

U.S. Economics Market and Policy Comments

Fed Chiefs Debate Monetary Normalization While Yellen Passes Off Financial Stability

- The 2008 global financial crisis challenged central banks to modify their accepted policy framework to include a mandate for financial stability. Nevertheless, the Fed has downplayed financial stability as a direct mandate for formulating monetary policy.
- The Bank for International Settlements (BIS) admonished many central banks for succumbing to asymmetric policies over successive business cycles where interest rates are lowered aggressively during downturns, but not raised adequately during expansions. In place of such downward bias for rates, the BIS advocated tightening whenever financial imbalances accumulate, even if inflation appears under control. Chair Yellen rejected the use of monetary policy to limit financial imbalances and incipient asset bubbles because she considers monetary policy to be too blunt an instrument.
- An extreme asymmetric approach to conducting macroprudential policy would be to ignore asset bubbles, and only act to address the fallout if the asset bubble ruptures. Such an approach is most closely associated with former Chairman Greenspan's successful efforts to mitigating the harmful real effects of the burst tech bubble. By contrast, embracing the importance of financial stability as a policy goal, and incorporating it into the monetary policy framework has been emphasized by former Fed Governor Jeremy Stein.
- Chair Yellen has consistently stated that financial stability considerations should be left to macroprudential policies. Such policies would be geared toward increasing the resilience of financial institutions against exogenous shocks. This entails bolstering loss-absorbing capital and liquidity buffers. Their adequacy is measured by the Tier-1 capital ratio and the more demanding leverage ratio. Countercyclical capital buffers under Basel III would provide additional loss absorbing capacity.
- It is uncertain whether quantitative easing leads to more debt and higher leverage, which may induce unintended macroprudential tightening that can dampen real activity. However, macroprudential policy has been conducted in a purely discretionary manner, and subject to the pitfalls of time inconsistency.
- It may be preferable to assign to the Financial Stability Oversight Council (FSOC) all financial stability responsibilities along with appropriate powers to implement and enforce comprehensive macroprudential policies for all financial institutions and markets.

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Fed Chiefs Debate Monetary Normalization While Yellen Passes Off Financial Stability

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Chair Yellen has declared that "...monetary policy faces significant limitations as a tool to promote financial stability."

To paraphrase President Kennedy: Much has been expected from the Fed because much power and independence has been granted to it. Notwithstanding pressures for the Fed to add financial stability as a "main course" in its policy menu, Chair Yellen has pushed back and declared that "...monetary policy faces significant limitations as a tool to promote financial stability."¹ Indeed, Chair Yellen noted that she "...[does] not presently see a need for monetary policy to deviate from a primary focus on attaining price stability and maximum employment...[to] address financial stability concerns." Instead of monetary policy, a macroprudential approach to supervision and regulation has had and will retain primary responsibility for financial stability matters. Consequently, the minutes of the last Federal Open Market Committee (FOMC) meeting show a focus on forging the tools for an exit from the current low-rate policy stance with minimal attention for possibly accelerating the timing of rate increases because of financial imbalances induced by the Fed's use of unconventional monetary measures.

FOMC: Minutes Enlighten Still-Opaque Monetary Normalization and Exit Strategies

We have been expecting more clarity about the Fed's exit strategy in the minutes.

We have been expecting more clarity about the Fed's exit strategy since we published our own best guess about how the Fed will implement its exit strategy.² This week's release of the June FOMC minutes ratified most of our guesses about the supremacy of rates as the Fed's primary policy tool. However, the minutes also raise questions about how rates will be adjusted as policy normalizes.

The FOMC has not agreed to important details about its new operating framework.

The FOMC continues to discuss how to achieve all of the following requirements:(1) the interest on excess reserves (IOER) will "play a central role during the normalization process;" (2) the rate on overnight reverse repurchase agreements (ONRRP) "could play a useful supporting role by helping to firm the floor under money market rates..." and "...that a relatively wide spread...near or above the current level of 20 basis points...would support trading in the federal funds market and provide adequate control over market interest rates;" (3) "...the federal funds rate should continue to play a role in the Committee's operating framework and communications during normalization;" and (4) while the "...ONRRP facility could play an important role ...[during] policy normalization...[several of the FOMC members] did not anticipate that [the ONRRP facility] would be a permanent part of the ...longer-run operating framework."

