GLOBAL MARKETS FOCUS

CAPITAL ECONOMICS

Shifts in global savings and their implications for US Treasuries

- **The unusual stability of long-term US Treasury yields during the last Fed tightening cycle between 2004 and 2006 has been attributed to a glut of global savings. We are not convinced by this explanation. In any case, surplus savings outside the US are smaller today than they were then and there is much less scope for them to anchor yields in the coming tightening cycle**.

- The yield of a bond can be broken down into a "risk-neutral" yield (which captures investors' expectations for short-term interest rates during its lifetime) and a "term premium" (which captures the combined influence on the yield of all other factors). During the last Fed tightening cycle, the 10-year US Treasury term premium is estimated to have collapsed and prevented its yield from rising.

- At first glance, the claim that this collapse was due to a glut of global savings seems plausible. But it is undermined by the fact that the term premium rebounded between 2006 and 2008, even though the glut remained large. Moreover, the trend decline in the term premium since the last recession does not fit comfortably with the notion that it is heavily influenced by the supply of surplus savings outside the US, since these savings have shrunk alongside the US current account deficit.

- Another channel through which a glut of global savings might have depressed long-term US Treasury yields is by affecting *indirectly* the actual and expected path of Fed policy. But while this argument is sounder in theory than one that *directly* attributes a decline in yields in the US to a greater desire to save elsewhere, the evidence does not really support it.

- Our expectation is that global imbalances will grow over the coming years. But we doubt that a renewed increase in surplus savings outside of the US will have a major bearing on long-term US Treasury yields, just as we are sceptical that such increases had a major bearing in the past.

- Even if a growing level of surplus savings outside the US *does* exert some downward pressure on long-term US Treasury yields in the years to come, we think it is unlikely to prevent them from rising. **We are sticking with our forecast that the 10-year Treasury yield will continue to grind higher, from around 2.3% now to 3.5% by the end of 2017**.

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Shifts in global savings and their implications for US Treasuries

This *Focus* examines whether long-term government bond yields in the US are likely to remain low during the forthcoming Fed tightening cycle due to a glut of savings elsewhere in the world. It is motivated by the unusual stability of yields during the *last* Fed tightening cycle, which has been attributed to such a glut.

The *Focus* is split into five sections. Section 1 shows how the stability of the 10-year US Treasury yield during the last Fed tightening cycle was accompanied by an unprecedented collapse in its term premium, which offset an increase in its risk-neutral yield. Section 2 examines whether this collapse was due to a glut of global savings. Section 3 argues that a savings glut still exists today, but that it is smaller and that its sources have changed. Section 4 considers the scope for today's glut to anchor the 10-year US Treasury yield when the Fed begins to tighten policy. Section 5 concludes.

Section 1 – The unusual stability of Treasury yields during the last Fed tightening cycle

The yield of a bond can be broken down into two components that cannot be observed directly – a risk-neutral yield and a term premium. The risk-neutral yield captures the influence on the yield of investors' expectations for short-term interest rates during the bond's lifetime, while the term premium captures the combined influence on the yield of all other factors. Federal Reserve staffers Adrian, Crump and Moench (ACM) publish estimates of (zero coupon) risk-neutral yields and term premiums of US Treasuries with remaining lives of one to ten years.

There have been three major Fed tightening cycles during the past quarter of a century, which we define as instances when the cumulative increase in the federal funds rate was at least one percentage point.

These cycles began in February 1994, June 1999 and June 2004. With this in mind, Chart 1 plots ACM's estimates of the zero coupon risk-neutral yield and term premium of 10-year US Treasuries since the beginning of 1994. The shaded areas are the periods between the first rate hike in each of these three cycles and the subsequent peak in the overall yield.

