

Prefatory Note

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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

June 14, 2012

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

Monetary Policy Strategies

The top panel of the first exhibit, “Policy Rules and the Staff Projection,” provides near-term prescriptions for the federal funds rate from five selected policy rules: the Taylor (1993) rule, the Taylor (1999) rule, the outcome-based rule, the first-difference rule, and the nominal income targeting rule.¹ These prescriptions take the staff’s baseline projections for real activity and inflation as given; medium-term prescriptions derived from dynamic simulations of each rule are considered on subsequent pages. As shown in the left-hand columns, the near-term prescriptions from all but one of the rules keep the federal funds rate at the effective lower bound in both the third and fourth quarters of this year. The exception is the Taylor (1993) rule, which embeds a smaller response to the output gap; it prescribes a policy rate of around 155 basis points for the second half of the year. The right-hand columns display the rule prescriptions that arise in the absence of the lower-bound constraint. The outcome-based rule and the first-difference rule prescribe fund rates that are close to zero for the next two quarters, whereas the Taylor (1999) rule and the nominal income targeting rule prescribe rates well below zero. The more accommodative prescription under these two rules arises from their stronger, non-inertial response to the staff’s large negative output gap estimates. The Tealbook baseline projections for the output gap and inflation are shown in the bottom half of the exhibit, titled “Key Elements of the Staff Projection.” Compared with the previous Tealbook, the staff foresees slightly lower inflation and a more delayed narrowing of the output gap.² As a result, the near-term prescriptions from all rules other than the nominal income targeting rule have decreased slightly.

The first exhibit also reports the Tealbook-consistent estimate of short-run r^* , which is generated by the FRB/US model when conditioned on the staff’s outlook for the economy. The short-run r^* estimate corresponds to the real federal funds rate that, if maintained, would return output to its potential in twelve quarters. Reflecting the staff’s weaker projection for real activity, short-run r^* is now estimated at –2.9 percent, 40 basis points lower than in the April Tealbook. The r^* estimate is considerably below the

¹ Details for each rule appear in Explanatory Note A.

² The estimated output gap for the first half of 2012 is slightly narrower than in April due to the staff’s modest downward revision to the *level* of potential output. A full description of the changes to the staff projection is provided in Book A of the Tealbook.

Policy Rules and the Staff Projection

Near-Term Prescriptions of Selected Policy Rules

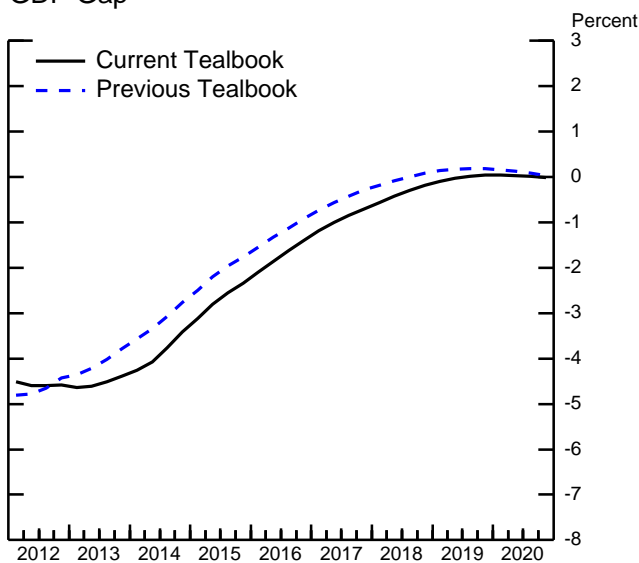
	Constrained Policy		Unconstrained Policy	
	<u>2012Q3</u>	<u>2012Q4</u>	<u>2012Q3</u>	<u>2012Q4</u>
Taylor (1993) rule	1.52	1.59	1.52	1.59
<i>Previous Tealbook</i>	1.60	1.85	1.60	1.85
Taylor (1999) rule	0.13	0.13	-0.73	-0.64
<i>Previous Tealbook</i>	0.13	0.13	-0.67	-0.32
Outcome-based rule	0.13	0.13	0.04	-0.08
<i>Previous Tealbook Outlook</i>	0.13	0.17	0.11	0.17
First-difference rule	0.13	0.13	-0.07	-0.24
<i>Previous Tealbook Outlook</i>	0.26	0.40	0.26	0.40
Nominal income targeting rule	0.13	0.13	-0.41	-0.86
<i>Previous Tealbook Outlook</i>	0.13	0.13	-0.43	-0.85

