Prefatory Note

The attached document represents the most complete and accurate version available based on original files from the FOMC Secretariat at the Board of Governors of the Federal Reserve System.

Please note that some material may have been redacted from this document if that material was received on a confidential basis. Redacted material is indicated by occasional gaps in the text or by gray boxes around non-text content. All redacted passages are exempt from disclosure under applicable provisions of the Freedom of Information Act.

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Class I FOMC – Restricted Controlled (FR)

Report to the FOMC on Economic Conditions and Monetary Policy

Book B

Monetary Policy: Strategies and Alternatives

December 8, 2011

Prepared for the Federal Open Market Committee
by the staff of the Board of Governors of the Federal Reserve System

Monetary Policy Strategies

The staff's estimates of short-run r^*—the real federal funds rate that, if maintained, would return output to its potential in 12 quarters—generally have not changed significantly since the October Tealbook. As shown in the exhibit, "Equilibrium Real Federal Funds Rate," all but one of the estimates of the equilibrium real federal funds rate continue to be more negative than the estimated actual real federal funds rate, and all are low by historical standards. The estimates of short-run r^* generated by the FRB/US model and the EDO model that are conditioned on the staff's outlook for the economy (that is, the "Tealbook-consistent" measures) are essentially unrevised. The reason these r^* estimates are largely unchanged despite a downward revision to the staff outlook for economic activity is that the staff also lowered the past and projected path for potential GDP. However, the short-run r^* estimates derived from the small structural model and the single-equation model increased by 30 and 40 basis points, respectively. The r^* estimates derived from these models shifted up in response to the staff's reassessment of the historical level of potential output, which implied that the current output gap is narrower than previously estimated. Finally, the r^* estimates produced by the FRB/US model and the EDO model based on their own projections revised up a little, reflecting small movements since October in the models' output gap projections over the medium term.

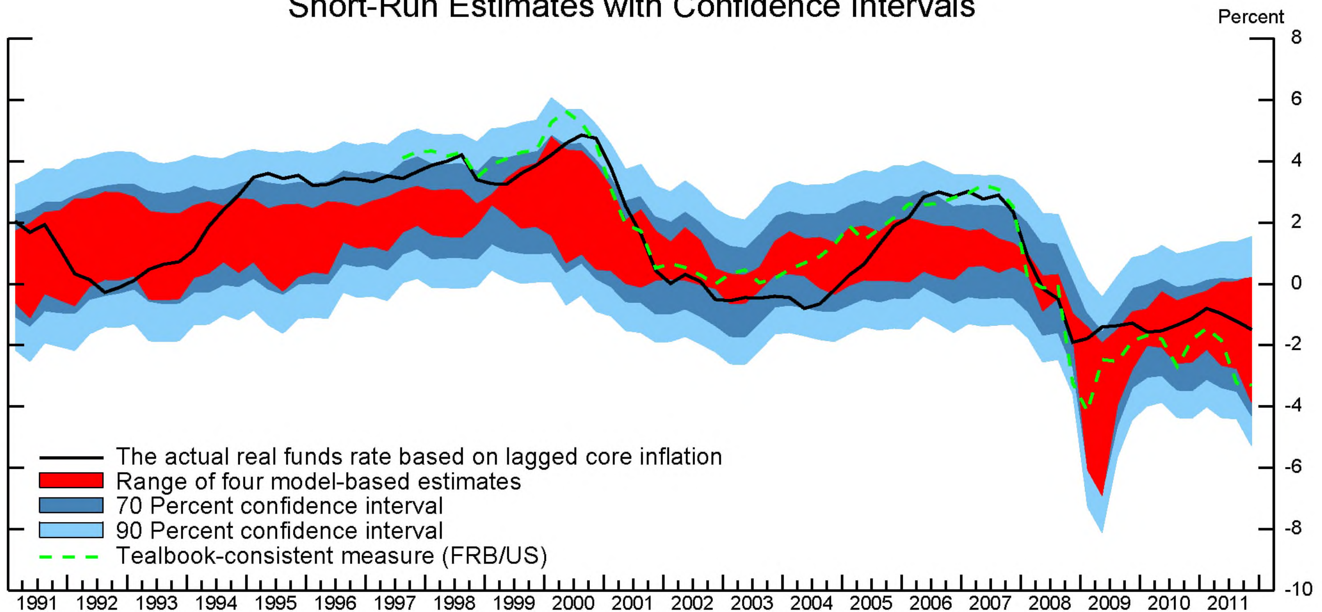
The staff's outlook for inflation and resource utilization over the medium-term has changed little over the intermeeting period. Consequently, the policy prescriptions from optimal control simulations of the FRB/US model that take account of the underlying economic conditions in the extended staff baseline projection line up fairly closely with those reported in the previous Tealbook.[1] This result is shown in the exhibit "Constrained vs. Unconstrained Monetary Policy." In these simulations, policymakers are assumed to place equal weights on keeping headline PCE inflation close to a 2 percent inflation goal, on keeping the unemployment rate close to the staff's estimate of the effective natural rate of unemployment, and on minimizing changes in the federal funds rate.

[1] The staff's baseline forecast incorporates the effects of the large-scale asset purchase program that was completed at the end of June, as well as the effects of the maturity extension program and the modifications announced in September to the Federal Reserve's reinvestment policies. As a result, these effects have been incorporated into the optimal policy simulations.

Strategies

Equilibrium Real Federal Funds Rate

Short-Run Estimates with Confidence Intervals



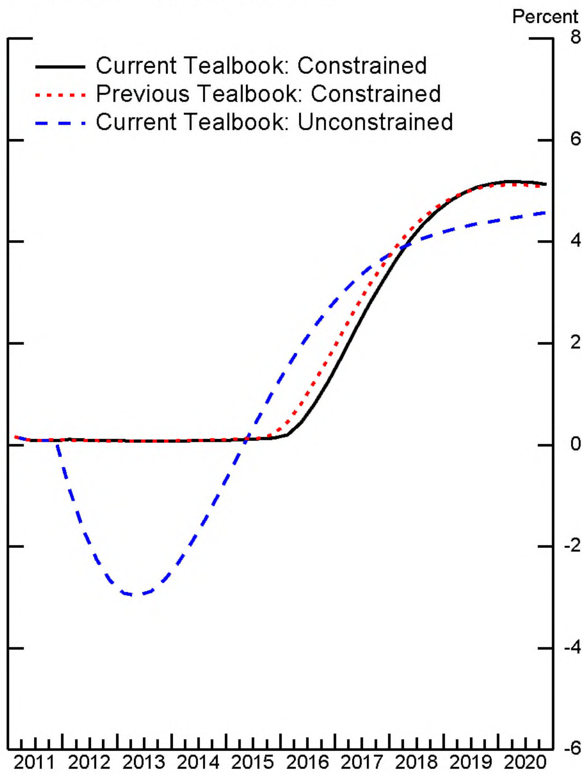
Short-Run and Medium-Run Measures

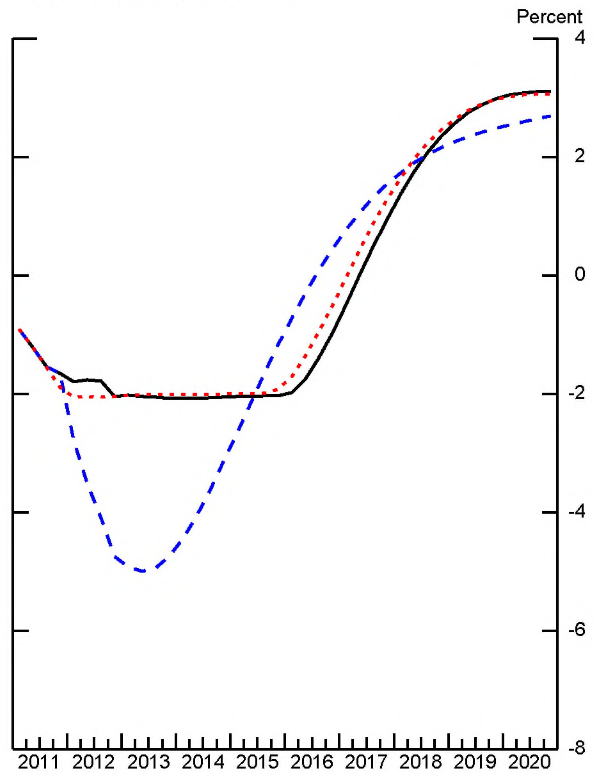
	Current Tealbook	*Previous Tealbook*
Short-Run Measures		
Single-equation model	-1.8	*-2.2*
Small structural model	-3.9	*-4.2*
EDO model	0.3	*-0.3*
FRB/US model	-3.1	*-3.2*
Confidence intervals for four model-based estimates		
70 percent confidence interval	-4.3 to 0.2	
90 percent confidence interval	-5.3 to 1.5	
Tealbook-consistent measures		
EDO model	-4.4	*-4.3*
FRB/US model	-3.3	*-3.3*
Medium-Run Measures		
Single-equation model	0.9	*0.9*
Small structural model	0.5	*0.6*
Confidence intervals for two model-based estimates		
70 percent confidence interval	-0.2 to 1.6	
90 percent confidence interval	-0.7 to 2.4	
TIPS-based factor model	1.7	*1.8*
Memo		
Actual real federal funds rate	-1.5	*-1.5*

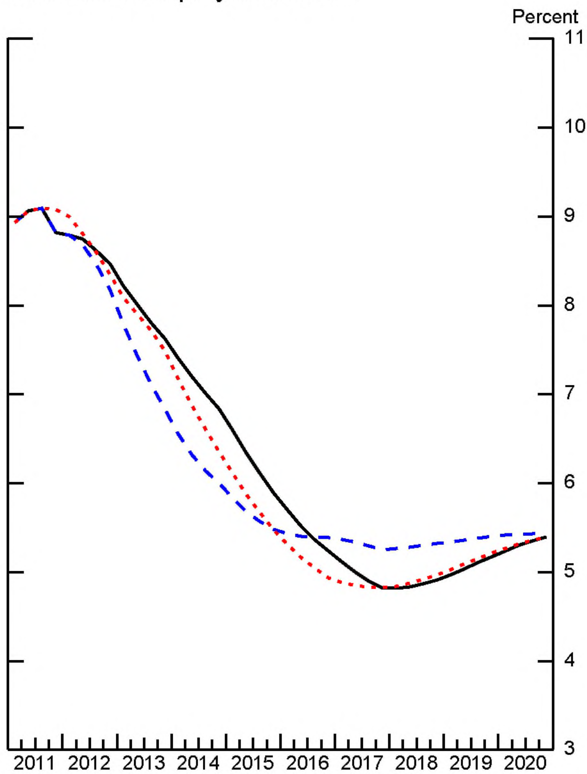
Note: Explanatory Note A provides background information regarding the construction of these measures and confidence intervals. The actual real federal funds rate shown is generated using lagged core inflation as a proxy for inflation expectations. For information regarding alternative measures, see Explanatory Note A.

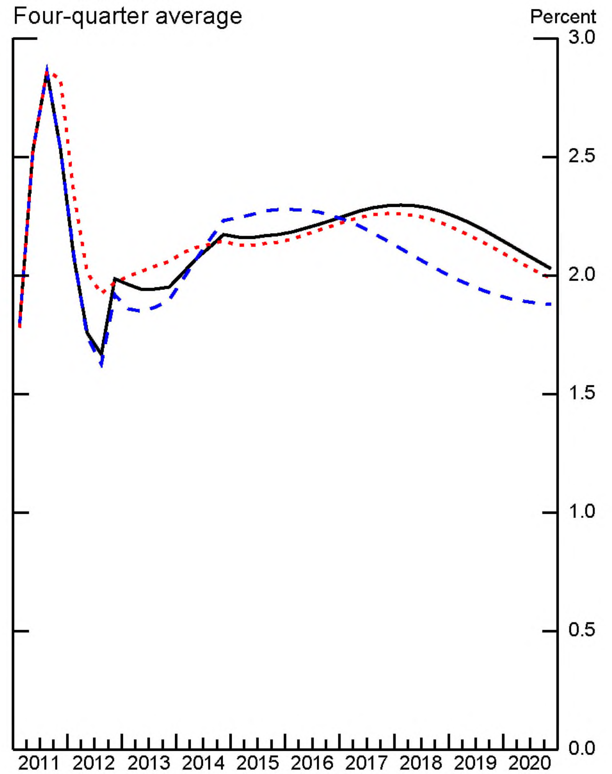
Strategies

Constrained vs. Unconstrained Monetary Policy (2 Percent Inflation Goal)









The simulations indicate that the optimal path for the federal funds rate does not begin to rise appreciably above zero until mid-2016, about one quarter later than in the previous Tealbook.[2] By keeping the funds rate near zero for such a long stretch of time, optimal policy would promote a faster pace of economic recovery than under the baseline as well as somewhat higher inflation over the medium run.[3] Specifically, the unemployment rate would fall to 5¼ percent by 2016 (thereby undershooting the staff's estimate of the effective natural rate of unemployment for a time) and headline inflation would be running at about 2¼ percent. In contrast, the baseline staff forecast shows the unemployment rate falling to only 6½ percent and inflation running closer to 1½ percent in 2016 (not shown).