CHART 1: COMPONENTS OF THE ZERO COUPON YIELD OF 10-YEAR US TREASURIES (%)

Shaded areas are periods between first rate hike in a major Fed tightening cycle and the subsequent peak in yield

Legend: Risk-Neutral Yield (A); Term Premium (B); Overall Yield (A+B)
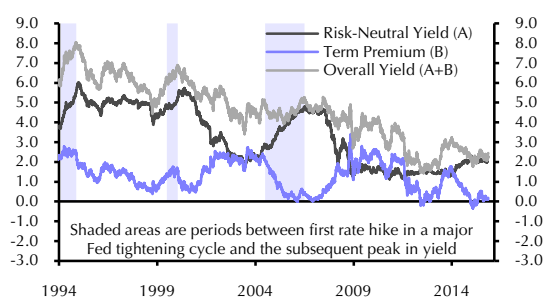
Chart 1 reveals that there was a substantial increase in the risk-neutral yield during each of these three periods. This occurred because investors ratcheted up their expectations for future levels of the federal funds rate as the Federal Reserve tightened monetary policy, thereby driving up the *average* level of the federal funds rate expected over the ensuing decade.

Chart 1 also shows how in the tightening cycles that began in 1994 and 1999, the increase in the risk-neutral yield was broadly mirrored by an increase in the overall yield. This was because there was little change in the term premium.

By contrast, in the tightening cycle that began in 2004, the increase in the risk-neutral yield was *not* mirrored by an increase in the overall yield, which stayed fairly stable. This was because the term premium plunged by around two percentage points, to close to zero.

Section 2 – Was it due to a glut of global savings?

What caused the term premium to collapse during the last Fed tightening cycle? One suggestion is that it was due to the investment of a glut of global savings in US Treasuries.

A country's savings glut is the difference between its savings and its non-financial investment. This difference is closely related to the country's current account surplus. (See Appendix A for a derivation of the relationship.) With this in mind, there was a large increase in the current account surplus, or shift from deficit, of many countries outside the US in the eight years leading up to the start of the last tightening cycle in 2004. (See Chart 2.) This was noted by former Chairman of the Federal Reserve, Ben Bernanke, in a speech he gave a year later entitled "The Global Saving Glut and the U.S. Current Account Deficit". The data he presented then have since been revised significantly.

CHART 2: CHANGES IN CURRENT ACCOUNT BALANCES BETWEEN 1996 AND 2004 (US$, BN)
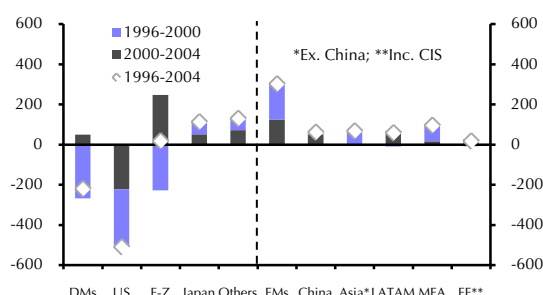
Sources – IMF, Fed

In the first half of this period (i.e. 1996 to 2000), the current account surplus of advanced economies excluding the US grew by only around $18bn according to the IMF. Indeed, it *shrank* if Japan is excluded. Accordingly, the counterpart to an increase of $286bn in the US current account deficit was mainly a large shift in the aggregate current account of *emerging* economies, which moved from deficit into surplus.

This shift was partly due to the resolve of many countries in East Asia that had been burned during the crisis there in 1997/98 to build up war chests

of foreign exchange reserves. The period also marked the start of substantial reserve accumulation in China, not only to insulate itself against the crises that had affected its neighbours, but also in response to a policy aimed at keeping the renminbi undervalued. Finally, there was a big increase in the aggregate current account surplus of countries in the Middle East & Africa and the Commonwealth of Independent States, due to a rise in the price of oil.
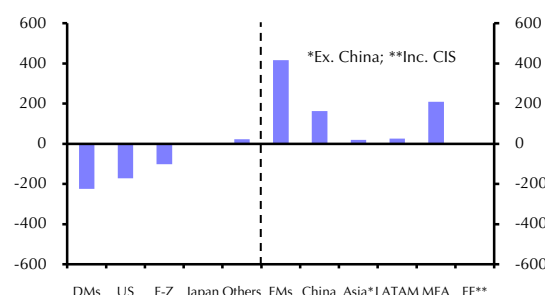
In the second half of the period (i.e. 2000 to 2004), the US current account deficit grew by a further $223bn. However, this time the aggregate current account surplus of other advanced economies rose by a much more substantial $272bn.

While this was partly due to a further increase in Japan's current account surplus, it stemmed more from a huge shift – from deficit to surplus – in the current account position of Germany after the launch of the euro. Meanwhile, the aggregate current account surplus of other advanced economies continued to get larger.