Memo: Equilibrium and Actual Real Federal Funds Rate

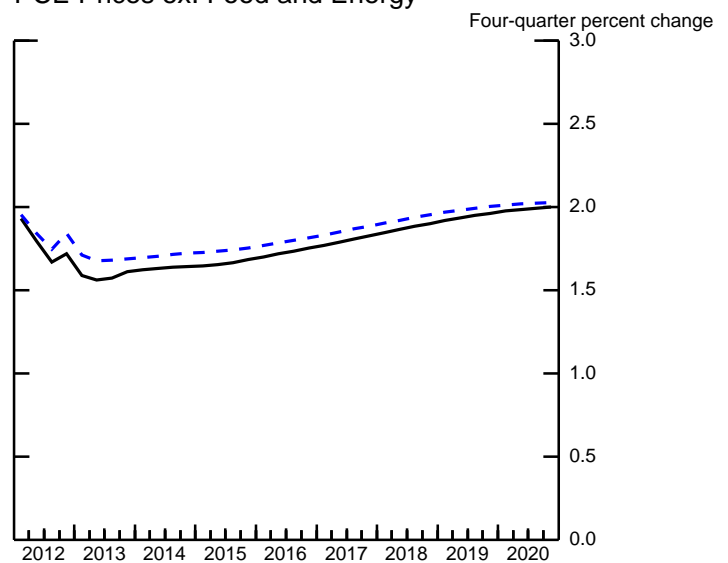
	Current Tealbook	<i>Previous Tealbook</i>
Tealbook-consistent FRB/US r^* estimate	-2.9	-2.5
Actual real federal funds rate	-1.8	-1.8

Key Elements of the Staff Projection

GDP Gap



PCE Prices ex. Food and Energy



Note: 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.

estimated actual real federal funds rate of -1.8 percent, which has remained essentially constant since April.

The second exhibit, “Policy Rule Simulations,” reports dynamic simulations using FRB/US that incorporate the endogenous responses of inflation and the output gap to the different paths of the federal funds rate prescribed by the constrained versions of the five policy rules described above. The model is first adjusted to match the staff’s baseline outlook for the economy. The model is then simulated assuming that each policy rule is implemented from now onward and that private agents fully understand and anticipate the implications of each rule for future real activity, inflation, and interest rates.³ For comparison, the exhibit also displays the Tealbook baseline paths, which are conditioned on the prescriptions of the outcome-based rule.

In the Tealbook baseline, which employs the outcome-based policy rule, the federal funds rate is at the effective lower bound until the third quarter of 2014, two quarters later than in the April Tealbook, and then increases gradually to just above 4 percent by the end of the decade. The Taylor (1999) rule leads to a very similar path for the federal funds rate, except that lift-off from the effective lower bound occurs one quarter later, in the fourth quarter of 2014.⁴ The two rules therefore produce very similar economic conditions, characterized by a slow convergence of the unemployment rate to the staff’s estimate of the effective natural rate of unemployment by 2020 and a gradual return of inflation to the 2 percent goal, following an initial decline to the 1 to 1.5 percent range that results from the transitory effects of movements in energy prices.⁵