If the nominal federal funds rate could fall below zero, the funds rate under optimal policy would decline to minus 3 percent in the first half of 2013 and would not turn positive until the second quarter of 2015. In this case, the unemployment rate would decline more rapidly than under the constrained policy and would then remain roughly stable at about 5½ percent after 2015. Under the constrained policy, inflation would stay above target for longer than under the unconstrained policy, as policymakers are assumed to respond to the lower bound constraint by credibly promising a period of modestly elevated future inflation in order to boost inflation expectations and lower real rates over the early part of the simulation.

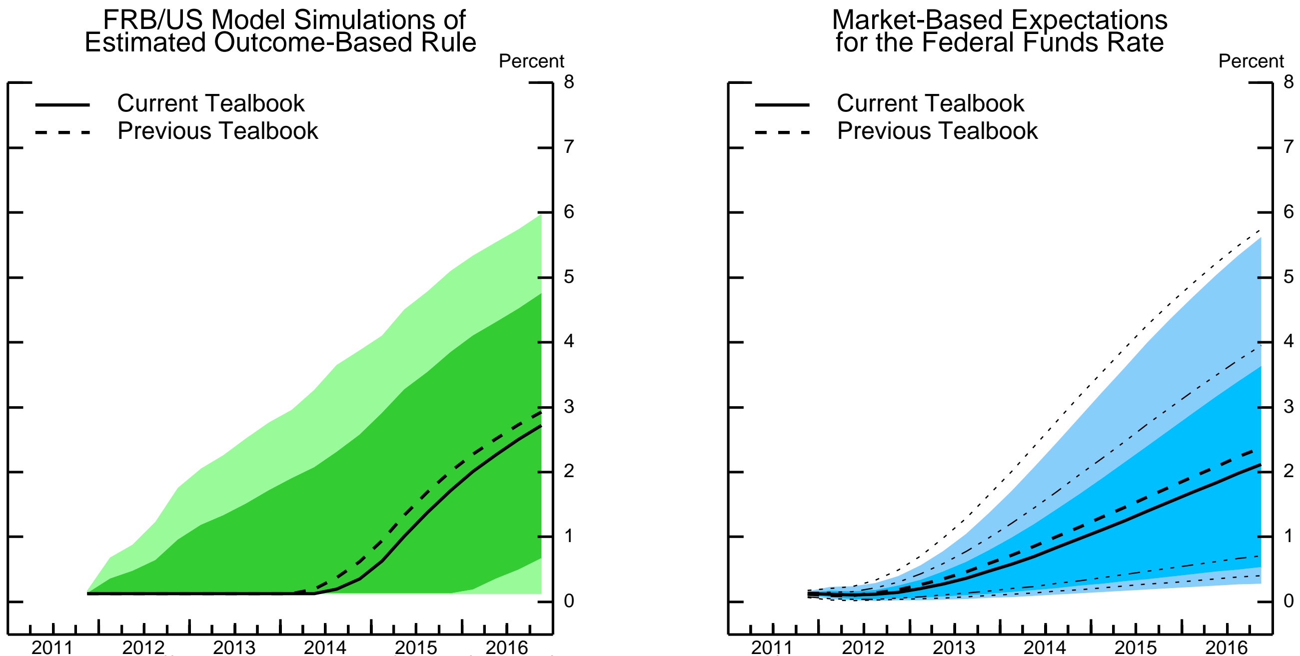
As shown in the upper left panel of the exhibit "Policy Rules and Market-Based Expectations for the Federal Funds Rate," the funds rate projection implied by the estimated outcome-based policy rule is little changed relative to the October Tealbook. According to this rule, the funds rate is expected to move above its effective lower bound in the fourth quarter of 2014—about one quarter later than in the previous Tealbook—and then to rise to 2¾ percent by the end of 2016.[4] As shown in the upper right panel,

[2] Although the loss function uses headline inflation instead of core inflation, the real federal funds rate shown in the upper right panel of the exhibit is calculated as the difference between the nominal funds rate and a four-quarter moving average of core PCE inflation. Core PCE inflation is used to compute the real rate because it provides a less volatile measure of inflation expectations than a four-quarter moving average of headline inflation, and because it makes the real rate path shown in this exhibit easier to compare with measures of the real rate reported elsewhere.

[3] These simulations embed the assumption that policymakers can credibly commit to a policy rate path that extends many years into the future, conditional on underlying economic conditions unfolding as expected.

[4] The estimated outcome-based rule depends on the lagged federal funds rate, defined as the actual policy rate observed in the previous quarter, which has been constrained by its effective lower bound since

Policy Rules and Market-Based Expectations for the Federal Funds Rate



Note: The staff baseline projection for the federal funds rate is derived from the outcome-based policy rule shown in the top-left panel. The top-right panel depicts the mean path and confidence intervals of future federal funds rates derived from market quotes as of December 7. In both panels, dark and light shadings represent the 70 and 90 percent confidence intervals respectively. Explanatory Note B provides further background information.

Near-Term Prescriptions of Simple Policy Rules

	Constrained Policy		Unconstrained Policy	
	2012Q1	2012Q2	2012Q1	2012Q2
Taylor (1993) rule	**0.90**	**0.59**	**0.90**	**0.59**
Previous Tealbook	*0.86*	*0.62*	*0.86*	*0.62*
Taylor (1999) rule	**0.13**	**0.13**	**-1.82**	**-2.15**
Previous Tealbook	*0.13*	*0.13*	*-2.09*	*-2.28*
Estimated outcome-based rule	**0.13**	**0.13**	**-0.11**	**-0.42**
Previous Tealbook Outlook	*0.13*	*0.13*	*-0.12*	*-0.39*
Estimated forecast-based rule	**0.13**	**0.13**	**-0.27**	**-0.61**
Previous Tealbook Outlook	*0.13*	*0.13*	*-0.24*	*-0.60*
First-difference rule	**0.13**	**0.13**	**-0.02**	**-0.14**
Previous Tealbook Outlook	*0.13*	*0.13*	*0.03*	*0.01*

Memo	2012Q1	2012Q2
Staff assumption	0.08	0.10
Fed funds futures	0.10	0.13
Median expectation of primary dealers	0.13	0.13
Blue Chip forecast (December 1, 2011)	0.10	0.10

Note: In calculating the near-term prescriptions of these simple policy rules, policymakers' long-run inflation objective is assumed to be 2 percent. Explanatory Note B provides further background information. For rules which have the lagged policy rate as a right-hand-side variable, the lines denoted "Previous Tealbook Outlook" report rule prescriptions based on the previous Tealbook's staff outlook, but jumping off from the average value for the policy rate thus far in the quarter.

information from financial markets suggests that investors' expectations for the path of the federal funds rate have declined only slightly since the October Tealbook. Market participants continue to expect the funds rate to remain within its current target range until the second half of 2013. Thereafter, funds rate expectations are estimated to rise a bit more gradually than in the previous Tealbook, reaching about 2 percent by the end of 2016.

The lower panel of the exhibit provides near-term prescriptions from simple policy rules.[5] As shown in the left-hand columns, prescriptions for the federal funds rate from most of the rules remain at or near the effective lower bound.[6] The right-hand columns display the prescriptions that would arise from these rules in the absence of the lower-bound constraint. While the staff foresees a narrower output gap over the near-term than in the October Tealbook, near-term inflation projections have declined a little, with the consequence that, on net, prescriptions from all rules have remained broadly unchanged compared with the October Tealbook.

late 2008. See the accompanying box "Policy Rule Prescriptions and the Lower Bound on Interest Rates" for a discussion of possible responses to this constraint.

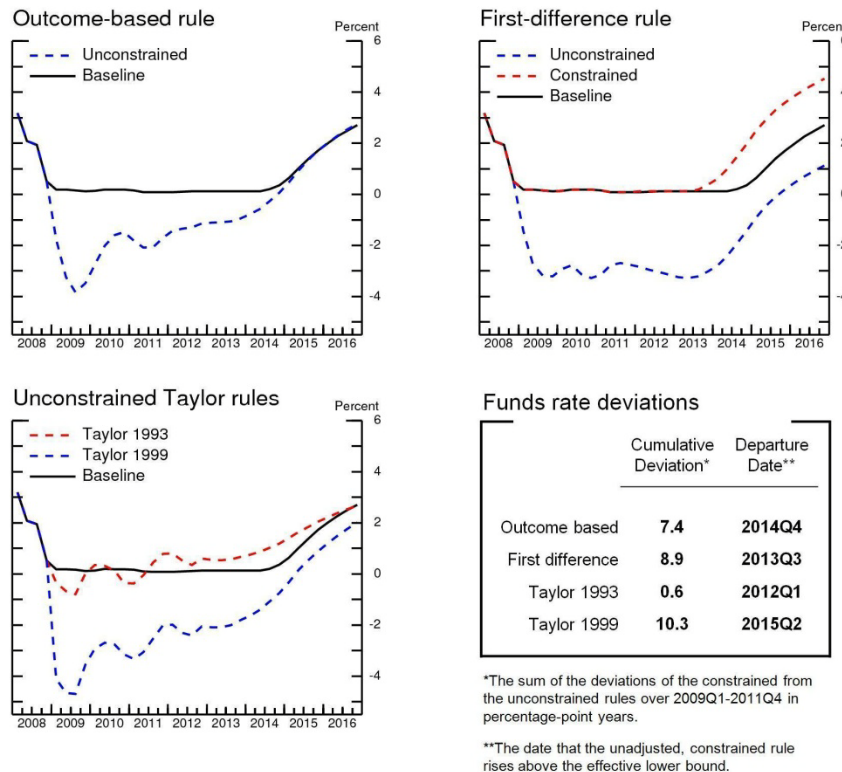
[5] In contrast to the optimal control simulations, which use headline inflation in the policymakers' objective function, the policy rule prescriptions use core inflation as the measure of inflation. This choice of rule specification was made in light of the tendency for current and near-term core inflation rates to outperform headline inflation rates as predictors of the medium-term behavior of headline inflation. Thus, the use of headline inflation in the optimal control simulations and of core inflation in the policy rules are both consistent with the notion that policymakers are concerned with the medium-term behavior of headline inflation.

[6] The Taylor (1993) rule, which places less weight on the output gap, prescribes policy rates above 50 basis points, but below 1 percent, for the first two quarters of 2012.

Strategies

Policy Rule Prescriptions and the Lower Bound on Interest Rates

Since late 2008, the lower bound on nominal interest rates has kept the federal funds rate above the prescriptions of almost all of the simple policy rules reported in the Tealbook. This fact is illustrated in the figures below, which show with blue lines the unconstrained prescriptions of the outcome-based rule (upper-left panel), the first-difference rule (upper-right panel), and the Taylor 1999 rule (lower-left panel).[1] The unconstrained prescriptions of these three rules have been markedly below the actual funds rate since early 2009, and are projected to remain so through 2014. In contrast, the Taylor 1993 rule (the red line in the lower-left panel), because of its weaker response to economic slack, has consistently prescribed levels of the funds rate close to actual values.[2]



Funds rate deviations

	Cumulative Deviation*	Departure Date**
Outcome based	7.4	2014Q4
First difference	8.9	2013Q3
Taylor 1993	0.6	2012Q1
Taylor 1999	10.3	2015Q2

*The sum of the deviations of the constrained from the unconstrained rules over 2009Q1-2011Q4 in percentage-point years.

