

MAKENA STRATEGY INSIGHTS – December 31, 2014

The ECB's Quantitative Easing Program: The Only Option Left, but Will it Work?

Q4

PERIOD ENDING
December 31, 2014

Portfolio Strategy & Macroeconomic Outlook

“Lowflation” Driven by Graying Hair

It is important to realize that the combination of aging population, increased longevity and shrinking labor force are powerful disinflationary factors for all developed countries, the U.S. included. The default assumption for an investor should be that as a population ages, downward pressure on inflation increases. Household consumption peaks when households are of childbearing/childrearing age, and there are fewer and fewer households in that age range as a share of total households across the developed world. The implications of this trend are important: not only does this suggest an increasing amount of downward pressure on nominal bond yields¹ over time; it also means that attempts to combat deflation will be more and more challenging over time as well.

Figure 1 below shows the population over age 65 as a share of total population for a number of industrialized countries. Note how every country in the chart has reached or is about to reach an inflection point where the proportion of people over 65 years old increases dramatically from current levels.

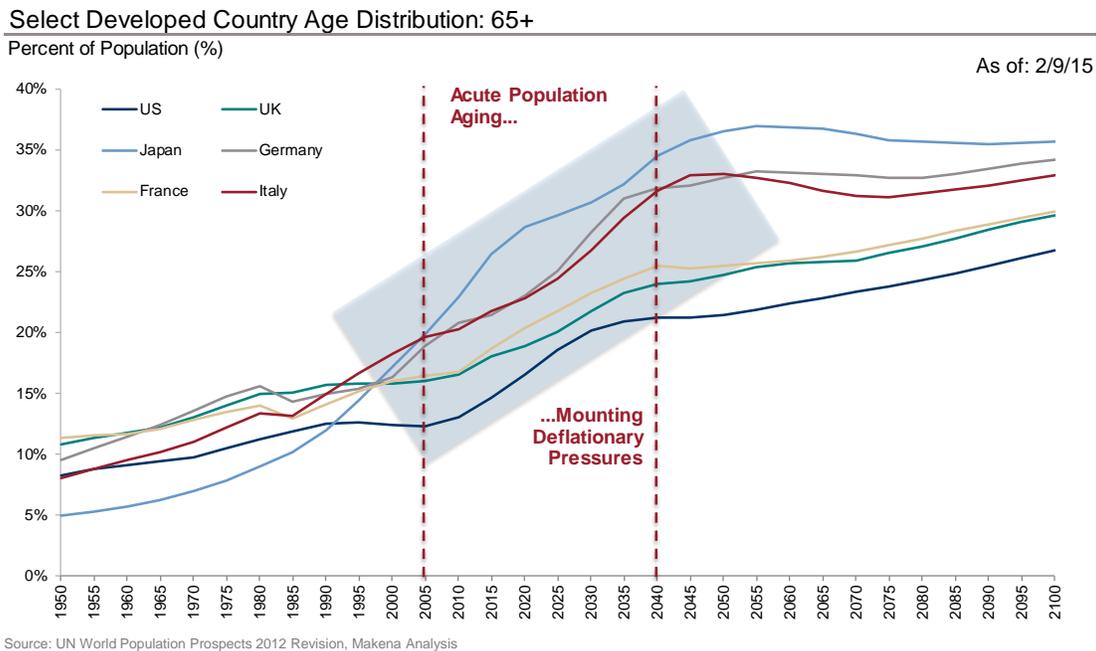


Figure 1: Developed Countries Have Entered Inflection Point in Population Aging

Two recent IMF papers have analyzed the effects of an aging population on inflation and on monetary policy². In the case of Japan, the findings are that even when factoring in a permanently weaker interest rate policy (60 bps lower than historically), the aging effect will subtract an additional 30 basis points from inflation *relative to the 2012 average*. We needn't remind the reader that in 2012, Japan was already in deflation. For industrialized countries as a whole, findings show that a 1% increase in the share of population above 65 results in an 18bps decrease in inflation. The implication is that increasingly aggressive monetary policy will be required to offset the effects of aging on inflation. Said differently, we probably haven't seen the last of dramatic central bank intervention *à la* quantitative easing (QE).

¹ See our Q2 2014 letter where we detail our “lower for longer” thesis on rates

² See IMF working paper #14210, *Impact of Demographic Changes on Inflation and the Macroeconomy*; and IMF working paper #14139, *Is Japan's Population Aging Deflationary?*

It is with this backdrop in mind that we turn to the most important policy action of the year, the announcement of the European Central Bank's (ECB) quantitative easing program.

The European Central Bank's QE Program

Many attempts at jump-starting the Eurozone economy and thereby generating inflation have left us with an alphabet soup of ECB policies: ZIRP (zero interest rate policy), NIRP (negative interest rate policy), OMT (outright monetary transactions), LTRO (long-term refinancing operations), asset purchase programs, etc. Despite all of this, inflation has continued to spiral downwards across Europe with some countries now close to / in outright deflation. All indications are that the weakness is not driven by external factors but rather by incredibly weak European domestic demand and a lack of credit creation for the fifth consecutive year³. On January 22nd, the ECB announced its own QE program, in many ways modeled after the U.S. QE.

The move was well-telegraphed: the ECB had previously announced that it would expand its balance sheet by an amount that could not be achieved by purchasing covered bonds and asset-backed securities alone – leaving sovereign QE as the only option available. The ECB has managed to surprise and so far delight markets by 1) delivering a far larger program than had been expected (€1.1T vs. expectations of €500B), 2) making the program open-ended and dependent on the achievement of the ECB's price stability objective and 3) coupling it with a negative deposit rate. Perhaps the best indicator of Draghi's audacity was the sense of unmitigated disaster emanating from Berlin following the announcement.