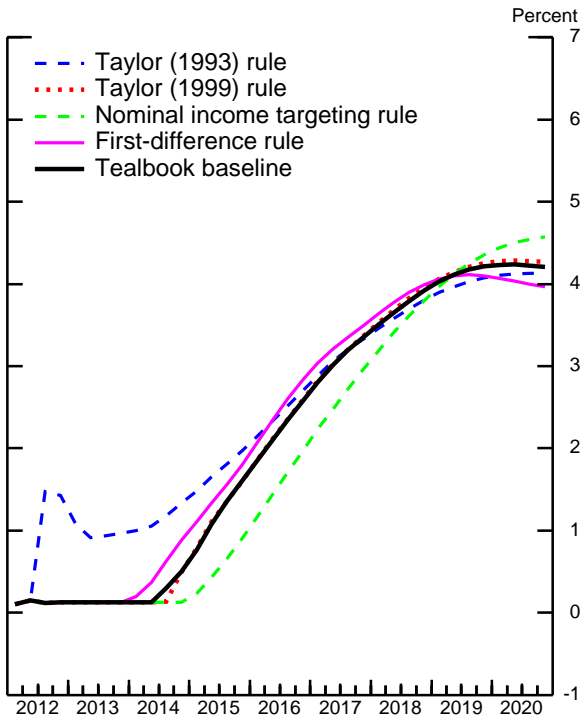
³ The staff’s baseline forecast incorporates the effects of the large-scale asset purchase programs that the FOMC undertook in past years, as well as the effects of the current maturity extension program and the modifications to the Federal Reserve’s reinvestment policies that were announced last September. Via this procedure, the policy rule simulations incorporate the effects of these balance sheet policies; the rules themselves are not directly adjusted for the effects of balance sheet policies. The simulations, like the Tealbook baseline, do not incorporate a further MEP or LSAP.

⁴ The outcome-based rule and the Taylor (1999) rule have similar longer-run properties, especially with respect to the response to the level of the output gap; however, their short-run responses are typically more distinct. Currently, two offsetting forces lead to the similar funds rate prescriptions: On the one hand, the outcome-based rule includes a term for the change in the output gap which, because of the projected pickup in output growth in 2014 and beyond, tends to prescribe increases in the funds rate relative to the Taylor (1999) rule. On the other hand, the outcome-based rule includes lags of the federal funds rate whose presence tends to slow the pace of increase in the funds rate. Currently, these two forces are almost exactly offsetting each other, leading, on net, to similar funds rate prescriptions.

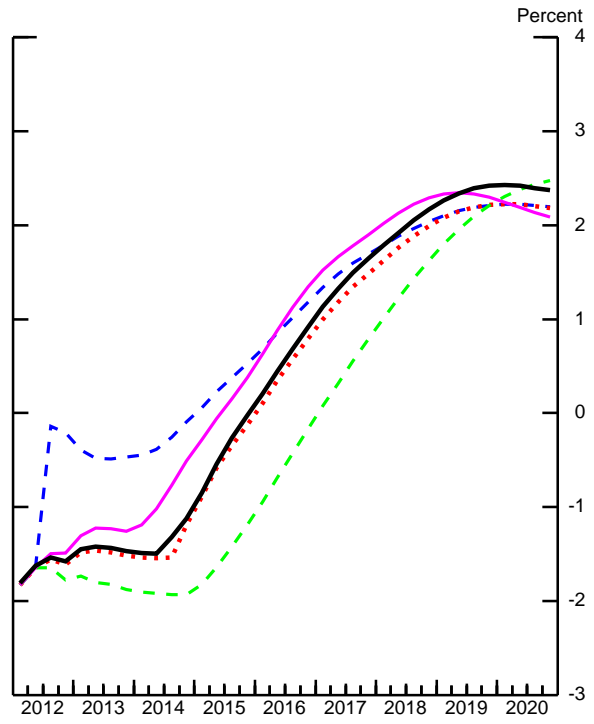
⁵ The staff’s estimate of the effective natural rate of unemployment falls from 6.2 percent in the second quarter of 2012 to 5.25 percent by the end of 2017.