With the banking system flooded with reserves (\$2.7 trillion), controlling the federal funds rate will be problematic even with the Fed's recently developed capability of paying interest on excess reserves (IOER). That is because Government Sponsored Enterprises (GSEs), such as the Federal Home Loan Banks, can lend into the fed funds markets but are not eligible to deposit at the Fed. Consequently, fed funds currently trade well below IOER (at around 9bps), and is not as tightly linked with other money market rates such as the ONRRP rate.

FOMC discussions implying that the ONRRP rate would play a secondary support role was surprising. This may require the Fed to tighten up the fed funds market to control the fed funds rate, which may entail substantial reserve draining. Yet the

¹ Janet Yellen, "Monetary Policy and Financial Stability" IMF 2014 Michel Camdessus Central Banking Lecture, July 2, 2014 <http://www.federalreserve.gov/newsevents/speech/yellen20140702a.pdf>.

² See William Lee, [Global Economics View - How Will The New Fed Exit Strategy Work?](#) June 16, 2014.

It is puzzling that the ONRRP will not be one of the Fed's primary policy rates along with the IOER.

FOMC minutes suggest reserve draining tools such as term deposits and term repo facilities will only be used "if necessary."

Also, with the ONRRP more tightly connected to longer-term interest rates than the federal funds rate, it is puzzling that it will not become the Fed's primary policy rate along with the IOER. The FOMC expressed concerns that its presence in the ONRRP market may distort an important short-term funding facility for financial and nonfinancial corporations.

However, we do not believe it is necessary that the Fed must be in the repo markets in size to influence its rate. Continued preference for targeting the fed funds market reflects surprising conservatism among some FOMC members in light of their radical use of unconventional monetary policy tools since the crisis.

There were no surprises about the prospective end to asset purchases, nor to the FOMC's assessment of economic conditions (even in light of the surprisingly weak first quarter GDP revision). The Fed's exit tools and tactics are clearly a "work in progress," and discussions within the FOMC will continue. The sooner market participants are informed about the new operating framework, the less uncertainty and speculation there will be about how prospective tightening moves will be implemented.

Chair Yellen: Financial Stability Is Not a Monetary Policy Target

The 2008 global financial crisis challenged central banks to modify their accepted policy framework to include a mandate for financial stability.

The 2008 global financial crisis challenged central banks to modify their accepted policy framework to include a mandate for financial stability. Events showed that targeting price stability and full employment were not enough to ensure macroeconomic stability when financial imbalances undermined the integrity of the financial system. It became obvious that central bank toolkits had to be redesigned to include macroprudential tools, and policy strategies expanded to incorporate intermediate targets addressing financial stability.

Nevertheless, the Fed has downplayed financial stability as a direct mandate for formulating monetary policy.

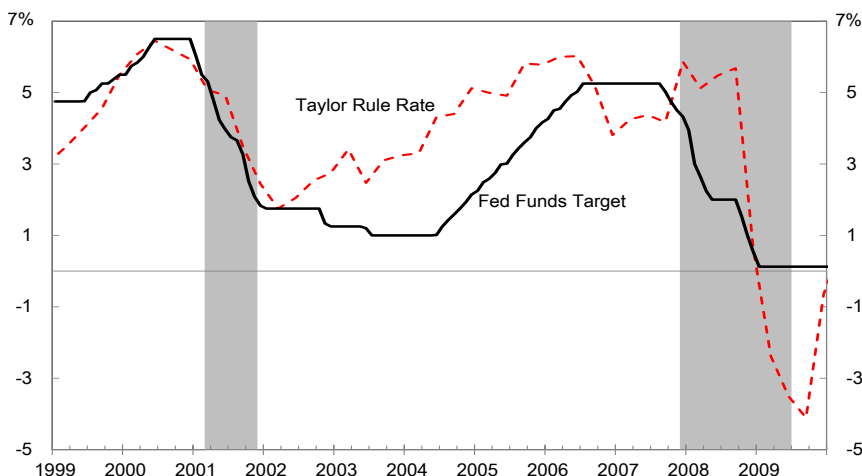
Nevertheless, the Fed has downplayed financial stability as a direct mandate for formulating monetary policy. To be sure, there has been growing recognition of ever-greater harmful externalities from the interactions of financial cycles and business cycles. For example, the prolonged period of low policy rates to spur growth following the bursting of the tech bubble in 2000 allowed leverage to grow substantially, which amplified financial market risks that led to the great financial crisis of 2008.