The Details

Starting in March, the ECB and national central banks (NCB) will begin purchasing approximately €48bn a month of Eurozone government bonds and qualified Eurozone institution debt (i.e. the European Investment Bank). The exact amount will depend on how much in covered bonds and asset-backed securities the ECB can purchase to reach a total of €60bn a month. The most important detail which we will revisit later is that *the purchases of government bonds will be in proportion to that country's share in the ECB's Capital Key*, which in turn is based on a country's GDP and population. The purchases will have a degree of risk mutualization in that 20% of the purchases will be made directly by the ECB and stay on its balance sheet while the remainder will be made by the corresponding NCB.

Show Me the Money

However daring, what remains to be seen is whether the program will work.

Unfortunately, to answer such a question precisely is very difficult. The combinations and permutations to consider are many, since there are banks, insurance companies (and other so-called non-bank financials), corporations, pension funds, individuals, both foreign and domestic, each with their own sets of legal limitations and financial goals. To try and make some sense of this we created Figure 2 below which illustrates the actions a holder of a Eurozone bond can take, and the potential effects of those actions on the exchange rate, interest rates, liquidity, and credit growth.

³ See our Europe Whitepaper for our discussion on the imbalances within the Eurozone

		Eurozone Liquidity	€ Weakness	Eurozone Credit Growth	Eurozone Yields Fall	Intl Yields Fall
Keep risk profile (i.e. bond investor)	Buy another Eurozone bond	✓		✓	✓	
	Buy non-Eurozone bond		✓			✓
Change Risk Profile (i.e. unconstrained investor)	€ cash w/ negative rate	✓				
	Keep € but invest in riskier asset ⁴	✓		✓	✓	
	Invest in riskier non-€ asset		✓			✓

Source: Makena Analysis

Figure 2: Impact of ECB Purchases Depend on Seller Type and Use of Proceeds

In the “keep risk profile” row, we illustrate what a government bond investor would do with the proceeds from selling a Eurozone bond to the ECB.

Perhaps the holder owned a periphery government bond, sold it to the ECB and then bought a German Bund. In this case we are in the top row, and QE has resulted in pushing down yields in Europe (as funds released by the ECB purchase go to buy other bonds), implicitly helping create credit growth and putting downward pressure on yields. Any redeployment of proceeds into Europe would of course also serve to improve monetary conditions in Europe.

Perhaps the holder held a German Bund, and once having sold it, not comfortable with any other Eurozone government bond, takes the € proceeds, exchanges them for a different currency (dollars?) and invests in government bonds in that new currency. By doing so, the redeployment of capital outside of the Eurozone serves to weaken the euro and lower yields internationally (second row of the table).

In the “change risk profile” section we illustrate what an unconstrained investor that is a government bond holder would do with the proceeds from selling a Eurozone bond to the ECB⁵. We proceed row by row in the “change risk profile” section:

Perhaps the holder, weary of risk, decides to hold € in cash, thereby paying the ECB for the right to hold cash. An unlikely scenario, perhaps, but for some regulated entities (banks, insurance, pensions), there may be no choice. If nothing else, this action increases the liquidity within the Eurozone system.

Perhaps the holder, needing return, but not limited to government bonds, decides to stay in the Eurozone but goes out the risk spectrum and purchases either corporate bonds or equities with the proceeds. QE has therefore resulted in pushing down yields in Europe (as funds released by the ECB purchase go to buy other bonds), or in pushing up the stock market (as funds released by the ECB purchase go to buy equities).

Perhaps the holder, not comfortable with any other Eurozone asset, takes the € proceeds, exchanges them for a different currency (dollars?) and invests in assets denominated in that new currency. By doing so, the redeployment of

⁴ Examples include Eurozone government bonds that are higher risk (as in selling bunds and buying Greek government bonds), Eurozone corporate bonds, Eurozone equities and most importantly, loan origination.

⁵ We make the implicit assumption that an unconstrained investor would be very unlikely to buy a bond with a low to negative yield. If such an investor would do so, we would be back in the very first row of the table.

capital outside of the Eurozone serves to weaken the euro and lower yields internationally or boost stock markets internationally.

What can we conclude from this exercise? No matter which action is taken with the proceeds of selling Eurozone government bonds to the ECB, the near-term effect is unequivocally positive for the Eurozone: yields fall, the exchange rate falls, liquidity improves, credit creation improves or any combination thereof.

No wonder central bankers are in love with QE.

What is more, ultimately all sale proceeds must find their way to a Eurozone bank where they are counted as excess reserves and receive a negative rate of deposit. Indeed, *even a project with a zero net present value is a potentially attractive investment in this negative rate upside-down world.* Negative deposit rates act as a sort of *synthetic inflation* by eating away at the value of unused cash. In this respect, the ECB’s QE program could be more effective than that of the U.S., U.K. or Japan.

Pure Luck or Pure Genius?

We have argued in the past that the Eurozone faces a critical internal imbalance: in the lead up to the crisis high rates of inflation in the periphery relative to the core created a dynamic where the core’s competitiveness was relentlessly improving relative to the periphery. This is illustrated in Figure 3 below. Germany has insisted that the imbalances be rectified by the periphery deflating. Figure 3 shows that the periphery has been successful in doing this (and has the high unemployment levels to prove it). Germany, however, has done little if anything in the way of inflating to aid the adjustment, forcing the periphery to bear the entire burden of adjustment. This is important not just for “fairness” reasons, but also because inflation in Germany would have a much more immediate effect on reducing imbalances than would the slow implementation and long lags associated with structural reform in the periphery.