There was also a further increase in the aggregate current account surplus of emerging economies in this period, notably China and Brazil.

What happened, though, in the period of Fed tightening between 2004 and 2006, when the term premium of 10-year Treasuries collapsed?

CHART 3: CHANGES IN CURRENT ACCOUNT BALANCES BETWEEN 2004 AND 2006 (US$, BN)


Sources – IMF, Fed

As Chart 3 shows, the US current account deficit grew by another $173bn (to reach $807bn in

2006, the equivalent of 5.8% of GDP). However, the aggregate current account surplus of other advanced economies declined. Japan's current account surplus shrank very slightly. And the current account surplus of the euro-zone became smaller, despite a growing current account surplus in Germany. As a result, the counterpart to the growth in the US current account deficit was once again an increase in the aggregate current account surplus of emerging economies, especially in China (as a result of ongoing reserve accumulation) as well as in the Middle East and Africa (tied to a renewed surge in the price of oil).

At first glance, the hypothesis that a growing glut of savings in China as well as in countries in the Middle East and Africa served to drive down the term premiums of US Treasuries during this period seems plausible. After all, they appear to have invested heavily in these assets, judging by Treasury International Capital (TIC) System data. **Nonetheless, we are not convinced that demand from these sources fully explains the drop in term premiums between 2004 and 2006. After all, the 10-year term premium rebounded between 2006 and 2008, despite the fact that these economies' aggregate current account surplus and holdings of US Treasuries continued to grow during that time**. (See Chart 4 for the case of China.)

CHART 4: CHANGES IN CHINA'S DEMAND FOR US TREASURIES & 10-YEAR US TREASURY ZERO COUPON TERM PREMIUM
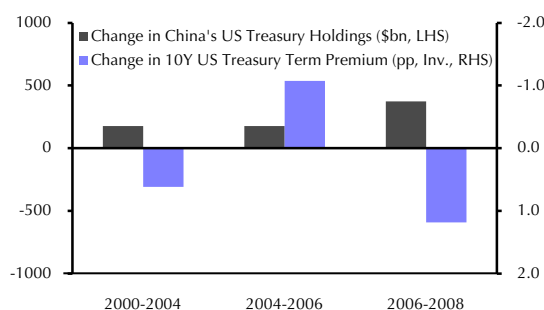
Sources – US Treasury, unofficial Fed data (ACM)

Another channel through which a glut of global savings might have depressed long-term US Treasury yields between, say, 2004 and 2006 is by affecting *indirectly* the actual and expected path of Fed policy, since such savings have effectively reduced demand for US goods and services abroad. Indeed, this argument is sounder in theory than one that *directly* attributes downward pressure on yields in the US to a greater desire to save elsewhere.

As Keynes argued in *The General Theory of Employment, Interest And Money*, the claim that a change in the desired level of saving will directly have an effect on interest rates naively assumes that employment and income will be unaffected. In fact, if the desire to save increases, the level of income will fall as firms employ fewer workers in order to satisfy less demand for their output. While workers in aggregate will be saving a larger share of their income, they will have less income from which to save. As a result, the level of their aggregate savings will not rise and there will be no automatic downward effect on interest rates for a given desire to invest.

Admittedly, the level of savings in a country *will* rise if some share of its foregone spending was on imports. This is because firms in that country will presumably only reduce employment and incomes in accordance with any reduction in demand for the goods and services that they themselves produce. But there will be an offsetting *decline* in the level of savings in other countries that are now exporting less to that country. As a result, there will be no change in the *global* level of savings.

Of course, a shift in the geographical location of savings could put downward pressure on Treasury yields if a country whose savings rose had a greater appetite for investing them in US government bonds than a country whose savings declined. Such a shift may have had some effect on Treasury yields given China's predilection for investing her surplus savings in US government bonds.

Nonetheless, the level of Treasury yields is primarily determined by the expected path of the federal funds rate. Accordingly, an increase in the desire to save in emerging economies such as

China would be much more likely to put downward pressure on US Treasury yields if it indirectly prompted the Fed to reduce the federal funds rate or investors to anticipate looser Fed policy. This could occur if the consequence of increased saving in, say, China was a large fall in US aggregate demand (via a reduction in US exports) or US inflation (via either the reduction in US aggregate demand itself or China exporting deflation).