The following section explores several ways in which financial stability considerations may enter into central bank mandates. It also assesses Chair Yellen's reasons for favoring one over the others.³

³ Chair Yellen's analysis is found in her IMF lecture, Ibid.

Figure 1. Fed Policy Rate Was Too Low for Too Long and Was Not Raised Enough to Stop Ballooning of Housing Bubble

Taylor rule would have raised fed funds rate in 2002 and kept it higher for longer than the FOMC



Source: Citi Research.

Ex-Ante Strategies: Forestalling Financial Imbalances

The Fed had been unaware of the buildup in financial imbalances and risks during the prolonged period of low interest rates that eventually led to the 2008 financial crisis.

A strong case can be made that the Fed had been unaware of the buildup in financial imbalances and risks during the prolonged period of low interest rates for the years after 2000, which eventually led to the 2008 financial crisis. **Figure 1** shows that following the bursting of the tech bubble in 2000, the fed funds target rate could have been raised as early as 2002 when GDP began to rebound steadily. Such a trajectory is what the Taylor rule would have prescribed.

Chair Yellen admitted that the Fed failed to anticipate the severe impact on the real economy resulting from a bursting of the housing bubble.

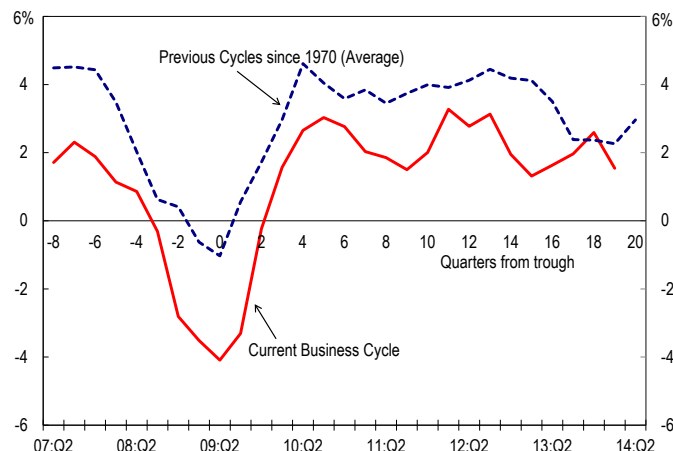
In retrospect, Chair Yellen admitted that the Fed failed to anticipate the severe impact on the real economy resulting from a bursting of the housing bubble (**Figure 2**). She noted that they recognized the growing overvaluation of homes at the time, and presumably the accompanying high leverage and lax underwriting standards that led to unsustainably high levels of home ownership (**Figure 3**). Indeed, the housing bubble was exacerbated and overinflated through the extensive use of exotic financial instruments designed to redistribute the risks from lenders to investors who did not realize the nature of risks they were taking on because these complex derivative products traded in nontransparent and often illiquid markets.⁴

The BIS admonished many central banks for succumbing to asymmetric policies over successive business cycles where interest rates were lowered aggressively during downturns, but not raised enough during expansions.

In its recent annual report, the Bank for International Settlements (BIS) admonished many central banks for succumbing to asymmetric policies over successive business cycles where interest rates were lowered aggressively during downturns, but not raised enough during expansions. A Wicksellian perspective would have predicted an outcome with excess leverage, expanded balance sheets, and inflated asset prices if monetary policy held interest rates below their equilibrium rate for a prolonged period.