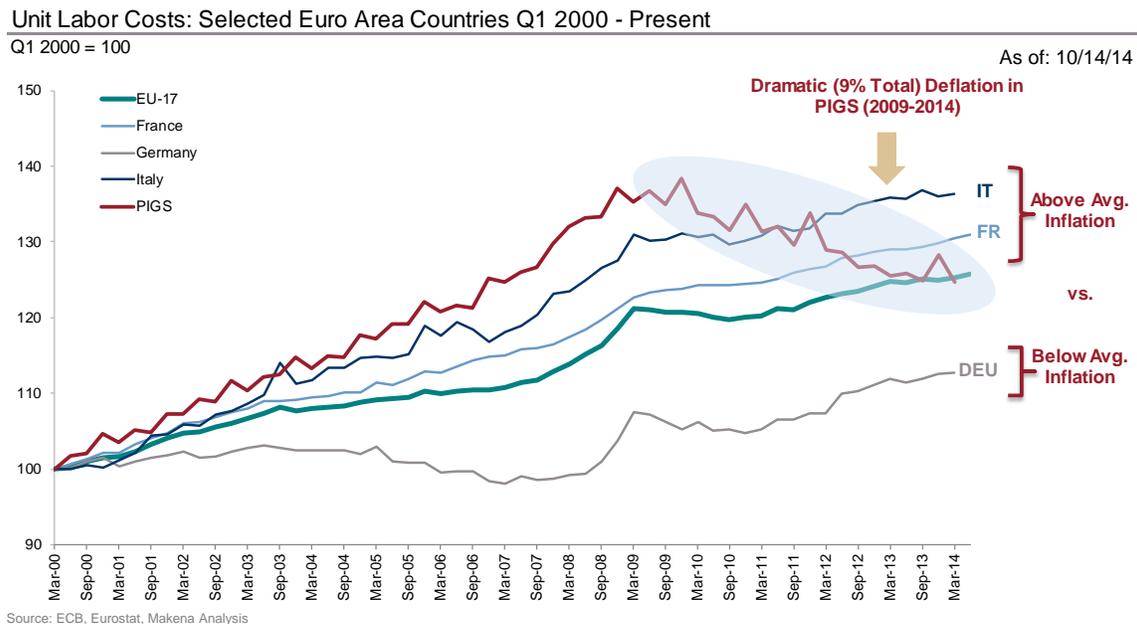


Figure 3: Periphery Deflating to Narrow Productivity Gap as Germany Stands Idly By

If QE is to truly heal the European economy, QE must solve the internal competitiveness imbalances we just mentioned. The primary effects of the QE program are likely to be to reduce interest rates and weaken the euro – both of which we are already seeing. Let us first look at the implications of falling rates, and then turn to the implications of a weakening Euro to see if either addresses internal imbalance issues.

Interest Rate Effects

Recall that we highlighted the fact that the ECB bond purchases will be made in proportion to the ECB’s Capital Key. On the surface this looks like a compromise to the Germans to prevent the ECB from monetizing the periphery’s debt at the risk of the German taxpayer. However, if most of the liquidity injected goes into the core, then the largest reduction in yields should

also be in the core. Figure 4 below shows that this is precisely what we have seen so far, with interest rates in the core collapsing by nearly 50%, whereas interest rates in the periphery have fallen by less than 20%. By keeping to the ECB’s Capital Key, the ECB is stimulating the core economies more than the periphery economies, thereby increasing inflationary pressures in the core relative to the periphery. In other words, the ECB is adding inflation where inflation is needed most, potentially correcting the disastrous divergence in inflation that we illustrated in Figure 3 above.