**The date that the unadjusted, constrained rule rises above the effective lower bound.

In the research literature, a standard response to the lower bound problem is to substitute future policy accommodation for the easing that would have occurred in the absence of the lower bound. Prior research suggests that one way to achieve this outcome is to promise to make up, over time, some or all of the deviations from the rule that result from hitting the lower bound, as economic circumstances and the easing of the constraint allow.

[1] The rules used in this box are described in Explanatory Note B. The unconstrained prescriptions of the outcome-based and first-difference rules are dynamically simulated from 2008Q4, while those reported in the Monetary Policy Strategies section of Tealbook B are calculated using the actual lagged federal funds rate from the most recent quarter.

[2] The staff's baseline forecast incorporates the effects of the large-scale asset purchase program that was completed at the end of June, as well as the effects of the maturity extension program and the modifications to the Federal Reserve's investment policies announced in September. No adjustment is made to the intercept or coefficient terms of the simple rules to account for these policies.

To bring out the implications of such a strategy, the table at the bottom-right of the previous page reports the cumulative shortfall to date for these four rules. In the case of the outcome-based rule, the cumulative shortfall is nearly 7.5 percentage-point years, implying that policymakers would need to keep the federal funds rate 2.5 percentage points below the rule's prescriptions for three years to completely make up for past departures from the rule. Full makeup would involve similarly large adjustments in the case of the first-difference rule and the Taylor 1999 rule, but would imply almost no modification to the prescriptions of the Taylor 1993 rule. [3]

The first-difference rule responds to projected *changes* in resource utilization, not the level of the output gap. This characteristic helps mitigate problems arising from mismeasurement of economic slack but can also compound the poor performance of the rule near the effective lower bound. Note, for example, that the constrained first-difference rule—in contrast to the unconstrained rule—calls for policy restraint relatively promptly as slack diminishes, both because of the responsiveness of the rule to the expected change in the output gap and because the lagged level of the federal funds rate is constrained to be at its effective lower bound. The outcome-based rule exhibits similar behavior (albeit in a more muted form) because its prescriptions depend not only on inflation and the level of the output gap, but also on the change in the output gap and lagged constrained values of the funds rate. Simulation analysis suggests that this type of dependence may inhibit economic recovery when policy is constrained for a time by the lower bound. Accordingly, Committee participants who take counsel from rules of this nature may want to make allowances for the influence of this effect, perhaps by replacing the actual lagged funds rate in the rule with its unconstrained lagged value, by augmenting the rule with an additional response to the level of resource utilization, or by pursuing the "makeup" strategy discussed above.

The general strategy of promising to compensate for past shortfalls in policy rule settings is similar, in some respects, to one in which the central bank targets the level of nominal income. The latter strategy involves promising to close, over time, any shortfall from the target path for nominal income that opens up while policy is constrained by the lower bound.[4] The effectiveness of both approaches depends critically on forward-looking behavior on the part of the public and the successful communication and credibility of policy. Each strategy has its merits, and we cannot say which would perform best in practice. One advantage of the "makeup" strategy may be that it makes clear that policy setting will return to a more historically typical approach once the cumulative past shortfall has been made up, whereas nominal-income targeting would likely involve a more distinct break from past practices. At the same time, research suggests that nominal-income targeting and related strategies may have especially good properties in stabilizing real activity and inflation in the face of a range of shocks.

[3] For a more extensive discussion of this strategy, see David Reifschneider and John C. Williams (2000), "Three Lessons for Monetary Policy in a Low Inflation Era," *Journal of Money, Credit and Banking*, 32(4): 936–966.

[4] See, in particular, "Alternative Monetary Policy Frameworks" by Christopher Erceg, Michael Kiley and David López-Salido (October 6, 2011) and "Adopting an Alternative Monetary Policy Framework" by Christopher Erceg, David López-Salido and Robert Tetlow (July 29, 2011).

Monetary Policy Alternatives

This Tealbook presents three policy alternatives—labeled A, B, and C—for the Committee's consideration. Of course, the Committee could blend components of the various alternatives to construct its desired statement.

The alternatives provide a number of options regarding balance sheet policies. Alternative A offers the Committee a choice between two new asset purchase programs: one that is discrete in nature (buy $500 billion of agency mortgage-backed securities (MBS) by the end of December 2012), and one that reflects a more incremental but open-ended approach (initially buy $40 billion of agency MBS per month, and adjust the program as needed to foster the Committee's objectives).[1] Alternatives A and B maintain the maturity extension program that the Committee announced at its September meeting, while Alternative C reduces the size of this program by half and draws it to a close three months earlier. All three alternatives continue the Committee's existing policies of reinvesting principal payments on agency debt and MBS into MBS and of rolling over maturing Treasury securities at auction.

The draft statements offer several approaches for providing guidance regarding the future path of the federal funds rate. Alternative B reiterates the Committee's existing forward guidance by noting that economic conditions are likely to warrant exceptionally low levels for the federal funds rate "at least through mid-2013." Alternative C begins to remove policy accommodation in part by shortening the projected period over which rates will stay low to "at least through 2012." Alternative A provides further policy accommodation by lengthening the anticipated period of near-zero rates to "at least through the end of 2014." Alternative A also would clarify the conditional nature of the forward guidance by adding forecasts for unemployment and inflation at the end of 2014.[2]

[1] For a comparison of the relative merits of specifying a discrete versus an incremental strategy for expanding the balance sheet, see the memo "Incremental Balance Sheet Policies" (by David Reifschneider, John Roberts, and Jae Sim of the Federal Reserve Board) that was sent to the Committee on October 24, 2011.

[2] For a discussion of alternative forms of forward rate guidance, see the memo "Approaches to Clarifying the Conditionality in the Committee's Forward Guidance" (by Brian Doyle, Michael Kiley, Andrew Levin, David Lopez-Salido, Steve Meyer, Ed Nelson, Matt Raskin, David Reifschneider, and Robert Tetlow of the Federal Reserve Board, and Spence Hilton of the Federal Reserve Bank of New York) that was sent to the Committee on September 12, 2011.

The draft statements also differ in their characterizations of economic conditions. In describing the economy, Alternative B says that it has been expanding “moderately,” while Alternative A uses “modestly.” Alternative C instead describes the pace of economic activity as having strengthened somewhat. Alternative B notes that some slowing in global growth is apparent. In contrast, Alternative A states with a bit more assertion that “global growth appears to be slowing,” while Alternative C makes no mention of growth abroad. All of the statements say that the unemployment rate remains elevated, but differ in describing other aspects of labor market conditions. Alternatives A and B both point to some improvement in overall labor market conditions, while Alternative C characterizes the unemployment rate as having declined of late and notes that “employment has continued to increase.” Alternatives A and B state that inflation has moderated since earlier in the year, while Alternative C says that inflation has moderated “only somewhat” over that period.

Regarding the economic outlook, Alternative B indicates that the Committee expects a “moderate” pace of growth over coming quarters and sees the unemployment rate declining “only gradually.” Alternative A says the Committee anticipates that, absent further policy action, the pace of economic growth would remain “modest” and the unemployment rate would decline “only very gradually.” In contrast, Alternative C states that the FOMC anticipates “some strengthening” in economic growth with a gradual decline in the unemployment rate. Turning to inflation, Alternatives A and B note that it will settle “at or below” mandate-consistent levels, while Alternative C instead refers to inflation settling “at” mandate-consistent levels. Alternatives A and B say that strains in global financial markets continue to pose significant downside risks to the economic outlook. In addition, Alternative A includes the characterization that “the risks to the outlook for inflation also appear to be tilted to the downside.” Alternative C makes no mention of risks.

The final paragraph of each statement contains options for language about the Committee’s future policy actions. Alternatives A and B alter the November statement to say the Committee will “*monitor* the economic outlook *and financial developments*” and is prepared to employ its tools to promote recovery. Alternative C provides a more neutral final sentence, noting that the Committee is prepared to employ its tools as appropriate to promote its objectives.

The following table highlights key elements of the differences in the policy actions associated with each alternative statement. The table is followed by complete draft statements, and then by a summary of the arguments for each alternative.

Table 1: Overview of Policy Alternatives for the December 13 FOMC Statement

<table>
<tr><th rowspan="2">Selected Elements</th><th rowspan="2">November Statement</th><th colspan="3">December Alternatives</th></tr>
<tr><th>A</th><th>B</th><th>C</th></tr>
<tr><td colspan="5">Balance Sheet</td></tr>
<tr><td>MEP</td><td>$400 billion;
complete by
end of June 2012</td><td colspan="2">unchanged</td><td>cut to $200 billion;
complete by
end of March 2012</td></tr>
<tr><td>Additional Purchases</td><td>none</td><td>$500 billion of agency MBS
by end of December 2012
OR
$40 billion of agency MBS per month;
will adjust this program
as needed to foster objectives</td><td colspan="2">none</td></tr>
<tr><td>Reinvestment Policies</td><td>payments of agency debt and MBS into agency MBS;
Treasuries into Treasuries</td><td colspan="3">unchanged</td></tr>
<tr><td colspan="5">Forward Rate Guidance</td></tr>
<tr><td>First Option</td><td>at least through
mid-2013</td><td>at least through
end of 2014</td><td>unchanged</td><td>at least through
2012</td></tr>
<tr><td>Second Option</td><td>none</td><td>at least through end of 2014 and
projections of unemployment and
inflation rates at end of 2014</td><td colspan="2">none</td></tr>
<tr><td colspan="5">Future Policy Action</td></tr>
<tr><td rowspan="2">Approach</td><td>assess
economic outlook;</td><td colspan="2">monitor economic outlook and financial developments;</td><td>unchanged</td></tr>
<tr><td>prepared to
employ its tools
to promote recovery</td><td colspan="2">unchanged</td><td>prepared to
employ its tools
as appropriate
to promote objectives</td></tr>
</table>

NOVEMBER FOMC STATEMENT

1. Information received since the Federal Open Market Committee met in September indicates that economic growth strengthened somewhat in the third quarter, reflecting in part a reversal of the temporary factors that had weighed on growth earlier in the year. Nonetheless, recent indicators point to continuing weakness in overall labor market conditions, and the unemployment rate remains elevated. Household spending has increased at a somewhat faster pace in recent months. Business investment in equipment and software has continued to expand, but investment in nonresidential structures is still weak, and the housing sector remains depressed. Inflation appears to have moderated since earlier in the year as prices of energy and some commodities have declined from their peaks. Longer-term inflation expectations have remained stable.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee continues to expect a moderate pace of economic growth over coming quarters and consequently anticipates that the unemployment rate will decline only gradually toward levels that the Committee judges to be consistent with its dual mandate. Moreover, there are significant downside risks to the economic outlook, including strains in global financial markets. The Committee also anticipates that inflation will settle, over coming quarters, at levels at or below those consistent with the Committee's dual mandate as the effects of past energy and other commodity price increases dissipate further. However, the Committee will continue to pay close attention to the evolution of inflation and inflation expectations.

3. To support a stronger economic recovery and to help ensure that inflation, over time, is at levels consistent with the dual mandate, the Committee decided today to continue its program to extend the average maturity of its holdings of securities as announced in September. The Committee is maintaining its existing policies of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. The Committee will regularly review the size and composition of its securities holdings and is prepared to adjust those holdings as appropriate.

4. The Committee also decided to keep the target range for the federal funds rate at 0 to ¼ percent and currently anticipates that economic conditions—including low rates of resource utilization and a subdued outlook for inflation over the medium run—are likely to warrant exceptionally low levels for the federal funds rate at least through mid-2013.

5. The Committee will continue to assess the economic outlook in light of incoming information and is prepared to employ its tools to promote a stronger economic recovery in a context of price stability.