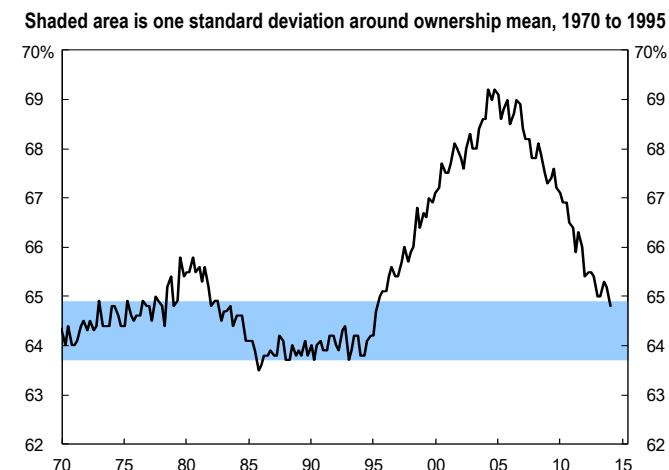
⁴ Such risk transfers created incentives for lenders to extend loans to even the most unqualified borrowers because the risks were passed on to investors who unknowingly assumed a portfolio of loans with higher-than-expected default risk.

Figure 2. Protracted Slow Growth Is An Unintended Consequence of Deleveraging and Other Fallout Following Real Estate Bust



Sources: Haver, Citi Research.

Figure 3. Low Rates and Lax Lending Standards Boosted Ownership Share to Unsustainable Levels Before Crisis



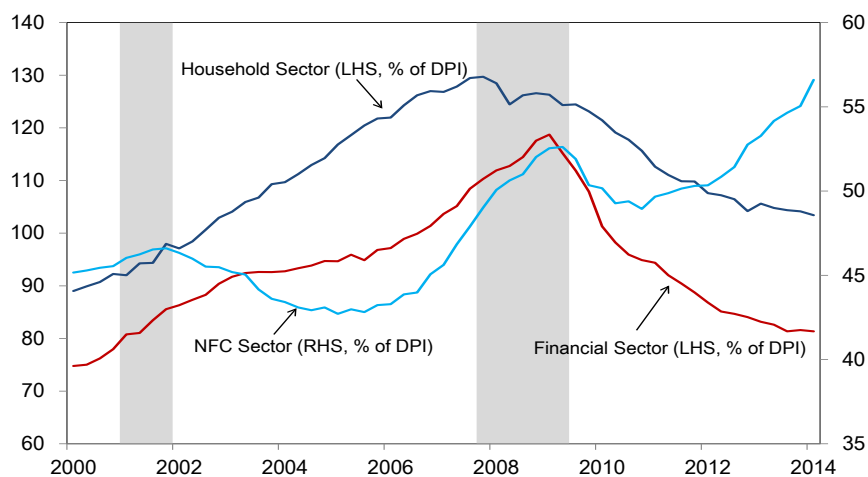
Sources: Haver, Citi Research.

In place of such downward bias for rates, the BIS advocated tightening whenever financial imbalances accumulate, even if inflation appears under control.

In place of such a downward bias for rates, the BIS advocated tightening whenever financial imbalances accumulate, even if inflation appears under control. They reasoned that imparting a downward bias in interest rates would raise debt levels and leverage, which distorts production and investment patterns (**Figure 4**). The BIS concluded that a cyclical downward bias in interest rates results in a "debt trap," wherein high debt levels may prevent interest rates from rising back toward their equilibrium rate.⁵

Figure 4. Pre-Crisis Rise in Leverage Reverses for All But Corporate Sector

Corporate share buy-backs dissipate impact of Fed Quantitative Easing on boosting investment



Sources: Haver, Federal Reserve, Citi Research.

⁵ See BIS "In Search of a New Compass," 2014 Annual Report, Chapter 1
<http://www.bis.org/publ/arpdf/ar2014e1.pdf>.

Chair Yellen rejected the use of monetary policy to limit financial imbalances and incipient asset bubbles because she considers monetary policy to be too blunt an instrument.