Reduction in 10Y Yields in Select European Countries

Percent Decline vs. CYE2014 Level

As of: 1/30/15

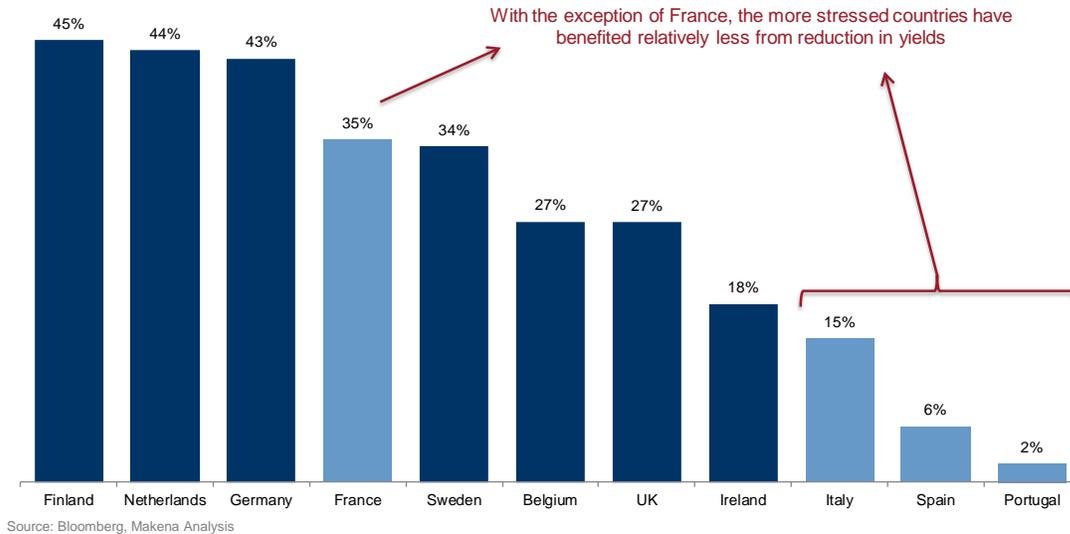


Figure 4: Yields Have Decreased More in the Core than in the Periphery

Devaluation Effects

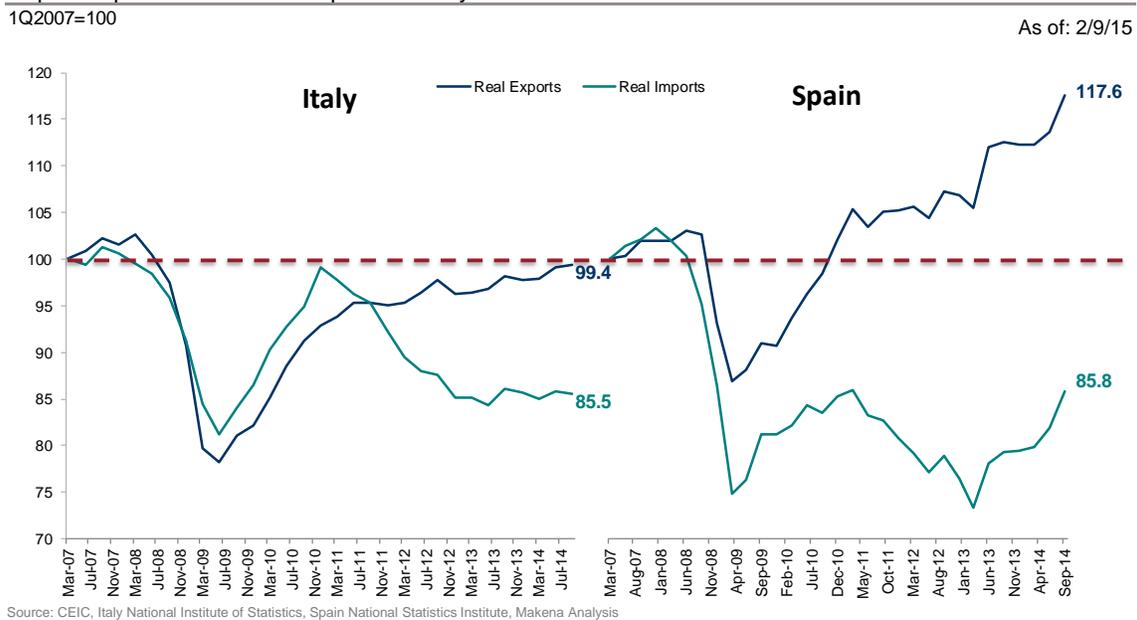
Let us now turn to the other effect of ECB QE, the weakening of the Euro.

Competitive devaluations work in two ways: (1) by boosting demand for a given country’s exports and (2) by reducing demand for imports by that same country. Said differently, devaluations work by attracting revenues from abroad and by “concentrating” domestic consumers’ expenditures within their own borders.

European exports are concentrated in high-end products, luxury goods and services - the demand for which is not very price sensitive (low price elasticity of demand). Therefore, a weaker Euro will only marginally drive export volumes, though it should improve exporters’ margins substantially, boosting equity valuations in those sectors. This has been and remains one of the reasons behind increasing our exposure to European equities as we highlighted in our 4Q 2013 letter.

Furthermore, the weak Euro, driven by QE, has great prospects for reducing imports from outside the Eurozone, “concentrating” Eurozone demand to Eurozone suppliers. This is a continuation of a process that has been ongoing within the Eurozone for some time now.

Import/Export Performance: Spain and Italy
 1Q2007=100



Source: CEIC, Italy National Institute of Statistics, Spain National Statistics Institute, Makena Analysis

Figure 5: Imports Remain Well-Below Pre-Crisis Levels across Periphery

As illustrated in Figure 5 above, one can see that the improved trade balances seen across peripheral countries has been driven more by a collapse in demand than a rebirth in exports. For both Italy and Spain, real imports have essentially flat-lined since the financial crisis. As the Euro weakens, “concentrating” demand within the Eurozone, we can expect reduced imports from outside the Eurozone to the core and therefore greater “exports” from the periphery to the core. This sets off a chain of positive developments, as renewed demand in the periphery should have a positive effect on peripheral growth expectations, in turn driving capex, in turn driving employment higher and so on.

Summarizing, the ECB’s QE program should result in the largest increase in liquidity, the largest buildups of excess reserves earning negative rates, the largest compressions in yields and the largest repatriations of import demand in the core (especially Germany). Accordingly, the greatest spur to inflation will occur in Germany and this is *precisely* what is needed to reduce imbalances in the Eurozone. And this is certainly why the Germans have resisted QE so forcefully and bemoan that it has come to pass. Ironically, it offers the ECB’s program its greatest prospects for success.

While we view the ECB’s QE efforts as the first legitimate effort to inflate the core and therefore correct the Eurozone’s long-standing internal imbalances, there are knock-on effects to the rest of the world that cannot be ignored.

Currency Wars?

As the ECB was readying its monetary offensive, many smaller countries, having seen this movie before with the Fed’s QE, reacted swiftly and decisively. The most publicized of these reactions was the Swiss National Bank abandoning its exchange rate peg to the Euro. However, to date we count 17 foreign central banks who have taken evasive maneuvers to avoid the fallout from the ECB’s monetary salvo. Figure 6 below summarizes these actions.