Yet while actual and expected levels of the federal funds rate in the US may therefore have been lower between 2004 and 2006 than they otherwise would have been as a result of a savings glut elsewhere, the fact remains that the Fed still *tightened* monetary policy during this period. Clearly, the central bank would not have done so had it been concerned about the effect of such surplus savings on the US economy. Recall, too, that the 10-year risk neutral yield of Treasuries rose during all three of these tightening cycles, as investors ratcheted up their expectations for future levels of the federal funds rate.

Section 3 – Is there still a glut of global savings?
A lot has happened since 2006, including the worst global recessions in living memory. Nonetheless, Chart 5 shows how current account balances have changed overall since then.

CHART 5: CHANGES IN CURRENT ACCOUNT BALANCES BETWEEN 2006 AND 2015 (US$, BN)
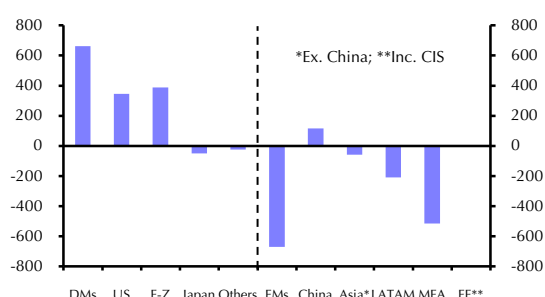
Sources – IMF (2015 is estimated), Fed

The US current account position has improved markedly – the deficit is estimated to have shrunk by $346bn between 2006 and 2015 (to $461bn, or the equivalent of 2.6% of GDP). Meanwhile, the aggregate current account surplus of other advanced economies has grown substantially again (by around $316bn). Admittedly, Japan's current account surplus has shrunk by around $50bn. But the current account surplus of the euro-zone has grown, as Germany's surplus has ballooned, while the large deficits of some countries in the south of the euro-zone, especially Spain, have evaporated.

Accordingly, the counterpart to the reduction in the US current account deficit has been a marked decline in the aggregate current account surplus of emerging economies, notably those in Latin America and the Middle East and Africa. That being said, the current account surplus of emerging Asia has grown, as China's current account surplus has increased a little relative to 2006.

During the last nine years, the term premium of 10-year US Treasuries has fluctuated considerably. (See Chart 1 again on page 2.) As noted previously, it rebounded significantly between 2006 and 2008 despite a further rise in China's current account surplus and holdings of US Treasuries. Since the recession, though, the trend in the term premium has tended to be down, notwithstanding a rebound in 2013. Indeed, the term premium has dipped below zero on a couple of occasions.

The trend decline in the 10-year term premium since the last recession does not fit comfortably with the notion that it is heavily influenced by the supply of surplus savings outside the US. After all, since then these surplus savings have shrunk in tandem with the US current account deficit.

Granted, other countries have still been collectively running a current account surplus, even if this surplus is not as large as it was. As a result, they have continued to accumulate claims on US residents, including the US government. But we think other factors have been more important in driving down the term premiums of government bonds in the US than surplus savings elsewhere *per se*. These include Fed policy, rock-bottom yields outside the US, the introduction of Basel III

banking regulations, and the demand for safe-haven assets. (See our *Global Markets Focus*, "Is the bull market in US Treasuries over?", 18th February.)

Looking ahead, our expectation is that the steep fall in oil prices since the middle of last year and the appreciation of the US dollar will cause global imbalances to widen over the coming years.

Admittedly, we don't expect the current account deficit of the US to grow sharply, as the real exchange rate of the dollar is still not that high by historical standards and the effect on the US trade balance has so far been offset by the falling value of oil imports. But China's surplus could rise up the political agenda once more, while the euro-zone's growing surplus underlines how weak demand from the region is a drag on the rest of the world. **Overall, though, we do not expect current account balances to widen anywhere near as much as they did in the years leading up to 2006**. (See our *Global Economics Update*, "What's happening to global imbalances?", 9th July.)

More generally, we doubt that any renewed increase in surplus savings outside of the US will have a major bearing on Treasury yields in the near future, just as we are sceptical that such increases had a major bearing in the past.