Chair Yellen rejected the use of monetary policy to limit financial imbalances and incipient asset bubbles because she considers monetary policy to be too blunt an instrument.⁶ In her judgment, there would be sizable adverse effects, such as higher unemployment, if interest rates were used to mitigate emerging financial vulnerabilities, e.g., dampening house price increases or limiting leverage. Moreover, higher unemployment rates would reduce the ability of households to service or repay existing debt, possibly exacerbating the downside effects of a burst bubble.

Ex-Post Strategies: Mopping Up Burst Bubbles

An extremely asymmetric approach to conducting macroprudential policy would be to ignore asset bubbles, and only act to address the fallout if the asset bubble ruptures.

An extremely asymmetric and "anti-Wicksell" approach to conducting macroprudential policy would be to ignore asset bubbles, and only act to address the fallout if the asset bubble ruptures. One rationale for this approach is that it recognizes the difficulties in identifying incipient asset bubbles—indeed the almost impossibility of identifying all but the most flagrant full-blown bubbles. So, monetary policy would be mobilized only when it is not possible to achieve inflation and unemployment targets.

Such an approach is most closely associated with former Chairman Greenspan's successful efforts to mitigating the harmful real effects of the burst tech bubble.

Such an approach is most closely associated with former Chairman Greenspan's successful efforts to mitigating the harmful real effects of the burst tech bubble in late 1999, with a substantial (400 bps) decline in the policy rate between 1999Q4 and 2001Q4. Unfortunately, some believe that the seeds of the housing bubble were sown during this period because the policy rate was maintained at relatively low levels (e.g., below 2 percent) for almost two years.

Proactive Strategy: Balance Macro and Financial Stability Goals

Embracing the importance of financial stability as a policy goal and incorporating it into the monetary policy framework has been emphasized by former Fed Governor Jeremy Stein.

Embracing the importance of financial stability as a policy goal and incorporating it into the monetary policy framework has been emphasized by former Fed Governor Jeremy Stein.⁷ Operationally, the key question to be resolved would be how large a shortfall in the traditional macro mandate (e.g., full employment and price stability) would be tolerated to address a change in financial sector vulnerability? This presumes there are transparent unambiguous metrics available for gauging important financial vulnerabilities.

Stein championed using monetary policy for financial stability and macro objectives because its effects are broad and influence all financial institutions and capital markets.

Stein championed using monetary policy for financial stability and macro objectives because its effects are broad and influence all financial institutions and capital markets. Specifically, he proposed using credit risk and term premia as measures of financial market vulnerability for guiding monetary policy changes. When such spreads are "low," the possibility of disruptive spikes (reversions) reduces the incentive for monetary policy to reduce such spreads further to achieve reductions in the other macro objectives. **Consequently this implies a less dovish monetary policy stance when such financial stability considerations are in play.**

⁶ Janet Yellen, op. cit.

⁷ This section draws from the discussion in Jeremy Stein "Incorporating Financial Stability Considerations in a Macroeconomic Policy Framework," March 21, 2014, <http://www.federalreserve.gov/newsevents/speech/stein20140321a.pdf>.

The ability to conduct financial market surveillance—to detect the buildup of systemic risk and understand its threat to financial stability—is a vital prerequisite for engaging proactive monetary policy.

The ability to conduct financial market surveillance—to detect the buildup of systemic risk and understand its threat to financial stability—is a vital prerequisite for engaging in proactive monetary policy. When she was Vice-Chair of the Federal Reserve Board, Janet Yellen advocated more surveillance-enhancing research into preconditions and alignments that lead to systemic events that impair the financial sector's ability to intermediate.

For Chair Yellen, accumulation of high levels of risk and leverage, excessive reliance on unstable short-term funding, and correlated risk exposures across a wide array of institutions (e.g., commercial banks, investment banks, insurance companies, and other financial institutions) constitute an important constellation of risk factors. Unfortunately, Yellen's measures have an institutional bias—they apply largely to banks and intermediaries. Yet many financial crises have originated in the capital markets (e.g. LTCM and the Asian crisis), and detecting a buildup of systemic risk there is much more difficult because there are no measures that can proxy for systemic risk in capital markets as there are for banks and financial institutions.