For many if not most of these countries, the actions taken were not necessarily a reaction to domestic economic problems – leading one to suspect that the actions taken were simply to ensure that currencies remain weak. By aligning themselves with the ECB, these countries in effect are ensuring that their currencies will weaken against the U.S. dollar, thereby making their exports more competitive in the world’s largest consumer market. Said differently, the ECB’s QE has set off a race to competitive devaluations across much of the world, and whether this devolves into more overt “beggar-thy-neighbor” policies such as trade restrictions or an all-out “currency war” remains to be seen. This is an important risk that we monitor and tackle with both our tail risk management and currency programs.

Country	Date	Action Taken
Romania	January 7, 2015	Cut rates to 2.50%
Switzerland	January 15, 2015	Abandoned the CHF floor to EUR at 1.20 - cut rates to -0.75%
India	January 15, 2015	RBI cut rates to 7.75%
Peru	January 15, 2015	Cut rates to 3.25%
Egypt	January 15, 2015	Cut rates to 8.75%
Denmark	January 19, 2015	Cut rates to -0.20%
Turkey	January 20, 2015	Cut rates to 7.75%
Canada	January 21, 2015	BOC cut rates to 0.75%
Brazil	January 21, 2015	COPOM hiked 50bps to 12.25%
ECB	January 22, 2015	Started a €60bn a month QE
Denmark	January 22, 2015	Cut rates to -0.35%
Pakistan	January 24, 2015	Cut rates to 8.50%
Singapore	January 28, 2015	MAS slows SGD appreciation - SGD off 2%
Denmark	January 29, 2015	Cut rates to -0.50%
Russia	January 30, 2015	Cut rates 2% to 15%
China	February 4, 2015	Cut RRR by 50bps
Sweden	February 12, 2015	Cut rates 10bps to -0.10%
Indonesia	February 17, 2015	Cut rates 25bps to 7.5%
Turkey	February 24, 2015	Cut rates 25-50bps

Source: Various news outlets, Makena Analysis

Figure 6: Deluge of Policy Loosening in Anticipation of and in Reaction to ECB QE

The Special Case of China

China however, stands out as its actions were relatively benign. China's currency was arguably already overvalued, with real wages having dramatically increased over the last few years. Pegged to the U.S. dollar, the Renminbi has appreciated against the Euro in lockstep with the dollar, increasing in value ~20% since the summer of 2014. Not surprisingly, import demand has collapsed and exports are falling as well - leading to a record trade surplus, in parallel to the situation in Spain and Italy that we outlined above.

The most obvious answer for China would be to devalue its currency versus the dollar, alongside the other countries in the table above. However, devaluing for China is not easy. First, devaluation versus the U.S. dollar would result in colossal mark-to-market losses on China's enormous U.S. dollar holdings. Second, devaluation could spur large capital flight out of China, potentially sparking a liquidity crisis. Third, many Chinese corporates, having borrowed heavily in U.S. dollars, could suddenly be driven into bankruptcy if their dollar denominated liabilities were to jump in value. Indeed, as far as ECB QE is concerned, China stands out as the biggest loser. Because of this, a surprisingly large Chinese slowdown is perhaps the most important macro risk the world faces today.

China is not sitting idly by; a handful of stimuli have already been enacted, including cutting bank reserve requirements, and abandoning most restrictions on residential property purchases that were enacted to cool the property market. Expect more such actions and perhaps even a small devaluation in the Renminbi in the near future.

A Fed Accompli

The Fed can afford to ignore the ECB's actions more easily than most other nations as the U.S. is a relatively "closed" economy, with only 30% of GDP accounting for trade (vs. a weighted average of 60% globally). The effect of a strong dollar on

the U.S. is ambiguous, as exporters getting harmed is offset by consumers being better off in terms of purchasing power. If anything, the U.S. being the “consumer of last resort” has just received a shot in the arm, and many countries have pinned their hopes on exports to work their way out of their domestic problems – with the Eurozone now joining the party.

Meanwhile the Fed has been preparing the ground for rate hikes ever since Bernanke disastrously uttered the word “taper” back in May 2013. On the one hand, this might seem perfectly appropriate as employment growth has been quite strong with the unemployment rate consistently outstripping the Fed’s projected rate of reduction. Moreover, output has expanded above potential in recent quarters.

By contrast, wage growth has accelerated but remains decidedly tepid, with the large reservoir of people technically outside the labor force (left panel of Figure 7 below) acting as a buffer to wage inflation. The latest information on wages shows 2.2% year-on-year growth, far from the 3-4% rates typically associated with mounting inflation and therefore rate hikes.

Furthermore, inflation rates have if anything declined recently as the strengthening dollar has produced renewed import price deflation, depressing the 1/3 of the CPI basket that consists of predominantly traded goods and services (see right panel of Figure 7 below).