Section 4 – Will a savings glut anchor US Treasury yields again?

Even if a growing level of surplus savings outside the US *does* exert some downward pressure on long-term US Treasury yields in the years to come, it is unlikely to prevent them from rising.

A key reason is that, unlike at the outset of the last tightening cycle, term premiums are already exceptionally low. For example, in June 2004, the 10-year term premium is estimated to have been more than 200bp. It therefore had plenty of room to fall and offset an increase in the risk-neutral yield. By contrast, the 10-year term premium is currently estimated to be less than 20bp. While there is nothing in theory to prevent the 10-year

term premium from turning negative (it is estimated to have hit a more-than-50-year low in late-January), there is much less potential for it to plummet.

Granted, we do not expect the 10-year term premium to surge, since some of the factors that have caused it to fall to a low level are probably "structural" and unlikely to be reversed in full. But even if the 10-year term premium stabilises at its current low level, the 10-year Treasury yield will still increase if its risk-neutral yield continues to rise. We think the latter is likely.

After all, the slope of the path of the federal funds rate that is implied by the risk-neutral yield curve is much gentler in the near term than the one based on our forecasts – the federal funds rate at the end of 2017 implied by that curve is currently around 1.7%, whereas we project that the rate will then be in a range of 3.25-3.50%. (See Chart 6.)

CHART 6: RISK-NEUTRAL YIELDS OF US TREASURIES AND IMPLIED PATH OF THE FEDERAL FUNDS RATE (10TH NOVEMBER 2015, %)
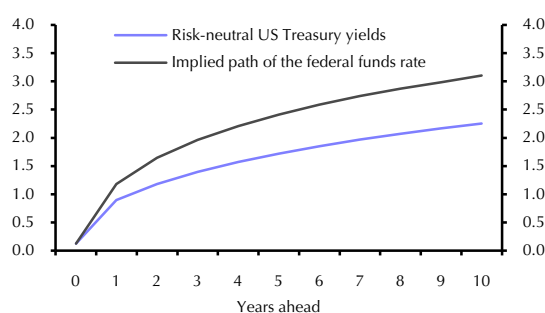
Sources – Unofficial Fed data (ACM), CE

Of course, the risk-neutral yield of 10-year US Treasuries reflects investors' expectations for the federal funds rate over the next *decade*, not just the next two years. And the implied rate in ten years' time does not seem implausibly low – at around 3.1%, it is not that far from the average projection of FOMC participants of the "longer run" level of the federal funds rate, which itself has fallen substantially in recent years. (See Chart 7.)

CHART 7: BOND INVESTORS' AND FOMC PARTICIPANTS' EVALUATION OF THE EQUILIBRIUM LEVEL OF THE FEDERAL FUNDS RATE (%)
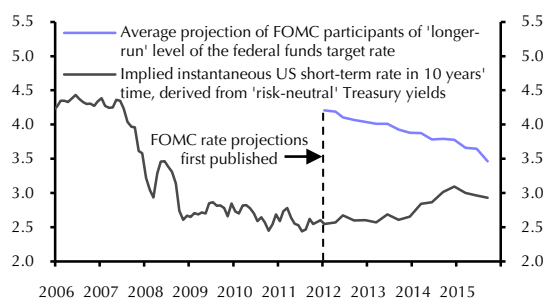
Sources – Fed, unofficial Fed data (ACM), CE

But there would appear to be little scope for the risk-neutral yield of 10-year US Treasuries to decline unless the long-run level of the federal funds rate has fallen well *below* 3%. And even if the long-run level *is* that low now, the risk-neutral yield could still rise in response to the onset of tighter policy – as it has done in the past.

Section 5 – Conclusion

This *Focus* has sought to answer the question of whether a glut of global savings will anchor long-term US Treasury yields during the forthcoming cycle of tighter Fed policy.

Our analysis has led us to conclude that this is unlikely for four key reasons.

First, even if a glut of global savings contributed to the unusual stability of long-term US Treasury yields during the last tightening cycle, which is a moot point, the glut of global savings is smaller today.

Second, the term premiums of long-dated US Treasuries, which are estimated to have fallen sharply during the last Fed tightening cycle perhaps in response to a prevailing glut of global savings, are much lower now than they were then. They therefore have less scope to decline.