DECEMBER FOMC STATEMENT—ALTERNATIVE A

1. Information received since the Federal Open Market Committee met in ~~September~~ **November** ~~indicates~~ **suggests** that ~~economic growth strengthened somewhat in the third quarter, reflecting in part a reversal of the temporary factors that had weighed on growth earlier in the year~~ **the economy has been expanding modestly, while global growth appears to be slowing**. ~~Nonetheless~~ **Although** ~~recent~~ indicators point to ~~continuing weakness~~ **some improvement** in overall labor market conditions, ~~and~~ the unemployment rate remains elevated. Household spending has ~~increased at a somewhat faster pace in recent months.~~ **continued to advance, but** business **fixed** investment ~~in equipment and software has continued to expand~~ **appears to be increasing less rapidly** ~~but investment in nonresidential structures is still weak,~~ and the housing sector remains depressed. Inflation ~~appears to have~~ **has** moderated since earlier in the year, ~~as prices of energy and some commodities have declined from their peaks.~~ **and** longer-term inflation expectations have remained stable.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee ~~continues to~~ expect**s that, absent further policy action,** ~~a moderate~~ **the** pace of economic growth **would remain modest** over coming quarters and consequently anticipates that the unemployment rate ~~will~~ **would** decline only **very** gradually toward levels that the Committee judges to be consistent with its dual mandate. Moreover, ~~there are significant downside risks to the economic outlook, including strains in global financial markets.~~ the Committee ~~also~~ anticipates that inflation ~~will~~ **would** settle, over coming quarters, at levels at or below those consistent with the Committee's dual mandate ~~as the effects of past energy and other commodity price increases dissipate further~~. **Strains in global financial markets continue to pose significant downside risks to the economic outlook, and the risks to the outlook for inflation also appear to be tilted to the downside.** ~~However, the Committee will continue to pay close attention to the evolution of inflation and inflation expectations.~~

3. To support a stronger economic recovery and to help ensure that inflation, over time, is at levels consistent with the dual mandate, the Committee decided today to **purchase a further $500 billion of agency mortgage-backed securities by the end of December 2012**. **In addition, the Committee intends to** continue its program to extend the average maturity of its holdings of securities as announced in September. The Committee is **also** maintaining its existing policies of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. **These programs should put downward pressure on longer-term interest rates, provide support to mortgage markets, and help make broader financial conditions more accommodative.** The Committee will regularly review the size and composition of its securities holdings and is prepared to adjust those holdings as appropriate.

OR

3′. To support a stronger economic recovery and to help ensure that inflation, over time, is at levels consistent with the dual mandate, the Committee decided today to **undertake a program of purchases of agency mortgage-backed securities**. **The Committee has initially authorized purchases of agency mortgage-backed securities of $40 billion per month, and will adjust this program as needed to foster its objectives of maximum employment and stable prices. In addition, the Committee will** continue its program to extend the average maturity of its holdings of securities as announced in September. The Committee is **also** maintaining its existing policies of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. **These programs should put downward pressure on longer-term interest rates, provide support to mortgage markets, and help make broader financial conditions more accommodative.** ~~The Committee will regularly review the size and composition of its securities holdings and is prepared to adjust those holdings as appropriate~~.

4. The Committee also decided to keep the target range for the federal funds rate at 0 to ¼ percent. ~~and currently~~ **The Committee now** anticipates that economic conditions—including low rates of resource utilization and a subdued outlook for inflation over the medium run—are likely to warrant **this** exceptionally low ~~levels~~ **range** for the federal funds rate at least through ~~mid-2013~~ **the end of 2014**. **Specifically, given its anticipated path for monetary policy, the Committee currently projects that the unemployment rate will be roughly [7] percent and the inflation rate (as measured by the price index for personal consumption expenditures) will be around [2] percent at the end of 2014.**

5. The Committee will ~~continue to assess~~ **monitor** the economic outlook ~~in light of incoming information~~ **and financial developments** and is prepared to employ its tools to promote a stronger economic recovery in a context of price stability.

DECEMBER FOMC STATEMENT—ALTERNATIVE B

1. Information received since the Federal Open Market Committee met in ~~September~~ **November** ~~indicates~~ **suggests** that ~~economic growth strengthened somewhat in the third quarter, reflecting in part a reversal of the temporary factors that had weighed on growth earlier in the year~~ **the economy has been expanding moderately, notwithstanding some apparent slowing in global growth**. ~~Nonetheless~~ **While** ~~recent~~ indicators point to ~~continuing weakness~~ **some improvement** in overall labor market conditions, ~~and~~ the unemployment rate remains elevated. Household spending has ~~increased at a somewhat faster pace in recent months.~~ **continued to advance, but** business **fixed** investment ~~in equipment and software has continued to expand~~ **appears to be increasing less rapidly** ~~but investment in nonresidential structures is still weak,~~ and the housing sector remains depressed. Inflation ~~appears to have~~ **has** moderated since earlier in the year, ~~as prices of energy and some commodities have declined from their peaks.~~ **and** longer-term inflation expectations have remained stable.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee continues to expect a moderate pace of economic growth over coming quarters and consequently anticipates that the unemployment rate will decline only gradually toward levels that the Committee judges to be consistent with its dual mandate. ~~Moreover, there are~~ **Strains in global financial markets continue to pose** significant downside risks to the economic outlook~~, including strains in global financial markets~~. The Committee also anticipates that inflation will settle, over coming quarters, at levels at or below those consistent with the Committee's dual mandate ~~as the effects of past energy and other commodity price increases dissipate further~~. However, the Committee will continue to pay close attention to the evolution of inflation and inflation expectations.

3. To support a stronger economic recovery and to help ensure that inflation, over time, is at levels consistent with the dual mandate, the Committee decided today to continue its program to extend the average maturity of its holdings of securities as announced in September. The Committee is maintaining its existing policies of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. The Committee will regularly review the size and composition of its securities holdings and is prepared to adjust those holdings as appropriate.

4. The Committee also decided to keep the target range for the federal funds rate at 0 to ¼ percent and currently anticipates that economic conditions—including low rates of resource utilization and a subdued outlook for inflation over the medium run—are likely to warrant exceptionally low levels for the federal funds rate at least through mid-2013.

5. The Committee will ~~continue to assess~~ **monitor** the economic outlook ~~in light of incoming information~~ **and financial developments** and is prepared to employ its tools to promote a stronger economic recovery in a context of price stability.

DECEMBER FOMC STATEMENT—ALTERNATIVE C

1. Information received since the Federal Open Market Committee met in ~~September~~ **November** ~~indicates~~ **suggests** that **the pace of** economic ~~growth~~ **activity has** strengthened somewhat ~~in the third quarter, reflecting in part a reversal of the temporary factors that had weighed on growth earlier in the year~~. ~~Nonetheless, recent indicators point to continuing weakness in overall labor market conditions, and~~ **Although** the unemployment rate remains elevated**, it has declined of late, and employment has continued to increase**. Household spending has ~~increased at a somewhat faster pace in recent months~~ **advanced further, and** business **fixed** investment ~~in equipment and software~~ has continued to expand, but ~~investment in nonresidential structures is still weak, and~~ the housing sector remains depressed. Inflation ~~appears to have~~ **has** moderated **only somewhat** since earlier in the year**, despite a decline in the** ~~as~~ prices of energy and some commodities ~~have declined from their peaks~~. Longer-term inflation expectations have remained stable.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee ~~continues to~~ expect**s** ~~a moderate pace~~ **some strengthening** of economic growth over coming quarters and consequently anticipates that the unemployment rate will decline ~~only~~ gradually toward levels that the Committee judges to be consistent with its dual mandate. ~~Moreover, there are significant downside risks to the economic outlook, including strains in global financial markets.~~ The Committee also anticipates that inflation will settle, over coming quarters, at levels ~~at or below those~~ consistent with the Committee's dual mandate ~~as the effects of past energy and other commodity price increases dissipate further~~. However, the Committee will continue to pay close attention to the evolution of inflation and inflation expectations.

3. To support ~~a stronger~~ **the** economic recovery ~~and to~~ **while** help**ing to** ensure that inflation, over time, ~~is at~~ **does not exceed** levels **that are** consistent with the dual mandate, the Committee decided today to ~~continue its~~ **reduce by half the size of the** program to extend the average maturity of its holdings of securities ~~as~~ **that it** announced in September. **In particular, the Committee intends to limit purchases and sales of securities under this program to $200 billion each and to complete these operations by the end of March 2012.** The Committee is maintaining its existing policies of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. The Committee will regularly review the size and composition of its securities holdings and is prepared to adjust those holdings as appropriate.

4. The Committee also decided to keep the target range for the federal funds rate at 0 to ¼ percent and ~~currently~~ **now** anticipates that economic conditions—including low rates of resource utilization and a subdued outlook for inflation over the medium run—are likely to warrant exceptionally low levels for the federal funds rate at least through ~~mid-2013~~ **2012**.

5. The Committee will ~~continue to~~ assess the economic outlook in light of incoming information and is prepared to employ its tools **as appropriate** to promote ~~a stronger economic recovery in a context of price stability~~ **its objectives of maximum employment and stable prices**.

Alternatives

THE CASE FOR ALTERNATIVE B

The Committee may judge that the recent economic data indicates that the economic recovery has strengthened somewhat since the summer and is likely to remain on track and so see no need for additional monetary policy action at this time. If so, it may wish to issue a statement like that of Alternative B, which includes no new policy steps and contains language that is—aside from updating the description of current economic conditions—quite similar to that of the November statement. The Committee may see the available information as indicating that the economy has been expanding moderately and inflation has moderated in recent months. It may DOVR interpret the data as pointing to some improvement in overall labor market conditions. Indeed, although the unemployment rate remains elevated, it moved down noticeably last month, albeit in part because labor force participation declined. Household spending has continued to advance. Moreover, with significant policy easing having been put in place in August and September, the Committee may see the current outlook—including a moderate pace of economic growth over coming quarters with inflation settling at or below mandate-consistent levels—as likely to be the best that can be achieved in the face of the headwinds caused by the financial crisis and bursting of the housing bubble.

Though policymakers may believe that there are significant downside risks to the economic outlook, they may see no need to take additional steps to address those risks if they anticipate that other government officials will do so in the relatively near term. In particular, they may think that the European authorities will soon begin to take significant steps to stabilize the situation there and also anticipate that the Congress will act to extend the payroll tax cuts and unemployment insurance benefits in coming weeks, thereby avoiding a hit to economic growth that would otherwise materialize early next year.[3]

The Committee also may judge that the uncertainty associated with its current outlook for the economy is unusually high, and so may wish to await additional information that could bring greater clarity to the near-term direction of the U.S. economy before deciding whether to take further policy action. Along with additional data on economic activity and inflation, the Committee may wish to see what actions the European authorities take to help address the European fiscal and financial crisis and what steps the Congress takes in coming weeks regarding payroll tax cuts and extended unemployment insurance benefits. With such

[3] Indeed, should the meeting of the European Council on December 9 produce an agreement that embodies forceful actions to address the problems in the euro-area, the Committee could choose to remove the word "significant" from SDUDJUDSK RI the statement.

Alternatives

information in hand, the Committee may be more confident in adjusting its policies, such as by changing its investment decisions or its forward rate guidance, and be more certain that it could remain committed to those adjustments over coming quarters.

Some policymakers may see benefits from providing additional policy accommodation at this meeting in order to hasten progress toward the dual mandate, but judge that the costs and risks associated with the options available for doing so outweigh the likely gains. Although current readings of market interest rates suggest that an extension of the Committee's forward rate guidance could put downward pressure on interest rates and so provide additional support for the recovery, policymakers may be concerned that stating that they expect to hold the target federal funds rate at its lower bound that far in the future—at least through the end of 2014—would not be viewed as credible and thus would not provide meaningful additional stimulus to the economy. Indeed, by announcing such guidance, the Committee might undermine confidence in the economic outlook and so weaken rather than strengthen economic growth. In addition, members may be skeptical that providing explicit projections of unemployment and inflation rates in the statement would be all that helpful in clarifying the conditional nature of the Committee's forward rate guidance. They might also be concerned that such forecasts would not adequately reflect the range of views on the Committee. For these reasons, policymakers may view other communications tools, such as the Summary of Economic Projections, as likely to be more effective in disseminating additional information to the public about the expected future stance of monetary policy.

Policymakers may also not wish to engage in additional asset purchases. They might view the expected improvement in the path of the unemployment rate as being small relative to their concerns about their ability to normalize the stance of policy in a timely way when doing so becomes appropriate. Moreover, they may worry that a significant further expansion of the Federal Reserve's balance sheet and corresponding supply of reserve balances could lead the public to doubt the Committee's ability to exit smoothly and in a timely fashion, leading to undesirably high expected and actual inflation. Given the extraordinarily low interest rate environment, they may also be concerned that holding an appreciably larger portfolio of longer-term securities would result in too great a downside risk to the Federal Reserve's net worth or net income if interest rates increased unexpectedly rapidly.