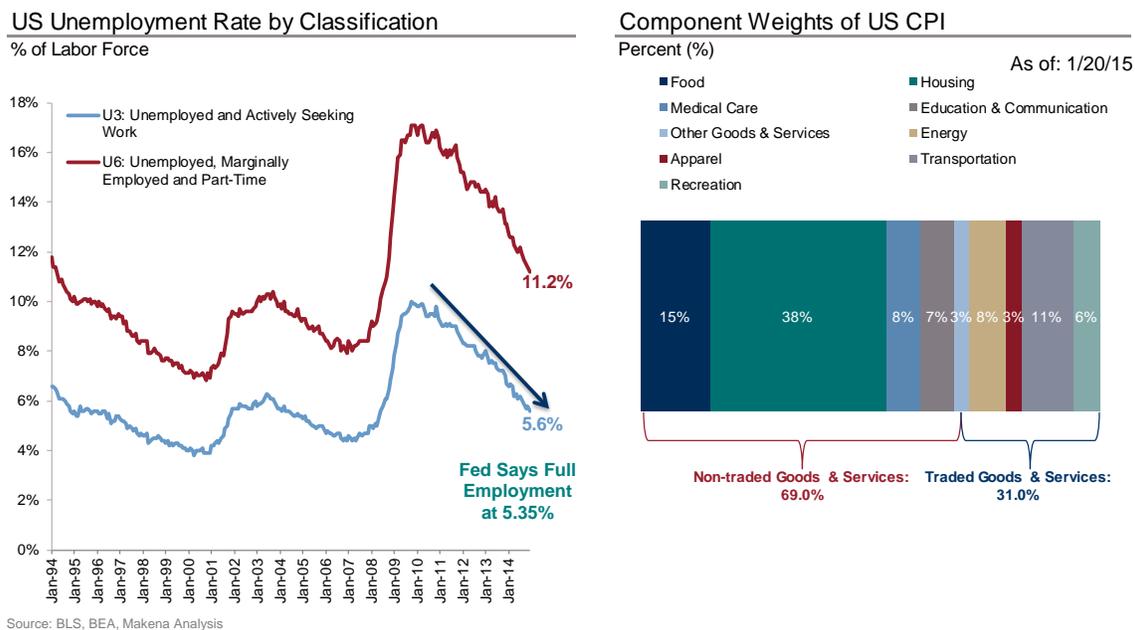


Figure 7: Disinflationary Forces Still Strong in the U.S.

The Fed is well aware of this duel between inflationary (declining unemployment) and deflationary forces (import prices, demographics, and low participation rates). The Fed has even admitted that it is unlikely to achieve its inflation target anytime soon, stating in its recent summary of economic projections that “inflation would move up gradually toward, but run somewhat below, the Committee’s longer-run objective of 2 percent” through the forecast horizon (i.e. end-2017).

Yet the march to raise rates from off the zero bound proceeds apace. Given the situation we just described, rate “liftoff” would seem to run afoul of achieving the Fed’s twin mandates. But we should not underestimate the complexity of the politics facing the Fed both from within and from without. The Fed’s ideology has evolved remarkably (even astoundingly) in recent years (compare with the Bundesbank) but remains fundamentally moored in the earlier, “normal” period in which inflation was an ever-lurking danger. Accordingly, the Fed has a natural impulse to want to hike rates from zero and to “normalize” monetary policy. Furthermore, external pressures are in the same direction and far more passionate – consider recent Congressional initiatives to “audit the Fed”.

While the Fed now admits that inflation will likely remain below target even as the unemployment continues to fall, they began signaling the coming rate hikes when they thought that wage pressures would build far more quickly than they have. As such, despite constant reminders by the Fed of the data dependency in “liftoff”, the Fed’s credibility is now attached to a policy

course that runs contrary to that suggested by the data. In other words, it appears the Fed has painted itself into a corner, and will likely hike rates sometime in the next 12 months or so.

As we have argued in many past letters, the ultimate rate at which the Fed stops hiking – sometimes called the neutral policy rate, sometimes called the equilibrium rate – should be lower than historically was the case. This is due to a combination of the much higher leverage in the economy⁶, the lower potential growth rate, and demographic headwinds (as we just showed).

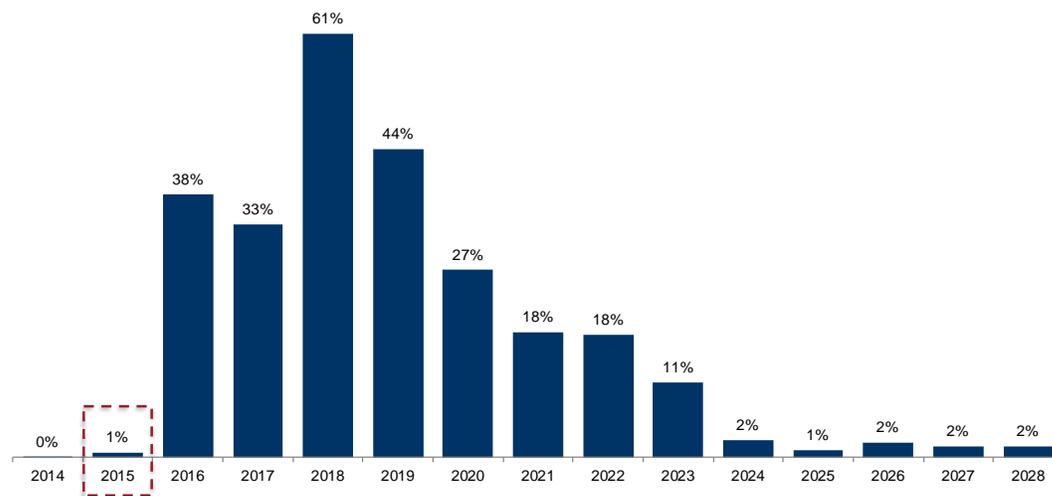
Therefore, it seems reasonable to think that, though rate hikes will likely materialize in the next year or so, they will likely be “cosmetic”, i.e. fewer/smaller/further apart than in the past.