Third, the risk-neutral yields of long-dated US Treasuries imply that the federal funds rate will rise more slowly than we expect over the next few years and eventually reach a level that is quite, if not implausibly, low.

And fourth, the risk-neutral yields of long-dated US Treasuries have in any case tended to increase once the Fed has begun to tighten monetary policy. This was also true during the last tightening cycle.

The upshot is that we are sticking with our forecast that the 10-year Treasury yield will continue to grind higher over the next couple of years – our end-2016 and end-2017 forecasts are 3.0% and 3.5%, respectively, compared to a current level of around 2.3%.

Appendix A: current accounts and "surplus" savings

The demand for goods and services that are produced in a country is equal to the sum of demand at home in the form of private expenditure (C_{priv}), public expenditure (C_{pub}), private investment (I_{priv}) and public investment (I_{pub})) and demand from abroad (exports (X)). In order to satisfy demand at home, some goods and services are imported. These imports (M) must be subtracted from the sum of demand at home and abroad in order to obtain the country's gross domestic product (GDP) – the value that has been added in the production of goods and services by labour and property located in the country:

1. $GDP = C_{priv} + C_{pub} + I_{priv} + I_{pub} + X - M$

Gross domestic income (GDI) is the sum of the incomes earned in the production of GDP. In the absence of statistical discrepancies, the two are equal. All GDI must either by consumed or saved by those who receive it. If the amount of GDI that the country's private sector saves is denoted by S_{priv}, and the amount of GDI that the country's public sector saves is denoted by S_{pub}, then:

2. $GDP = GDI = C_{priv} + S_{priv} + C_{pub} + S_{pub}$

Rearranging equations 1 & 2 yields:

3. $(S_{priv} - I_{priv}) + (S_{pub} - I_{pub}) = X - M$

Gross national product (GNP) measures the total value that has been added in the production of goods and services by labour and property supplied by the country's residents. GNP therefore excludes the production supplied by foreigners who are located in the country and the return to foreigners on their investment in the country, and includes the production supplied by residents of the country who are located abroad and the return to residents of the country on their investment abroad. Gross national income (GNI) is the income equivalent of GNP. GNI measures all income from current production accruing to residents of the country, irrespective of where the production occurs. Net income received from abroad – the difference between GNI and GDI – is comprised of net compensation of employees from abroad, net

interest income from abroad and net profits from abroad. If we re-write equation 1, replacing GDP with GNP, and denote net income from abroad as N, we have:

4. $GNP = C_{priv} + C_{pub} + I_{priv} + I_{pub} + X - M + N$

Similarly, if we re-write equation 2, replacing GDP for GNP and GDI for GNI, we have:

5. $GNP = GNI = C_{priv} + S_{priv} + C_{pub} + S_{pub}$

Rearranging equations 4 & 5 now yields:

6. $(S_{priv} - I_{priv}) + (S_{pub} - I_{pub}) = X - M + N$

Equation 6 does not take account of the current taxes, contributions for government social insurance, and transfer receipts that the country receives from the rest of the world, net of corresponding payments. If we denote such net current transfer receipts as TP_{cur}, we can re-write equation 6 as:

7. $(S_{priv} - I_{priv}) + (S_{pub} - I_{pub}) = X - M + N + TP_{cur}$

The right hand side of equation 7 is the current account balance of the country. It is equal to net exports of goods and services plus net income from abroad plus net current transfer receipts. If we denote the country's current account balance as CAB, we can re-write equation 7 as:

8. $(S_{priv} - I_{priv}) + (S_{pub} - I_{pub}) = CAB$

The current account balance does not take account of net capital transfer receipts (such as the net transfer of ownership of fixed assets), which also alter the income available for consumption and saving. If we denote net capital transfers receipts as TP_{cap} then we can re-write equation 8 as:

9. $(S_{priv} - I_{priv}) + (S_{pub} - I_{pub}) = CAB + TP_{cap}$

Equation 9 tells us that the combined "surplus" savings of the private and public sectors of the country are equal to the country's current account balance plus net capital transfer receipts from abroad. The sum of the two right hand terms of equation 9 is equivalent to the net amount that the country lends abroad.