Alternatively, policymakers may anticipate somewhat less slack in resource markets than does the staff, but nonetheless consider it premature to begin reducing monetary policy accommodation. On the one hand, some participants may expect a relatively rapid rebound in

economic activity, as in the "Faster Snapback" alternative simulation in Tealbook Part A. Nonetheless, given the current elevated level of unemployment, these participants may anticipate that the economy will continue to operate noticeably below its potential for a while, and so choose to make no change to the stance of monetary policy at this meeting. On the other hand, some policymakers may believe that the financial crisis and deep recession have caused a significant permanent reduction in the path of potential output. If so, they may be concerned that the existing level of monetary policy accommodation could eventually prove excessive, with inflation rising to undesirable levels. However, with inflation having moderated in recent months, policymakers may judge that these risks remain muted and the Committee can safely wait for some time before beginning to remove policy accommodation.

Even if policymakers view economic and financial conditions as potentially justifying an adjustment to the stance of monetary policy, the Committee may prefer to postpone additional policy actions until it has provided additional information about its goals and its framework for making policy decisions. With work on the consensus monetary policy principles document continuing, and with the possibility that a decision might be reached at the January meeting, waiting a few weeks to act within an improved communications framework may be seen by the Committee as being preferable in the current environment.

A statement such as Alternative B would be broadly in line with market expectations. According to the Desk's latest survey, the primary dealers continue to anticipate that the first increase in the target federal funds rate will occur after mid-2013, timing that is roughly in line with readings of market interest rates. Although the dealers now see a much greater chance that the Committee will alter its forward rate guidance at some point over the next year in order to provide additional policy accommodation, their assessment of the odds of such a change at this meeting are relatively low. The dealers place even lower odds on any changes to the Committee's balance sheet policies at this meeting. Therefore, interest rates along the maturity spectrum would likely be little changed if the Committee issued a statement like Alternative B. Equity prices and the foreign exchange value of the dollar would likely also exhibit little reaction.

THE CASE FOR ALTERNATIVE A

The Committee may interpret the information received since the November meeting, including the apparently poorer prospects for global economic growth, as pointing to the need for additional policy accommodation to support the U.S. economic recovery or to address the

downside risks to the U.S. economy, as in Alternative A. Committee participants may now expect that, in the absence of further policy action, economic growth would remain modest over coming quarters and the unemployment rate would decline only very gradually. In addition, they may judge that strains in global financial markets pose significant downside risks to the domestic economic outlook. With levels of resource slack expected to remain quite high for some time, policymakers may also see inflation coming in over time at levels at or below those consistent with the dual mandate, and might see the risks to the outlook for inflation as tilted to the downside. Policymakers may even place some odds on the U.S. economy entering a new downturn either because of domestic factors, as in the "Homegrown Recession" alternative simulation, or because of an intensification of the difficulties in Europe, as in the "European Crisis with Severe Spillovers" simulation. If policymakers see the economy's trajectory as likely to fall short on both the maximum employment and price stability dimensions of the Committee's dual mandate, and as potentially doing so for a period that extends well into the medium term, they may be disposed to take action at this meeting. Participants may judge that such action would help to shore up the public's confidence in the Committee's commitment to foster economic recovery and help guard against deflationary pressures.

Under such circumstances, the Committee may choose to issue a statement, like that of Alternative A, which extends the period over which the Committee anticipates that it will keep rates exceptionally low, provides additional information regarding the conditionality of that guidance, and announces an additional asset purchase program. Under Alternative A, the Committee would extend substantially the period over which it expected to maintain near-zero rates by replacing "at least through mid-2013," which has been in the previous three FOMC statements, with "at least through the end of 2014." Such an extension would be supported by the constrained optimal control simulations of the FRB/US model presented in the "Monetary Policy Strategies" section of Tealbook Part B, which suggest that the Committee could leave the target federal funds rate unchanged through approximately the end of 2015 in order to foster a faster pace of recovery without spurring inflation to levels that are significantly above those the Committee views as being mandate-consistent. Market participants currently appear to see some chance that the target federal funds rate will rise by early 2014, suggesting that there is scope for such a change in forward guidance to affect investor expectations and put downward pressure on medium- and longer-term interest rates.

Under Alternative A, policymakers would combine the date change described above with an enhancement to its forward rate guidance. Specifically, to emphasize that the date specified in its forward guidance is conditional on economic outcomes, the Committee would provide its

current projections of unemployment and inflation at the end of 2014. The forecasts would be conditioned on the Committee's anticipated path for monetary policy, including the announced expectation that the target range would be unchanged at least through the end of 2014. Such a formulation could help increase the public's understanding of the Committee's intentions for the timing and conditionality of the first increase in the target rate, thereby helping to reduce the chance that medium- and longer-term interest rates will rise too soon or too quickly if the recovery progresses as anticipated. The statement could be reinforced with other forms of communication to provide information about the Committee's objectives and reaction function.

Policymakers may judge that the current economic outlook and attendant downside risks also warrant undertaking additional asset purchases. Specifically, with the housing sector still depressed, policymakers may wish to purchase additional agency MBS, with the aim of reducing longer-term interest rates and providing support to mortgage markets. The Committee could choose to execute such purchases in the form of a discrete program, as it has done in the past, by opting for paragraph 3 of the draft statement. This paragraph specifies that the Committee intends to purchase $500 billion of agency MBS by the end of December 2012. Staff estimates that such a purchase program would push down the level of medium- and longer-term private interest rates by roughly 10 basis points and might ease financial conditions enough to reduce the unemployment rate by about 0.2 percentage points at the end of 2013, accompanied by an increase in PCE inflation of about 0.1 percentage point over the next two years.[4] These effects would be somewhat larger to the extent that the purchase program trimmed yields on MBS relative to those on Treasury securities of comparable maturity. The effects would also be increased if the public interpreted this policy step as indicating that the Federal Reserve would likely keep short-term rates lower for a longer period of time than had been expected, or if concerns about the downside risks to the economic outlook were reduced, bolstering consumer and business sentiment. To the extent that the Federal Reserve's resulting larger balance sheet raised concerns about its ability to reduce policy accommodation sufficiently quickly when appropriate, this policy step could possibly be accompanied by some boost to inflation expectations and possibly also to actual inflation.

[4] For a discussion of the basis of these estimates, see the memos "Possible Large-Scale Asset Purchase Program in the Treasury Market" (by Alyssa Cambron, Michelle Ezer, Katherine Femia, Kunal Gooriah, Winston Liu, Jeff Moore, Lisa Stowe, and Julie Remache of the Federal Reserve Bank of New York, and Seth Carpenter, Sophia Castelo, Canlin Li, Laura Lipscomb, Elizabeth Klee, Jane Ihrig, Ari Morse, and Dan Quinn of the Federal Reserve Board) and "Possible FOMC Actions in the MBS Markets" (by Diana Hancock, Deborah Leonard, and Wayne Passmore of the Federal Reserve Board) that were sent to the Committee on October 27, 2011.

The Committee could instead choose to adopt paragraph 3′ of the draft statement, under which it would implement an incremental, open-ended purchase program. Under this approach, the Committee would specify an initial pace of purchases of agency MBS of $40 billion per month without providing information about the anticipated total quantity of such purchases. In its statement, the Committee would say that it "will adjust this program as needed" to foster its objectives. While the economic effects of an open-ended purchase program are not readily quantifiable, by definition, such a program should generally also help to put downward pressure on longer-term interest rates, provide support to mortgage markets, and help make broader financial conditions more accommodative.

In general, large asset purchase programs of a discrete nature (as in paragraph 3) may be preferable when the Committee wants to be clear that it is undertaking a policy action of significant size. In contrast, an incremental, open-ended program (as in paragraph 3′) might give the Committee scope for more nimble adjustment, either up or down, of the overall size of the purchase program in light of changes in the Committee's outlook for real activity and inflation. Such an open-ended program also could be favored if the Committee were not confident of the size of purchase program needed to promote its objectives, and so wanted to communicate that it would "do whatever it takes" to ensure sufficient support for the recovery.[5]

The primary dealers generally reported in the latest Desk survey that they did not expect significant changes to the statement at this meeting, and they put the odds that the forward rate guidance would be changed at this meeting at only about 20 percent. However, they now assign a much higher probability—about 80 percent—to a change in the FOMC's communication strategy in the coming year. Thus an announcement of a longer expected period of near-zero rates and enhanced forward guidance would not come as a complete surprise. The Committee's announcement of additional agency MBS purchases would surprise market participants somewhat more: The dealers essentially saw no chance of such a step being taken at this meeting, and they put a probability of about 60 percent on it being taken over the coming year. Longer-term interest rates would decline following a statement like that of Alternative A, with the effects of a discrete $500 billion purchase program probably somewhat larger, owing to its greater clarity. Equity prices would likely increase, although that rise could be tempered if

[5] As noted above, a comparison of the merits of specifying a discrete versus an incremental strategy for expanding the balance sheet is provided in the memo "Incremental Balance Sheet Policies" (by David Reifschneider, John Roberts, and Jae Sim of the Federal Reserve Board) that was sent to the Committee on October 24, 2011.

investors read the first two paragraphs of the statement as pointing to significantly weaker underlying economic activity. The foreign exchange value of the dollar would likely decline.

THE CASE FOR ALTERNATIVE C

Some Committee members may view the information received since the November meeting as suggesting that the pace of economic activity has strengthened and so now have greater confidence that the economic recovery is gaining traction. In particular, although the unemployment rate remains elevated, it has declined of late, and employment has continued to increase. In addition, household spending has advanced further, and business fixed investment is still expanding. Indeed, members may judge that the economy is likely to follow the trajectory of the "Faster Snapback" alternative simulation. Some members may also view the downside risks to U.S. economic growth posed by the situation in Europe with significantly less trepidation than others, perhaps because they place higher odds on European authorities taking forceful actions to address their fiscal and banking problems and to reduce the potential for spillover effects on global economic growth. If so, such members may expect medium-run outcomes for the U.S. economy that are akin to those described in the "Faster European Recovery" alternative simulation.

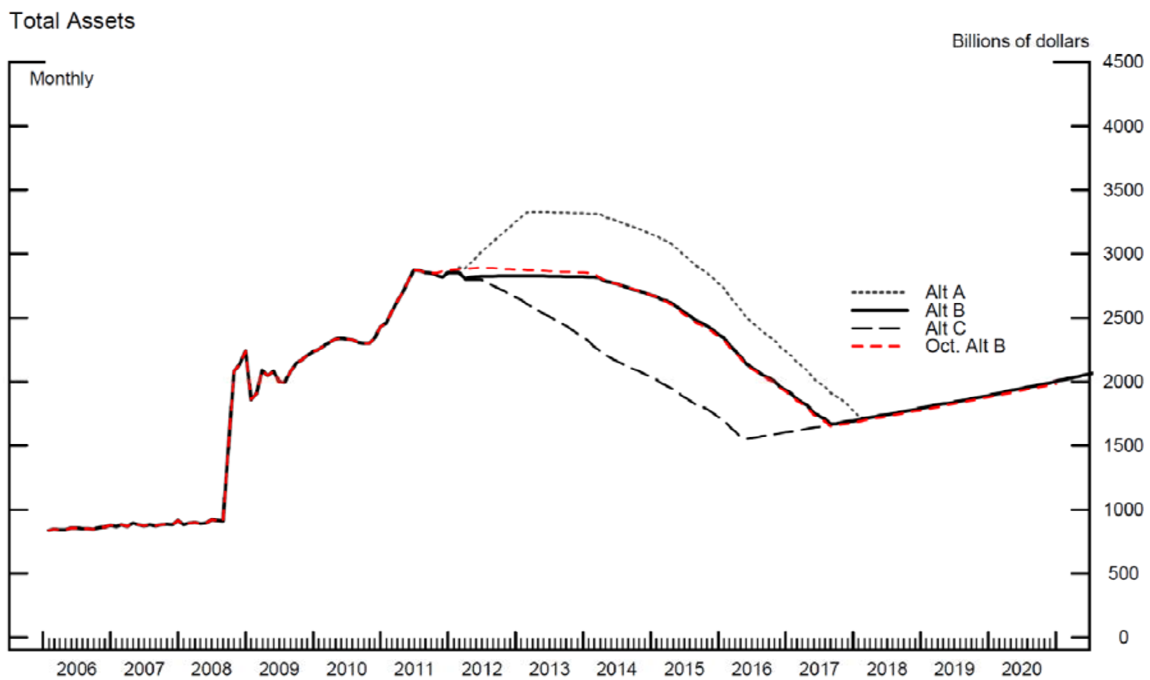
In addition, some members may place the level of potential output significantly below that in the staff's baseline scenario. If so, they may not see a need for additional policy accommodation to spur a reduction in resource slack, and may view the monetary accommodation already in place as more likely to foster higher inflation than stronger economic growth, as in the "Greater Supply-Side Damage" simulation. Indeed, members may be uncomfortable with the rise in core inflation over the past year, and may be worried that the current degree of policy accommodation, including the ongoing maturity extension program, is posing an unacceptably large risk to the stability of inflation expectations. Accordingly, members may wish to scale back the pace and magnitude of the maturity extension program, as in Alternative C. If members are particularly concerned that inflationary pressures could gather steam in the near term, they may wish to take an additional step to guard against that risk by changing the forward guidance to indicate that economic conditions are likely to warrant the current low range for the federal funds rate "at least through 2012" rather than "at least through mid-2013" as in the November statement. Such a change in language would signal that the incoming information has brought the Committee significantly closer to beginning the removal of policy accommodation.