Luckily the recovery should be able to withstand such “cosmetic” hikes. For one, government debt issuance should not be a source of pressure as new issuance continues to decline (a 2.6% government deficit is projected for 2015) and demand from the Fed reinvesting maturing securities is sizeable from 2016 onwards (see Figure 8 below). Secondly, despite some recent tightening (largely due to poor S&P 500 financials performance), the Chicago National Financial Conditions index remains near all-time loosest conditions (see Figure 9 below). Thirdly, banks are continuing to expand their balance sheets and cutting their net interest margin driving growth in credit to households and corporations (see Figure 10 below). Finally, as we alluded to earlier, the ECB’s QE program can be expected to ease credit globally and perhaps especially in the U.S. due to the depth of the capital markets and the greater substitutability between EUR- and USD-denominated assets versus those denominated in smaller/less liquid currencies. In this sense the ECB may have “rescued” the Fed from a self-imposed policy error.

Maturities of Federal Reserve Treasury Holdings

Percent of Projected Federal Deficit

As of: 10/14/14



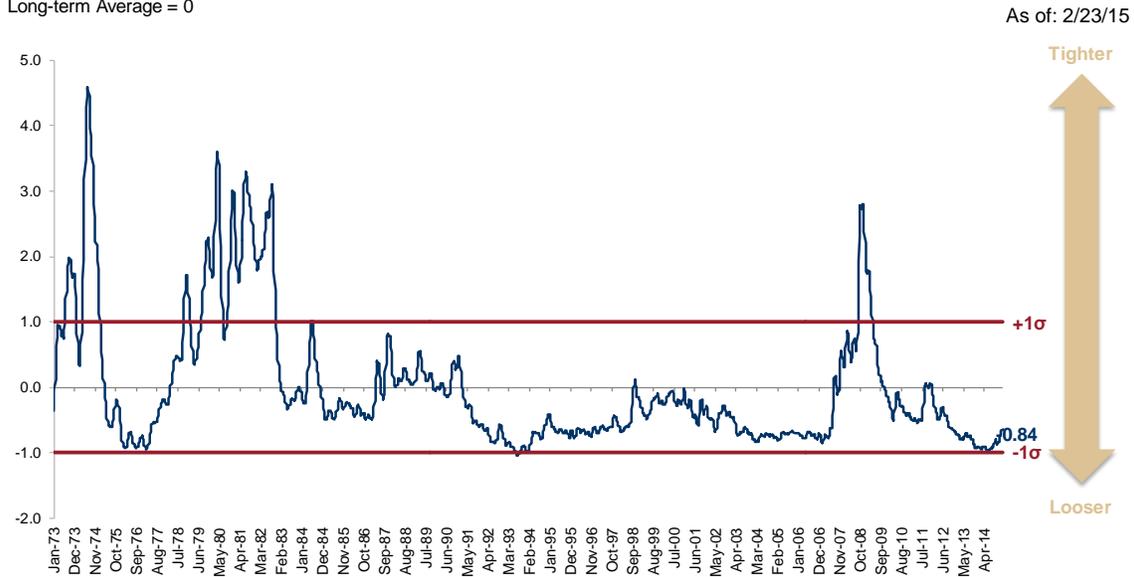
Source: http://www.newyorkfed.org/markets/soma/sysopen_accholdings.html, Makena Analysis

Figure 8: Fed Reinvestment of Maturing Treasuries Substantial 2016 Onwards

⁶ See Q2 2014 letter on leverage in the U.S. economy, and Q1 2013 letter on lowered potential growth rates in the U.S. for a more detailed analysis

Chicago National Financial Conditions Index

Long-term Average = 0

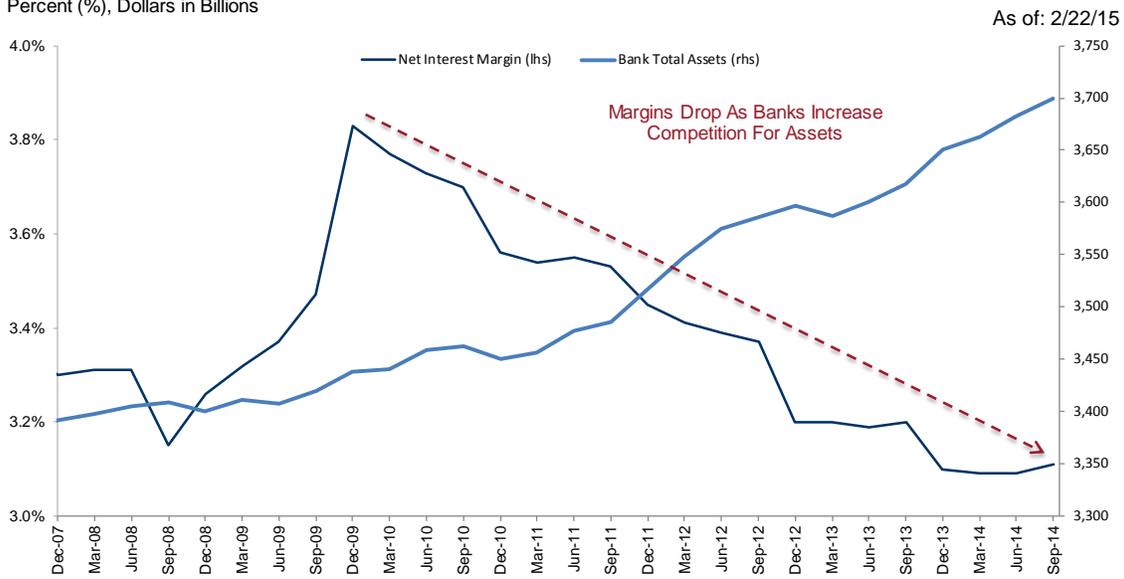


Source: Federal Reserve Bank of Chicago, Makena Analysis

Figure 9: Financial Conditions Remain Near All-time Loosest Levels despite Recent Tightening