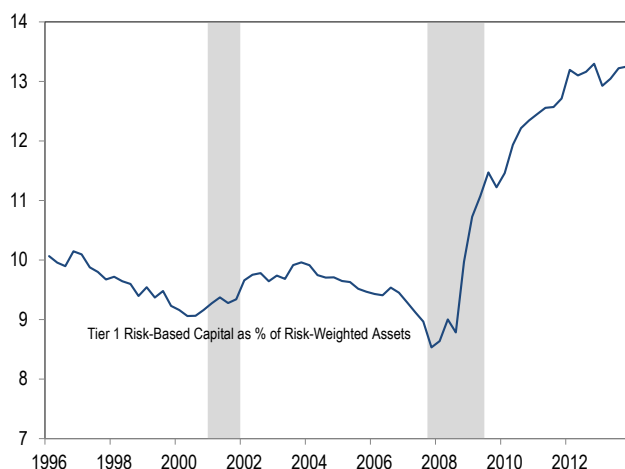
Passive Strategy: Bolster Financial Institutions and Market Infrastructure

Chair Yellen has consistently stated that financial stability considerations should be left to macroprudential policies.

Although easy monetary policy may create incentives for more risk taking and higher leverage, Chair Yellen has consistently stated that financial stability considerations should be left to macroprudential policies. The primary objective is to limit incentives for excessive risk taking by financial institutions and market participants. Such policies entail the use of non-interest-rate tools to deal with problems arising from the behavior of asset prices. A range of tools are available to target different sources of risk (e.g., use market- or sector-specific policies).

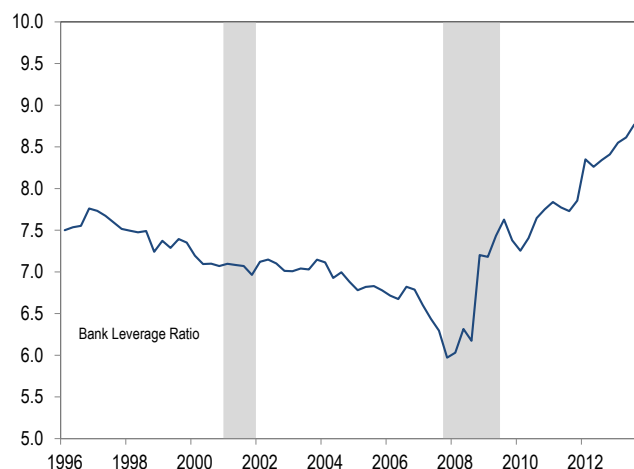
Strategically, Chair Yellen would direct macroprudential tools toward two aspects of increasing financial resilience: (1) increase the resilience of the financial system to withstand adverse shocks and other exogenous developments; (2) increase the resilience of the system against endogenously caused financial excesses. Unfortunately, there has not been any research on developing policy rules to guide the operation of these macroprudential instruments. This leaves their operation entirely at the discretion of regulators and supervisors.

Figure 5. Capital Ratios Rise Sharply



Source: Federal Reserve Bank of New York.

Figure 6. Leverage Ratios Improve



Note: Leverage Ratio is Tier 1 Risk-Based Capital as percent of Average Total Assets.
Source: Federal Reserve Bank of New York.

Increasing the resilience of financial institutions against exogenous shocks includes bolstering loss-absorbing capital and liquidity buffers. Their adequacy is measured by the Tier-1 capital ratio and the more demanding leverage ratio.

Countercyclical capital buffers under Basel III provide additional loss absorbing capacity.

We do not know whether quantitative easing leads to more debt and higher leverage that induces unintended macroprudential tightening.

Also, macroprudential policy has been conducted in a purely discretionary manner, and is subject to the pitfalls of time inconsistency.

It may be preferable to assign all financial stability responsibilities to the FSOC along with appropriate powers to implement and enforce comprehensive macroprudential policies for all financial institutions and markets.