Market participants would greet a statement such as that of Alternative C with considerable surprise. According to the Desk's survey, very few of the primary dealers expect the Committee will adjust any of the elements of its statement in the direction of policy tightening over the next year. None expects such changes at this meeting. In the event, market participants would price in a nearer-term onset of the removal of policy accommodation, as well as the likelihood of a faster exit from the current accommodative policy stance. As a result, interest rates would likely rise across the yield curve. Equity prices would likely fall, and the foreign exchange value of the dollar would probably rise.

Alternatives

LONG-RUN PROJECTIONS OF THE BALANCE SHEET AND MONETARY BASE

The staff has prepared three scenarios for the Federal Reserve's balance sheet that correspond to the policy alternatives A, B, and C. The scenario for Alternative A reflects the $500 billion agency MBS purchase program included in paragraph 3, but is consistent with the open-ended purchase program in paragraph 3' if purchases last, and are expected to last, for one year. Projections under each scenario are based on assumptions about the trajectory of various components of the balance sheet. Details of these assumptions, as well as projections for each major component of the balance sheet, can be found in Explanatory Note C.



For the balance sheet scenario that corresponds to Alternative B, the Committee is assumed to complete the maturity extension program (MEP) that it announced in September, purchasing a total of $400 billion (par value) of Treasury securities with remaining maturities of six years or more and selling the same par amount of securities with remaining maturities of three years or less by the end of June 2012. The Committee also continues to reinvest principal payments from its holdings of agency debt and MBS into agency MBS, while principal from maturing Treasury securities is reinvested at auction according to the Desk's current practice (that is, reinvesting roughly proportionally across all Treasury securities that are being issued on the date the securities mature). These policy choices would keep System Open Market Account

(SOMA) securities holdings roughly constant at about $2.6 trillion. All reinvestment is assumed to cease in April 2014, six months before the first increase in the target federal funds rate in the staff economic forecast, and then the balance sheet begins to contract. In April 2015, the Committee begins to sell its remaining holdings of agency MBS and agency debt securities at a pace that reduces the amount of these securities in the portfolio to zero in five years—that is, by March 2020.[1] The combination of no reinvestment and the sale of agency securities normalize the size of the balance sheet by September 2017.[2,3] The balance sheet then begins to expand, with increases in SOMA holdings essentially matching the growth of Federal Reserve capital and notes in circulation. The balance sheet reaches a size of $2 trillion by the end of 2020.

In the scenario for Alternative A, the Committee is assumed not only to complete the MEP and continue the current reinvestment strategy but also to purchase an additional $500 billion of agency MBS by the end of December 2012. In this scenario, SOMA securities holdings peak at $3.1 trillion in February 2014 as total assets near their peak of $3.3 trillion. As in Alternative B, reinvestment ends in April 2014, the target federal funds rate lifts off in October 2014, sales of agency securities commence in April 2015, and holdings of agency securities fall to zero over five years.[4] The additional purchases of agency MBS under Alternative A postpone the normalization of the size of the balance sheet until the February 2018, five months later than under Alternative B.

For the scenario that corresponds to Alternative C, the Committee continues its current reinvestment policy but scales back the MEP to $200 billion and completes these operations by the end of March 2012. In this scenario, the federal funds rate lifts off at the beginning of 2013, about a year and a half earlier than assumed in the other

[1] Given the maturity schedule of the agency debt securities held in the SOMA, the volume of sales necessary to reduce holdings of these securities to zero over the five-year period is minimal.

[2] The tools to drain reserve balances (reverse repurchase agreements and the Term Deposit Facility) are not modeled in any of the scenarios presented. Use of these tools would result in a shift in the composition of Federal Reserve liabilities—a decline in reserve balances and a corresponding increase in term reverse repurchase agreements or term deposits—but would not produce an overall change in the size of the balance sheet.

[3] The projected timing of the normalization of the size of the balance sheet depends importantly on the level of reserve balances that is assumed to be necessary to conduct monetary policy; currently we assume that level of reserve balances to be $25 billion. A higher demand for reserve balances would, all else equal, lead to an earlier normalization of the size of the balance sheet.

[4] Under Reserve Bank accounting, losses on the SOMA portfolio are only realized when securities are sold. Under the current projections, losses are projected to be smaller than net earnings. Considerable uncertainty surrounds these projections, however, and under plausible assumptions, losses could exceed earnings and as such, remittances to the Treasury would cease and a deferred credit asset would be booked.

alternatives and, correspondingly, reinvestment of principal from maturing or prepaying securities ends earlier, in mid-2012.[5] Sales of agency securities also commence earlier, in mid-2013. The size of the balance sheet is normalized in mid-2016, almost a year and a half sooner than under Alternative B, primarily reflecting the earlier assumed liftoff date for the federal funds rate and thus the earlier halt to reinvestment of principal and an earlier start of asset sales.

The size of the balance sheet normalizes one month later under Alternative B than in the October Tealbook baseline, reflecting the later liftoff date assumed in the staff economic forecast. From February 2018 onward, under all scenarios, the paths for total assets in the current projections align with the baseline path in the October Tealbook.

On the liability side of the balance sheet, the forecasted path for reserve balances for Alternative B is a bit higher from the time that redemptions begin until reserve balances fall to $25 billion than was the case in the previous Tealbook. Under Alternative A, reserve balances peak at $2.1 trillion—almost $500 billion higher than in Alternative B—by the end of the new large scale asset purchase program.

In the scenario corresponding to Alternative B, the monetary base is projected to begin contracting very slightly in the second quarter of 2013 and to continue shrinking through the fourth quarter of 2017, reflecting the decline in reserve balances. Starting in the first quarter of 2018, after reserve balances are assumed to have stabilized at $25 billion, the monetary base expands again, in line with the growth of Federal Reserve notes in circulation. The monetary base under Alternative A expands along with the rise in reserve balances that come from the additional asset purchases. As the balance sheet is normalized, it follows a path similar to that in Alternative B. Under Alternative C, the contraction in the monetary base begins sooner, mirroring the earlier normalization in the balance sheet.

[5] The prepayment paths for agency MBS holdings and the premiums calculated under Alternative C are based on the interest rate path used in Alternative B. This simplifying assumption likely overstates somewhat both prepayments on MBS, which are reinvested into new MBS with longer expected maturities until the reinvestment policy ceases, and premiums on all securities in Alternative C. As a result, the size of the balance sheet is likely larger, and the date of normalization is likely later than would be the case if the interest rate path was recalibrated based on this scenario.

Growth Rates for the Monetary Base

Date	Alternative B	Alternative A	Alternative C	*Memo*: October Tealbook
		Percent, annual rate		
		Monthly		
Jan-11	23.3	23.3	23.3	23.3
Feb-11	57.6	57.6	57.6	57.6
Mar-11	97.8	97.8	97.8	97.8
Apr-11	74.4	74.4	74.4	74.4
May-11	42.1	42.1	42.1	42.1
Jun-11	35.9	35.9	35.9	35.9
Jul-11	27.0	27.0	27.0	27.0
Aug-11	2.0	2.0	2.0	2.0
Sep-11	-10.6	-10.6	-10.6	-10.5
Oct-11	-4.5	-4.5	-4.5	1.5
Nov-11	-8.0	-8.0	-8.0	10.6
Dec-11	12.1	11.9	11.5	0.8
Jan-12	15.1	16.5	14.0	-8.8
Feb-12	10.3	18.8	9.2	9.8
Mar-12	4.4	19.8	3.4	16.6
Apr-12	-29.5	-12.1	-31.2	3.5
May-12	0.9	18.0	-1.4	3.3
Jun-12	15.4	31.6	13.2	3.2
		Quarterly		
2011 Q1	36.8	36.8	36.8	36.8
2011 Q2	69.3	69.3	69.3	69.4
2011 Q3	21.0	21.0	21.0	21.1
2011 Q4	-4.1	-4.1	-4.1	0.8
2012 Q1	9.7	13.8	8.8	2.4
2012 Q2	-5.9	10.0	-7.6	7.1
2012 Q3	4.7	21.2	-2.2	2.0
2012 Q4	5.4	20.7	-4.9	0.8
		Annual - Q4 to Q4		
2010	0.9	0.9	0.9	0.9
2011	33.5	33.5	33.5	35.2
2012	3.5	17.4	-1.5	3.1
2013	0.5	4.7	-10.8	-0.8
2014	-4.8	-4.5	-14.6	-6.1
2015	-11.3	-11.9	-15.8	-12.2
2016	-19.6	-20.1	-11.7	-19.9

Note: Not seasonally adjusted.

DEBT, BANK CREDIT, AND MONEY FORECASTS

The staff projects that domestic nonfinancial sector debt will grow at an annual rate of 4½ percent in 2012, reflecting continued rapid expansion in federal government debt and a modest rise in private nonfinancial debt. Debt growth is projected to slow to 4¼ percent in 2013. This slight moderation reflects a projected deceleration in federal debt. Nonfinancial business debt expands at a modest pace over the forecast period, in part due to further increases in capital expenditures. We expect growth of household debt to remain quite sluggish throughout the forecast horizon, reaching only 1½ percent in 2013. Despite historically low mortgage rates, we project home mortgage debt to contract a bit further in the next two quarters and then to stay about flat through 2013, reflecting stringent lending standards and a lack of demand from high-quality borrowers. Consumer credit grows at a moderate pace through early next year and gradually accelerates over the medium term, supported by rising spending on consumer durables.

The staff expects that commercial bank credit will increase moderately over the forecast period. Core loans—which include commercial and industrial (C&I), real estate, and consumer loans—are projected to expand modestly during 2012 and 2013, consistent with the anticipated gradual improvements in economic activity, credit quality, and bank's willingness to lend over that period. Lending to businesses in the form of C&I loans increases steadily over the next two years. In contrast, commercial real estate loans contract, primarily because of high vacancy rates and depressed prices for commercial properties, and the poor credit quality of existing loans. As for lending to households, residential real estate loans on banks' books remain largely unchanged through 2012 and move up only slightly in 2013. Meanwhile, consumer loans increase moderately throughout the forecast period. Banks' securities holdings expand at a moderate pace, driven by steady growth in core deposits combined with limited expansion in bank loans.

The staff forecasts that M2, which has expanded at a robust rate in 2011, will grow at a pace broadly in line with that of nominal income in 2012 as heightened uncertainty about European financial developments, a moderate growth outlook, and very low short-term market interest rates keep investors from unwinding their current elevated M2 asset allocations. Subsequently, M2 growth slows to a pace slightly below that of nominal GDP as financial strains begin to fade and investors slowly shift their portfolios toward riskier assets. M2 growth in 2013 is also held down by the expiration of unlimited FDIC insurance on non-interest bearing demand deposits at the end of 2012. Currency is projected to expand at its historical average rate throughout the forecast period.