US Banks: Net Interest Margin and Total Assets

Percent (%), Dollars in Billions



Source: FRED, Federal Financial Institutions Council, Federal Reserve, Makena Analysis

Figure 10: U.S. Banks Expanding Their Balance Sheets, Creating Credit

Investment Strategy

In last quarter's Strategy Insights letter, we outlined a series of investment recommendations. The above analysis lends further support to these positions:

- i. Continued overweight to U.S. dollar in currency portfolios

As described in detail in the commentary above, fundamentals are aligning for a substantial period of U.S. dollar strength

- ii. *U.S. small and medium enterprise (including Private Equity) vs. large-caps*
With a strong dollar and therefore weaker commodity prices, the U.S. consumer will have newfound disposable income to spend, favoring more domestically-oriented companies
- iii. *Competitive EM over commodity EM (across asset classes)*
While weaker commodity prices hurt commodity exporting nations, it also benefits manufactured goods producing nations through lower input costs. The stronger dollar and increased disposable income available to the U.S. consumer should also benefit manufactured goods producing nations
- iv. *Long Europe exporters and Periphery Intra-Europe Exporters vs. Europe domestic-oriented (e.g. services and retailers)*
Between lower commodity prices and lower wages thanks to internal deflation across most of Europe, European exporters should see margins improve. The weaker Euro will also bolster exports to outside the Eurozone and from peripheral Europe to the core as a substitute for other imports. Meanwhile, domestically-oriented companies will struggle to sell into households with very weak income and income growth outlooks.
- v. *Long U.S. services / non-traded goods companies vs. U.S. exporters*
The flip side of a strong dollar is that export-led U.S. companies will likely see earnings and earnings growth hampered from overseas operations. This is especially the case for European operations of U.S. exporters, where U.S. exporters have little presence beyond sales and marketing, eliminating the natural hedge that occurs with more globally distributed operations.
- vi. *Long EM reformers vs. laggards (across asset classes)*
Some countries have embraced reforms since the last few crises, embracing flexible exchange rates, minimizing interventions in their domestic economies, and in general fostering an environment where private industry can thrive. Those countries should be able to navigate volatility driven by exchange rate and the Fed's moves more successfully than the laggards who have not reformed

The Partners of Makena Capital Management⁷

Analysis by

Michel Del Buono, Global Investment Strategist

⁷ The research referenced and cited in this letter, including the information used to develop the opinions herein, was gathered from sources believed to be accurate, including but not limited to; economic and market data from government and private sources and major external databases, but no independent verification has been made and accuracy is not guaranteed. It should be further noted that, while based on reasonable belief and research, the opinions, projections, and estimates contained herein reflect those of Makena only and should not be construed as absolute statements and are subject to change without notice to you.

IMPORTANT NOTES AND DISCLOSURES

Makena Capital Management, LLC (“Makena”) prepared this document solely for the person to whom it has been given for informational and discussion purposes only. This document and the information contained herein are strictly confidential and may not be reproduced, distributed or communicated, in whole or in part, to any third party without the express approval of Makena. Makena reserves the right at any time to amend or change the contents of this presentation without notice to you.

Under no circumstances should the information presented be considered an offer to sell, or a solicitation to buy, any security referred to in this document. Such offer or solicitation may only be made pursuant to the current offering documents for the Makena Fund (the “Fund” or “Funds”) which may only be provided to accredited investors and qualified purchasers as defined under the Securities Act of 1933 and the Investment Company Act of 1940. This document should be read in conjunction with, and is qualified in its entirety by, information contained in the Funds’ offering documents.

Makena believes that the research used in this presentation is based on accurate sources (including but not limited to economic and market data from various government and private sources and reputable external databases), but we have not independently verified those sources, and we therefore do not guarantee their accuracy. The opinions, projections, and estimates contained herein reflect the views of Makena only and should not be construed as absolute statements and are subject to change without notice to you.

Certain statements in this presentation may constitute forward-looking statements that should not be relied upon as representations of the future performance of any Makena Fund. The past performance of any Makena Fund is not necessarily indicative of future results. The projected performance results presented in this document, if any, are hypothetical and for informational and illustrative purposes only and should not be construed as a guarantee of actual or future performance results of any Makena Fund. Actual performance results may vary significantly from projected performance results due to many factors, including, but not limited to, new issue eligibility, different liquidity terms, timing of investment and other factors.

Certain performance numbers in this presentation may be unaudited, preliminary and based on estimates. Final reported and audited performance numbers may vary considerably from these estimates. Estimated gross and net performance numbers could change materially as final performance figures and underlying investment costs and fees are determined and allocated. Unless otherwise noted, performance is shown net of underlying manager fees and net of the standard Makena fees per the applicable limited partnership agreement, including any incentive fees earned or estimated that a “day one” investor would pay. Asset class performance is shown net of underlying manager fees but gross of Makena fees. Please refer to the offering documents of the Makena funds for complete information regarding fees and expenses. Past performance is not indicative of future results.

Comparison of the performance of any Makena Fund to a benchmark or benchmarks is for illustrative purposes only and the performance of the Makena Funds may differ materially from the performance of the benchmarks due to diversification, asset allocation, volatility or other factors.

If MSCI data is presented be aware that MSCI has not approved, reviewed or produced this report, makes no express or implied warranties or representations and is not liable whatsoever for any data in the report. You may not redistribute the MSCI data or use it as a basis for other indices or investment products.