Tools for Building Resilience:

Increasing the resistance and durability of financial institutions against exogenous shocks begins with bolstering loss-absorbing *capital and liquidity buffers*. Their adequacy would be measured by the Tier-1 capital ratio and the more-demanding leverage ratio (**Figure 5 and Figure 6**). To limit contagion, an effective *resolution regime* could offset the impact of a failure of a systemically important financial institution (SIFI). Moreover, a *broad supervisory and regulatory net* to encompass connected firms and markets, may allow early warning of emerging systemic risks. At this point, the Fed and other US financial regulators make use of *stress tests* of banks (as the presumed nexus of markets and other financial institutions) to detect systemic vulnerabilities. Also, the Fed itself controls (rarely changed) margin requirements that also may limit speculative market excesses.

Countercyclical capital buffers under Basel III provide additional loss absorbing capacity during periods of rapid credit growth, while limiting incentives for such credit expansion. Similarly, *countercyclical minimum margin requirements* would also serve to limit endogenous excesses. Finally, *moral suasion* from the army of bank supervisors and examiners provides possibilities of fine-tuning idiosyncratic bank exposures and risk over the cycle.

Concluding Thoughts

Chair Yellen has decided to assign monetary and macroprudential policies to macroeconomic and financial stability objectives, respectively. The underlying paradigm acknowledges that each policy instrument has a comparative advantage for achieving its respective goal. In an ideal world, the results from the Mundell assignment problem assure us of an adequate (if not optimal) outcome even without full coordination.

In reality, we do not know whether quantitative easing incentivizes acquiring more debt and raises leverage such as to induce unintended macroprudential tightening, which can dampen the economic recovery. Moreover, unlike monetary policy, which has well-researched and well-understood policy rules with which to benchmark performance, macroprudential policy has been conducted in a purely discretionary manner, and is subject to the pitfalls of time inconsistency.

Indeed, since the passage of Basel III and the Dodd-Frank legislation, there has been a large number of regulatory and supervisory adjustments and revisions to the calculation of key supervisory ratios, the arbitrary design of acceptable stress scenarios, and other details of implementing targeted macroprudential policy. This has generated high levels of uncertainty that can hinder efficient intermediation by banks and financial markets.

It is clear that there is much work facing the Financial Stability Oversight Council (FSOC). It has to coordinate the identification of systemic risks emerging from different corners of financial institutions and markets, and design the appropriate response for each regulator. The Fed's solution to the assignment problem must be judged in the context of all these macroprudential instruments wielded by the various regulatory agencies. It may be preferable to assign all financial stability responsibilities to the FSOC and grant it appropriate powers to implement and enforce comprehensive macroprudential policies for all financial institutions and markets.