Growth Rates for M2

(Percent, seasonally adjusted annual rate)

Monthly Growth Rates	Tealbook Forecast*
Apr-11	4.3
May-11	6.9
Jun-11	11.6
Jul-11	26.6
Aug-11	30.0
Sep-11	6.0
Oct-11	3.7
Nov-11	4.8
Dec-11	5.0
Jan-12	3.3
Feb-12	3.3
Mar-12	3.3
Quarterly Growth Rates	
2011 Q2	6.0
2011 Q3	19.9
2011 Q4	7.5
2012 Q1	3.8
Annual Growth Rates	
2010	3.2
2011	9.9
2012	3.9
2013	3.1

* This forecast is consistent with nominal GDP and interest rates in the Tealbook forecast. Actual data through November 2011; projections thereafter.

DIRECTIVE

The directive that was issued in November is given below, followed by drafts for a December directive that correspond to each of the three policy alternatives. In general, under the directives for Alternatives B and C, the Desk would be instructed to leave the total face value of domestic securities in the SOMA about unchanged; under Alternative A, the Committee would instruct the Desk to increase the face value of domestic securities in the SOMA portfolio by purchasing agency MBS. Specifically, the directive for Alternative A would instruct the Desk either to execute purchases of agency MBS in order to raise the total face value of domestic securities holdings to about $3.1 trillion by the end of December 2012, or to purchase agency MBS in order to raise the face value of holdings of domestic securities by approximately $40 billion per month until instructed otherwise. In addition, the directives for Alternatives A and B would instruct the Desk to take appropriate steps to complete the $400 billion maturity extension program that was announced in September by the end of June 2012, while the directive for Alternative C would instruct the Desk to limit the amounts of purchases and sales associated with the maturity extension program to $200 billion each and to complete these operations by the end of March 2012. All of the draft directives instruct the Desk to continue the current practice of rolling over maturing Treasury securities at auction and of reinvesting principal payments on all agency debt and agency MBS in agency MBS.

November 2011 FOMC Directive

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to continue the maturity extension program it began in September to purchase, by the end of June 2012, Treasury securities with remaining maturities of approximately 6 years to 30 years with a total face value of $400 billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face value of $400 billion. The Committee also directs the Desk to maintain its existing policies of rolling over maturing Treasury securities into new issues and of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities in order to maintain the total face value of domestic securities at approximately $2.6 trillion. The Committee directs the Desk to engage in dollar roll transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

Alternatives

December 2011 FOMC Directive—Alternative A

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to continue the maturity extension program it began in September to purchase, by the end of June 2012, Treasury securities with remaining maturities of approximately 6 years to 30 years with a total face value of $400 billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face value of $400 billion. **[The Committee also directs the Desk to execute purchases of agency mortgage-backed securities in order to increase the total face value of domestic securities held in the System Open Market Account to approximately $3.1 trillion by the end of December 2012. | The Committee also directs the Desk to execute purchases of agency mortgage-backed securities in order to increase the total face value of domestic securities held in the System Open Market Account by approximately $40 billion per month.]** The Committee also directs the Desk to maintain its existing policies of rolling over maturing Treasury securities into new issues and of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities ~~in order to maintain the total face value of domestic securities at approximately $2.6 trillion~~. The Committee directs the Desk to engage in dollar roll transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

December 2011 FOMC Directive—Alternative B

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to continue the maturity extension program it began in September to purchase, by the end of June 2012, Treasury securities with remaining maturities of approximately 6 years to 30 years with a total face value of $400 billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face value of $400 billion. The Committee also directs the Desk to maintain its existing policies of rolling over maturing Treasury securities into new issues and of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities in order to maintain the total face value of domestic securities at approximately $2.6 trillion. The Committee directs the Desk to engage in dollar roll transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

Authorized for Public Release

December 2011 FOMC Directive—Alternative C

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to ~~continue~~ **modify** the maturity extension program it began in September **so as** to purchase, by the end of ~~June~~ **March** 2012, Treasury securities with remaining maturities of approximately 6 years to 30 years with a total face value of ~~$400~~ **$200** billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face value of ~~$400~~ **$200** billion. The Committee also directs the Desk to maintain its existing policies of rolling over maturing Treasury securities into new issues and of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities in order to maintain the total face value of domestic securities at approximately $2.6 trillion. The Committee directs the Desk to engage in dollar roll transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

Explanatory Notes

A. Measures of the Equilibrium Real Rate

The concepts of the equilibrium real rate reported in the exhibit "Equilibrium Real Federal Funds Rate," are defined as the level of the real federal funds rate that is consistent with output at potential within a specified time horizon. The short-run equilibrium rate is defined as the rate that would close the output gap in twelve quarters given the corresponding model's projection of the economy. The medium-run concept is the value of the real federal funds rate projected to prevail in seven years, under the assumption that monetary policy acts to bring actual and potential output into line in the short run and then keeps them equal thereafter.

Measure	Description
Single-equation Model	The measure of the equilibrium real rate in the single-equation model is based on an estimated aggregate-demand relationship between the current value of the output gap and its lagged values as well as the lagged values of the real federal funds rate.
Small Structural Model	The small-scale model of the economy consists of equations for six variables: the output gap, the equity premium, the federal budget surplus, the trend growth rate of output, the real bond yield, and the real federal funds rate.
EDO Model	Estimates of the equilibrium real rate using EDO—an estimated dynamic-stochastic-general-equilibrium (DSGE) model of the U.S. economy—depend on data for major spending categories, prices and wages, and the federal funds rate as well as the model's structure and estimate of the output gap.
FRB/US Model	Estimates of the equilibrium real rate using FRB/US—the staff's large-scale econometric model of the U.S. economy—depend on a very broad array of economic factors, some of which take the form of projected values of the model's exogenous variables.
Tealbook-consistent	Two measures are presented based on the FRB/US and the EDO models. Both models are matched to the extended Tealbook forecast. Model simulations determine the value of the real federal funds rate that closes the output gap conditional on the exogenous variables in the extended baseline forecast.

Measure	Description
TIPS-based Factor Model	Yields on TIPS (Treasury Inflation-Protected Securities) reflect investors' expectations of the future path of real interest rates. The TIPS-based measure of the equilibrium real rate is constructed using the seven-year-ahead instantaneous real forward rate derived from TIPS yields as of the Tealbook publication date. This forward rate is adjusted to remove estimates of the term and liquidity premiums based on a three-factor, arbitrage-free term-structure model applied to TIPS yields, nominal yields, and inflation.

The actual real federal funds rate is constructed as the difference between the federal funds rate and the trailing four-quarter change in the core PCE price index. The federal funds rate is specified as the target federal funds rate on the Tealbook Book B publication date.

Estimates of the real federal funds rate depend on the proxies for expected inflation used. The table below shows estimates of the real federal funds rates using alternative proxies: lagged core PCE inflation, which is used to construct the actual real federal funds rate shown in the table that displays the *r** measures; lagged four-quarter headline PCE inflation; and projected four-quarter headline PCE inflation beginning with the next quarter. The table also displays the Tealbook-consistent FRB/US-based measure of the short-run equilibrium real rate and the average of the projected real federal funds rate over the next twelve quarters using each of the different proxies for expected inflation.

Proxy used for expected inflation	Actual real federal funds rate (current value)	Tealbook-consistent FRB/US-based measure of the equilibrium real funds rate (current value)	Projected real funds rate (twelve-quarter-ahead average)
Lagged core inflation	–1.5	–3.3	–1.4
Lagged headline inflation	–2.7	–3.4	–1.4
Projected headline inflation	–1.2	–3.2	–1.2

B. Analysis of Policy Paths and Confidence Intervals

RULE SPECIFICATIONS

For the following rules, i_t denotes the federal funds rate for quarter *t*, while the right-hand-side variables include the staff's projection of trailing four-quarter core PCE inflation (π_t), the forecast of inflation two and three quarters ahead ($\pi_{t+2|t}$ and $\pi_{t+3|t}$), the output gap estimate for the current period as well as its one quarter ahead forecast ($y_t - y_t^*$ and $y_{t+1|t} - y_{t+1|t}^*$), and the forecast of three-quarter-ahead annual average GDP growth relative to potential ($\Delta^4 y_{t+3|t} - \Delta^4 y_{t+3|t}^*$). The assumed value of policymakers' long-run inflation objective is denoted π^*. The outcome-based and forecast-based rules were estimated using real-time data over the sample 1988:1–2006:4; each specification was chosen using the Bayesian information criterion. Each rule incorporates a 75 basis point shift in the intercept, specified as a sequence of 25 basis point increments during the first three quarters of 1998. The first two simple rules were proposed by Taylor (1993, 1999). The prescriptions of the first-difference rule do not depend on assumptions regarding r^* or the level of the output gap; see Orphanides (2003).

Outcome-based rule	$i_t = 1.20 i_{t-1} - 0.39 i_{t-2} + 0.19[1.17 + 1.73\pi_t + 3.66(y_t - y_t^*) - 2.72(y_{t-1} - y_{t-1}^*)]$
Forecast-based rule	$i_t = 1.18 i_{t-1} - 0.38 i_{t-2} + 0.20[0.98 + 1.72\pi_{t+2|t} + 2.29(y_{t+1|t} - y_{t+1|t}^*) - 1.37(y_{t-1} - y_{t-1}^*)]$
Taylor (1993) rule	$i_t = 2 + \pi_t + 0.5(\pi_t - \pi^*) + 0.5(y_t - y_t^*)$
Taylor (1999) rule	$i_t = 2 + \pi_t + 0.5(\pi_t - \pi^*) + (y_t - y_t^*)$
First-difference rule	$i_t = i_{t-1} + 0.5(\pi_{t+3|t} - \pi^*) + 0.5(\Delta^4 y_{t+3|t} - \Delta^4 y_{t+3|t}^*)$

FRB/US MODEL SIMULATIONS

Prescriptions from the outcome-based rule are computed using dynamic simulations of the FRB/US model, implemented as though the rule were followed starting at this FOMC meeting. The dotted line labeled "Previous Tealbook" is based on the current specification of the policy rule, applied to the previous Tealbook projection. Confidence intervals are based on stochastic simulations of the FRB/US model with shocks drawn from the estimated residuals over 1969–2009.

INFORMATION FROM FINANCIAL MARKETS

The expected funds rate path is based on quotes for federal funds and forward rate agreements as well as implied three-month forward rates from swaps, and the confidence intervals for this path are constructed using prices of interest rate caps. The computations use the staff's baseline assumptions about term premiums.

NEAR-TERM PRESCRIPTIONS OF SIMPLE POLICY RULES

These prescriptions are calculated using Tealbook projections for inflation and the output gap. The first-difference rule, the estimated outcome-based rule, and the estimated forecast-based rule include the lagged policy rate as a right-hand-side variable. When the Tealbook is published early in the quarter, the lines denoted "Previous Tealbook" report rule prescriptions based on the previous Tealbook's staff outlook, jumping off from the actual value of the lagged funds rate in the previous quarter. When the Tealbook is published late in the quarter, the lines denoted "Previous Tealbook Outlook" report rule prescriptions based on the previous Tealbook's staff outlook, but jumping off from the average value for the policy rate thus far this quarter

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Orphanides, Athanasios (2003). "Historical Monetary Policy Analysis and the Taylor Rule," *Journal of Monetary Economics*, vol. 50 (July), pp. 983–1022.

C. Long-Run Projections of the Balance Sheet and Monetary Base

This explanatory note presents the assumptions underlying the projections provided in the section titled "Long-Run Projections of the Balance Sheet and Monetary Base," as well as projections for each major component of the balance sheet.

General assumptions

The balance sheet projections are constructed at a monthly frequency from December 2011 to December 2020. The few balance sheet items that are not discussed below are assumed to be constant over the projection period at the level observed on November 30, 2011. The projections for all major asset and liability categories under each scenario are summarized in the tables that follow the bullet points.

