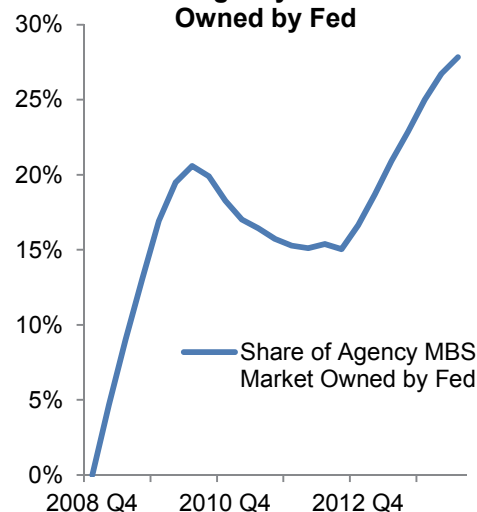
Perhaps a simpler way of looking at the issue is that absolute spread levels between the 10-year Treasury note and current coupon Fannie Mae 30-year MBS fell following the FOMC's initiation of QE and continued to decline as the QE3 program ramped up. This spread only started to tick up modestly as the end of the MBS purchasing program drew nearer and of course shot up violently during the 'taper tantrum' of 2013 (see chart 3). As MBS current coupon yields impact the prices at which mortgages are ultimately funded, this has had a somewhat stimulative impact on the housing sector over and above the low outright yield levels that the Fed is trying to effect through its various extraordinary monetary policies that touch on government interest rates alone.

Risks to pulling back too fast on MBS holdings

Although the greatest impact that the Fed has on mortgage costs is via the role it plays in the market's determination of outright interest rate levels, the

Chart 1

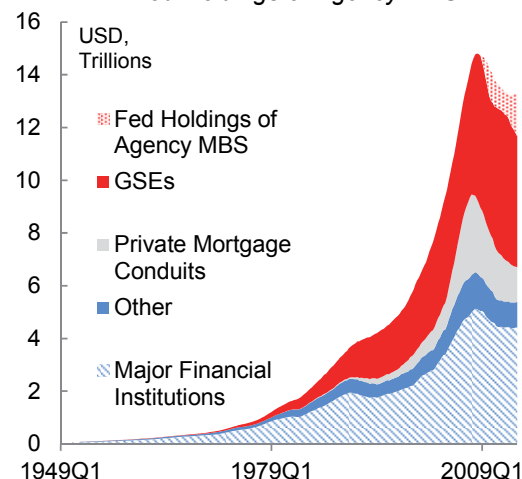
Share of Agency MBS Market Owned by Fed



Source: Sifma, FRB, Scotiabank

Chart 2 The Fed is Playing a Big Role in the Mortgage Market

Principal Holders of U.S. Mortgages & Fed Holdings of Agency MBS



Source: Scotiabank Economics, Federal Reserve

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so-called ‘taper tantrum’ brought home the lesson that MBS yields can rise more than overall Treasury yields when markets price in a Fed exit. At the time, current coupon spreads increased back to almost ‘normal’ pre-crisis levels as markets speculated that the Fed’s MBS portfolio might be allowed to fall. In light of the experience of 2013, to the extent that the Fed is concerned about maintaining accommodative conditions in the housing sector more than it is concerned about overall accommodative interest rate conditions in the broader economy (remember that the housing collapse and household deleveraging were the locus of the financial crisis...) the Fed may be additionally cautious about reducing its role in the agency MBS market.

Just when I thought I was out...

This points to the possibility that the Fed may find itself maintaining its MBS holdings at a larger size and for longer than it perhaps anticipated when it first undertook the purchases. NY Fed President Dudley started alluding to this some months ago, but explained the possibility that the Fed might refrain from letting the MBS portfolio run off after asset purchases conclude in terms of market signals regarding the path of interest rates, and not a need to maintain stability in the MBS market overall. While run-off from the Fed’s agency MBS portfolio should in any event slow down in an environment of rising interest rates, an effort to maintain stability in the mortgage market may cause policy makers to perhaps proactively maintain a large portfolio of agency MBS well after policy rate increases commence.

As the line from The Godfather Part III goes, “Just when I thought I was out, they pull me back in.”

Chart 3 Spread of Current Coupon Fannie Mae 30-Year vs. 10-Year Note
 QE Impacting Mortgages...