July-August 2014

Monday	Tuesday	Wednesday	Thursday	Friday
<p>7</p> <p>Auction 3 & 6 Mth. Bills: \$48.0B</p>	<p>8</p> <p>Small Business (Jun)</p> <p>Consumer Credit Apr \$26.1B May \$19.6B</p> <p>Auction 3-Yr. Note: \$27.0B Auction 1 Mth. Bill: \$35.0B</p>	<p>9</p> <p>Mortgage Applications</p> <p>FOMC Minutes Released</p> <p>Auction 10-Yr. Note(r):\$21.0B</p>	<p>10</p> <p>Jobless Claims 7/5 304 Thous</p> <p>Wholesale Inventories Apr 1.0% May 0.5%</p> <p>Auction 30-Yr. Bond(r): \$13.0B</p>	<p>11</p> <p>Federal Budget Balance Jun 13 \$116.5B Jun 14(E)</p>
<p>14</p> <p>Auction 3 & 6 Mth. Bills: \$48.0B(E)</p>	<p>15</p> <p>Empire State Manufacturing Jun 19.3 Jul</p> <p>Import Price Index <u>Total</u> <u>ExPetro</u> May 0.1% -0.1% Jun(E)</p> <p>Retail Sales <u>Total</u> <u>ExAuto</u> May 0.3% 0.1% Jun(E) 0.7% 0.6%</p> <p>Business Inventories Apr 0.6% May(E) 0.6%</p> <p>Auction 1 Mth. Bill: \$40.0B(E)</p>	<p>16</p> <p>Mortgage Applications</p> <p>Producer Price Index <u>Final Demand</u> <u>ExF&E</u> May -0.2% -0.1% Jun(E)</p> <p>Industrial Prod. & Cap. Util. May 0.6% 79.1% Jun(E)</p> <p>Housing Market Index Jun 49 Jul</p> <p>Beige Book</p>	<p>17</p> <p>Jobless Claims 7/12 315 Thous(E)</p> <p>Housing Starts and Permits Jun 1,001K 1,005K Jul(E) 1,025K 1,015K</p> <p>Philly Outlook Survey Jun 17.8% Jul(E) 15.0%</p> <p>Ann. 10-Yr. TIPS: \$15.0B(E)</p>	<p>18</p> <p>Reuters/Michigan Sentiment JunF 82.5 JulP(E) 81.5</p> <p>Leading Indicators May 0.5% Jun(E)</p>
<p>21</p> <p>Auction 3 & 6 Mth. Bills: \$48.0B(E)</p>	<p>22</p> <p>Consumer Price Index <u>Total</u> <u>ExF&E</u> May 0.4% 0.3% Jun(E)</p> <p>Real Earnings (Jun) FHFA (May)</p> <p>Existing Home Sales May 4.89M Jun(E)</p> <p>Auction 1 Mth. Bill: \$40.0B(E)</p>	<p>23</p> <p>Mortgage Applications</p>	<p>24</p> <p>Jobless Claims 7/19</p> <p>New Home Sales May 504K Jun(E)</p> <p>Ann. 2-Yr. FRN: \$15.0B(E) Ann. 2-Yr. Note: \$29.0B(E) Ann. 5-Yr. Note: \$35.0B(E) Ann. 7-Yr. Note: \$29.0B(E) Auction 10-Yr. TIPS: \$15.0B(E)</p>	<p>25</p> <p>Durable Goods Orders <u>Total</u> <u>ExTrans</u> May -0.9% 0.0% Jun(E)</p>
<p>28</p> <p>Pending Home Sales (May)</p> <p>Auction 3 & 6 Mth. Bills: \$50.0B(E) Auction 2-Yr. Note: \$29.0B(E)</p>	<p>29</p> <p>S&P/CaseShiller (May)</p> <p>Consumer Confidence Jun 85.2 Jul(E)</p> <p>FOMC Meeting</p> <p>Auction 2-Yr. FRN: \$15.0B(E) Auction 5-Yr. Note: \$35.0B(E) Auction 1 Mth. Bill: \$40.0B(E)</p>	<p>30</p> <p>Mortgage Applications</p> <p>ADP Employment (Jul)</p> <p>GDP & Chain Price Index 1Q14F -2.9% 1.3% 2Q14A(E)</p> <p>Farm Prices (Jul)</p> <p>FOMC Meeting</p> <p>Auction 7-Yr. Note: \$29.0B(E)</p>	<p>31</p> <p>Jobless Claims 7/26</p> <p>Employment Cost Index <u>Q/Q</u> <u>Y/Y</u> 1Q14 0.3% 1.8% 2Q14(E)</p> <p>Chicago Barometer <u>PMI</u> <u>Prices</u> Jun 62.6 65.9 Jul(E)</p>	<p>Aug 1</p> <p>Employment Jun Jul(E)</p> <p>Payrolls 288K Unemp. Rate 6.1% Avg. Hrly. Earn. 0.2% Priv. Wrkwk 34.5H</p> <p>Personal Income & Consumption May 0.4% 0.2% Jun(E)</p> <p>Reuters/Michigan Sentiment JulP(E) 81.5 JulF(E)</p> <p>ISM Manufacturing PMI Prices Jun 55.3 58.0 Jul(E)</p> <p>Construction PIP May 0.1% Jun(E)</p> <p>Total Vehicle Sales Jun 16.9M Jul(E)</p>

(E) Indicates Citigroup estimates. (A) Advance. (P) Preliminary. (F) Final. (UNCH) Unchanged. (R) Revised. Contributors: Martha Berasain and Cathy Gaeta.

Appendix A-1

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