The Tealbook projections for the scenarios corresponding to Alternatives A and B assume that the target federal funds rate begins to increase in October 2014, consistent with the monetary policy path in the Tealbook extension derived from the outcome-based rule, while the projection for the scenario corresponding to Alternative C assumes the target rate lifts off in January 2013. The balance sheet projections assume that no use of short-term draining tools is necessary to achieve the projected path for the federal funds rate.[1]

Assets

Treasury Securities, Agency Mortgage-Backed Securities (MBS), and Agency Debt Securities

- The assumptions under Alternative B are:
  - Over the nine months beginning in October 2011, the FOMC is assumed to purchase $400 billion in par value of Treasury securities with remaining maturities of six years or more and sell the same par amount of Treasury securities with remaining maturities of three years or less. The FOMC will reinvest the proceeds from principal payments on its agency securities holdings primarily in newly issued agency MBS in the To-Be-Announced (TBA) market. Treasury securities are rolled over at auction according to the Desk's current practice (that is, reinvesting roughly proportionally across all Treasury securities that are being issued on the date the securities mature).

[1] If term deposits or reverse repurchase agreements were used to drain reserves prior to raising the federal funds rate, the composition of liabilities would change: Reserve balances would fall as term deposits and reverse repurchase agreements rose. Presumably, these draining tools would be wound down as the balance sheet returned to its steady state growth path, so that the projected paths for Treasury securities presented in the Tealbook remain valid.

Explanatory Notes

  - Principal payments from Treasury securities and agency MBS and agency debt securities are reinvested until April 2014—six months prior to the assumed increase in the target federal funds rate.[2]
  - The Federal Reserve begins to sell agency MBS and agency debt securities in April 2015, roughly six months after the assumed date of the first increase in the target federal funds rate. Holdings of agency securities are reduced over five years and reach zero by March 2020.
  - For agency MBS, the rate of prepayment is based on staff models using estimates of housing market factors from one of the program's investment managers, long-run average prepayment speeds of MBS, and interest rate projections from the Tealbook.[3] The projected rate of prepayment is sensitive to these underlying assumptions.

- In the scenario corresponding to Alternative A, the Committee is assumed to begin purchasing current coupon agency MBS at a rate of about $40 billion per month through December 2012 for a total $500 billion. In addition, the Committee is expected to complete the MEP program and maintain its policies of reinvesting principal payments from its holdings of agency securities into agency MBS and of rolling over maturing Treasury securities at auction. As in the baseline, reinvestment ends in April 2014—six months prior to the assumed increase in the federal funds rate—and agency securities sales begin in April 2015, continuing for five years.
- In the scenario corresponding to Alternative C, the Committee is expected to limit its previously announced MEP program so that it purchases $200 billion in long-term securities and sells $200 billion in short-term securities, with operations completed by March 2012. Principal payments from Treasury securities continue to be reinvested at auction, and principal payments from agency MBS and agency debt securities are reinvested in agency MBS until July 2012, six months prior to the assumed increase in the federal funds rate. Sales of agency securities begin in July 2013, and continue for five years.
- Because current and expected near-term rates are below the average coupon rate on outstanding Treasury securities, the market value at which these securities are purchased will generally exceed their face value, with a larger premium for longer-maturity securities. As a result, although the par value of securities holdings remains constant under the MEP, premiums associated with the securities, and hence total assets, will rise by about $30 billion. Reserve balances will increase by the same amount.

Explanatory Notes

[2] Projected prepayments of agency MBS reflect interest rates as of December 6, 2011.
[3] Projected prepayments on the existing stock of agency MBS are from an FRBNY staff model that is based on the prepayment model of one of the investment managers; projected prepayments associated with agency MBS expected to be purchased in the future rely on a Board model that is based on the Bond Market Association prepayment model.

- The large-scale asset purchase program in Alternative A would put downward pressure on market interest rates, in particular mortgage rates, and result in more MBS prepayments than in the baseline. The lower path for interest rates would also imply that purchases of Treasury securities would be made at prices that include a greater net premium relative to their face value than in the baseline.
- The level of central bank liquidity swaps is assumed to be elevated from December through February, reflecting the results of the recent 84-day foreign central bank swap auctions, but then return to zero in March 2012.
- In all scenarios, a minimum level of $25 billion is set for reserve balances. Once reserve balances drop to this level, the Desk first purchases Treasury bills to maintain this level of reserve balances going forward. Purchases of bills continue until such securities comprise one-third of the Federal Reserve's total Treasury securities holdings—about the average share prior to the crisis. Once this share is reached, the Federal Reserve buys coupon securities in addition to bills to maintain an approximate composition of the portfolio of one-third bills and two-thirds coupon securities.

Liquidity Programs and Credit Facilities

- Loans through the Term Asset-Backed Securities Loan Facility (TALF) reached a month-end high of $48 billion in December 2009. Credit extended through this facility declines to zero by the end of 2015, reflecting loan maturities and prepayments.
- The assets held by TALF LLC remain at about $1 billion through 2014 before declining to zero the following year. Assets held by TALF LLC consist of investments of commitment fees collected by the LLC and the U.S. Treasury's initial funding. In this projection, the LLC does not purchase any asset-backed securities received by the Federal Reserve Bank of New York in connection with a decision of a borrower to not repay a TALF loan.
- The assets held by Maiden Lane LLC and Maiden Lane III LLC decline gradually over time. The assets of Maiden Lane II LLC are assumed to roll off modestly through the first increase in the federal funds rate; sales of assets in Maiden Lane II LLC's portfolio are assumed to then resume, and holdings gradually fall to zero over the following eight months.

Liabilities and Capital

- Federal Reserve notes in circulation grow in line with the staff forecast for money stock currency through the last quarter of 2013. Afterwards, Federal Reserve notes in circulation grow at the same rate as nominal GDP, as in the extended Tealbook projection.
- Over the next three months, the level of reverse repurchase agreements is assumed to decline to $70 billion, about the average level observed over the past three years.

- The U.S. Treasury's General Account (TGA) follows the staff forecast through June 2012.[4] Then, the TGA slowly drops back to its historical target level of $5 billion by January 2013 as it is assumed that the Treasury will implement a new cash management system and invest funds in excess of $5 billion. The TGA remains constant at $5 billion over the remainder of the forecast period.
- We maintain the Supplementary Financing Account (SFA) balance at its current level of zero throughout the forecast.
- Federal Reserve capital grows 15 percent per year, in line with the average rate of the past ten years.
- In general, increases in the level of Federal Reserve assets are matched by higher levels of reserve balances. Increases in the levels of liability items, such as Federal Reserve notes in circulation or other liabilities, or increases in the level of Reserve Bank capital, drain reserve balances. When increases in these liability or capital items would otherwise cause reserve balances to fall below $25 billion, purchases of Treasury securities are assumed in order to maintain that level of reserve balances.
- In the event that a Federal Reserve Bank's earnings fall short of the amount necessary to cover operating costs, pay dividends, and equate surplus to capital paid-in, a deferred asset would be recorded. This deferred asset is recorded in lieu of reducing the Reserve Bank's capital and is reported on the liability side of the balance sheet as "Interest on Federal Reserve notes due to U.S. Treasury." This liability takes on a positive value when weekly cumulative earnings have not yet been distributed to the Treasury, while this liability takes on a negative value when earnings fall short of the expenses listed above. In the projections, System-wide earnings are always sufficient to cover these expenses, and this line item is set to zero.

[4] The staff forecast for end-of-month U.S. Treasury operating cash balances includes forecasts of both the TGA and balances associated with the U.S. Treasury's Tax and Loan program. Because balances associated with the Tax and Loan program are only $2 billion, for the time being, this forecast is used as a proxy for the level of TGA balances.

Federal Reserve Balance Sheet
End-of-Year Projections -- Alternative A

Billions of dollars

	Nov 30, 2011	2012	2014	2016	2018	2020
Total assets	2,817	3,252	3,158	2,240	1,793	2,002
Selected assets						
Liquidity programs for financial firms	3	0	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	2	0	0	0	0	0
Lending through other credit facilities	10	4	0	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	10	4	0	0	0	0
Support for specific institutions	38	29	21	11	7	4
Credit extended to AIG	0	0	0	0	0	0
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	38	29	21	11	7	4
Securities held outright	2,605	3,030	2,979	2,098	1,674	1,896
U.S. Treasury securities	1,672	1,662	1,611	1,238	1,347	1,896
Agency debt securities	106	77	39	16	2	0
Agency mortgage-backed securities	827	1,291	1,330	843	324	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	161	188	157	130	112	103
Total liabilities	2,763	3,182	3,066	2,117	1,630	1,788
Selected liabilities						
Federal Reserve notes in circulation	1,020	1,090	1,217	1,365	1,515	1,673
Reverse repurchase agreements	93	70	70	70	70	70
Deposits with Federal Reserve Banks	1,578	2,006	1,762	666	30	30
Reserve balances held by depository institutions	1,492	1,988	1,757	661	25	25
U.S. Treasury, General Account	86	17	5	5	5	5
U.S. Treasury, Supplementary Financing Account	0	0	0	0	0	0
Other balances	0	0	0	0	0	0
Interest on Federal Reserve Notes due to U.S. Treasury	1	0	0	0	0	0
Total capital	54	70	93	123	162	215

Source: Federal Reserve H.4.1 statistical releases and staff calculations.
Note: Components may not sum to totals due to rounding.

Explanatory Notes

Federal Reserve Balance Sheet
End-of-Year Projections -- Alternative B

Billions of dollars

	Nov 30, 2011	2012	2014	2016	2018	2020
Total assets	2,817	2,828	2,680	1,934	1,793	2,002
Selected assets						
Liquidity programs for financial firms	3	0	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	2	0	0	0	0	0
Lending through other credit facilities	10	4	0	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	10	4	0	0	0	0
Support for specific institutions	38	29	21	11	7	4
Credit extended to AIG	0	0	0	0	0	0
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	38	29	21	11	7	4
Securities held outright	2,605	2,610	2,504	1,795	1,675	1,897
U.S. Treasury securities	1,672	1,662	1,611	1,238	1,465	1,897
Agency debt securities	106	77	39	16	2	0
Agency mortgage-backed securities	827	871	855	540	208	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	161	185	154	128	110	101
Total liabilities	2,763	2,758	2,587	1,811	1,630	1,788
Selected liabilities						
Federal Reserve notes in circulation	1,020	1,090	1,217	1,365	1,515	1,673
Reverse repurchase agreements	93	70	70	70	70	70
Deposits with Federal Reserve Banks	1,578	1,582	1,284	361	30	30
Reserve balances held by depository institutions	1,492	1,564	1,279	356	25	25
U.S. Treasury, General Account	86	17	5	5	5	5
U.S. Treasury, Supplementary Financing Account	0	0	0	0	0	0
Other balances	0	0	0	0	0	0
Interest on Federal Reserve Notes due to U.S. Treasury	1	0	0	0	0	0
Total capital	54	70	93	123	162	215

Source: Federal Reserve H.4.1 statistical releases and staff calculations.
Note: Components may not sum to totals due to rounding.

Explanatory Notes

Federal Reserve Balance Sheet
End-of-Year Projections -- Alternative C

Billions of dollars

	Nov 30, 2011	2012	2014	2016	2018	2020
Total assets	2,817	2,662	2,038	1,603	1,793	2,002
Selected assets						
Liquidity programs for financial firms	3	0	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	2	0	0	0	0	0
Lending through other credit facilities	10	4	0	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	10	4	0	0	0	0
Support for specific institutions	38	29	16	11	7	4
Credit extended to AIG	0	0	0	0	0	0
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	38	29	16	11	7	4
Securities held outright	2,605	2,469	1,890	1,482	1,689	1,908
U.S. Treasury securities	1,672	1,598	1,338	1,246	1,689	1,908
Agency debt securities	106	77	39	16	0	0
Agency mortgage-backed securities	827	794	513	220	0	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	161	159	131	110	97	90
Total liabilities	2,763	2,592	1,945	1,481	1,630	1,788
Selected liabilities						
Federal Reserve notes in circulation	1,020	1,090	1,217	1,365	1,515	1,673
Reverse repurchase agreements	93	70	70	70	70	70
Deposits with Federal Reserve Banks	1,578	1,416	642	30	30	30
Reserve balances held by depository institutions	1,492	1,398	637	25	25	25
U.S. Treasury, General Account	86	17	5	5	5	5
U.S. Treasury, Supplementary Financing Account	0	0	0	0	0	0
Other balances	0	0	0	0	0	0
Interest on Federal Reserve Notes due to U.S. Treasury	1	0	0	0	0	0
Total capital	54	70	93	123	162	215

Source: Federal Reserve H.4.1 statistical releases and staff calculations.
Note: Components may not sum to totals due to rounding.

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