Policy Rule Simulations

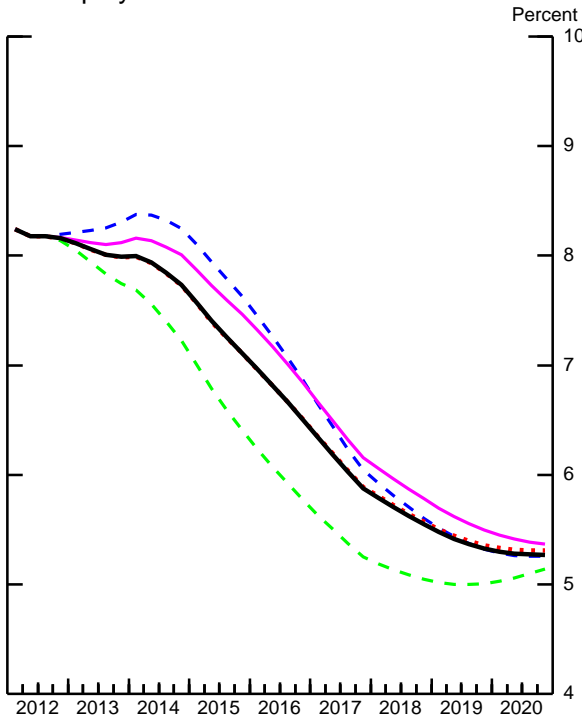
Nominal Federal Funds Rate



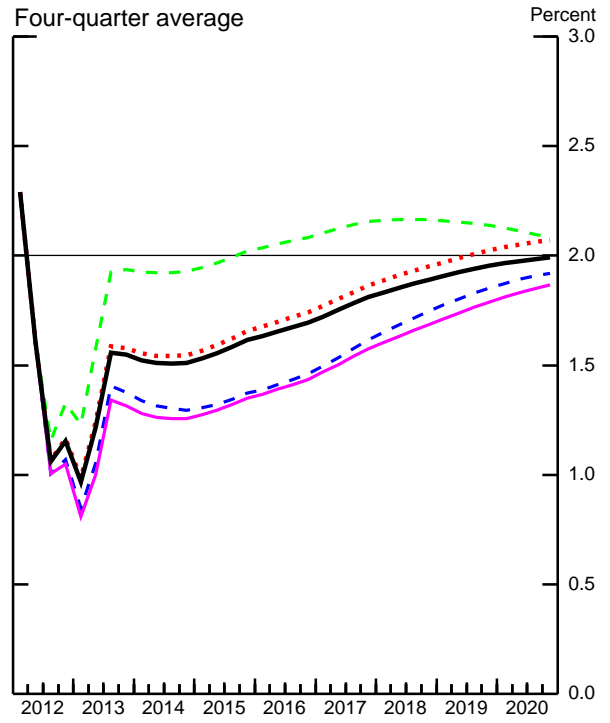
Real Federal Funds Rate



Unemployment Rate



PCE Inflation
Four-quarter average



Note: The policy rule simulations in this exhibit are based on rules that respond to core 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.

Under the nominal income targeting rule, the initial tightening of the funds rate occurs at the beginning of 2015, and policy subsequently remains more accommodative than under the other rules for several years. This more accommodative policy is reflected in a more rapid decline in unemployment with inflation hovering near 2 percent from mid-2013 onward.

As both the Taylor (1993) rule and the first-difference rule lead to earlier increases in the federal funds rate than under the other rules, they are associated with a higher path for the unemployment rate and with lower inflation through the end of the decade. Because the Taylor (1993) rule does not respond strongly to the level of the output gap, this rule implies an immediate departure of the funds rate from its effective lower bound. While the first-difference rule does not prescribe an increase in the funds rate until early 2014 in this set of simulations, it implies policy rates for the following years that run a bit higher than under the other rules. Reflecting the forward-looking price- and wage-setting behavior embedded in the FRB/US model, the Taylor (1993) and the first-difference rule thus generate fairly similar outcomes for inflation, despite the differences in their funds rate prescriptions over the next two years.

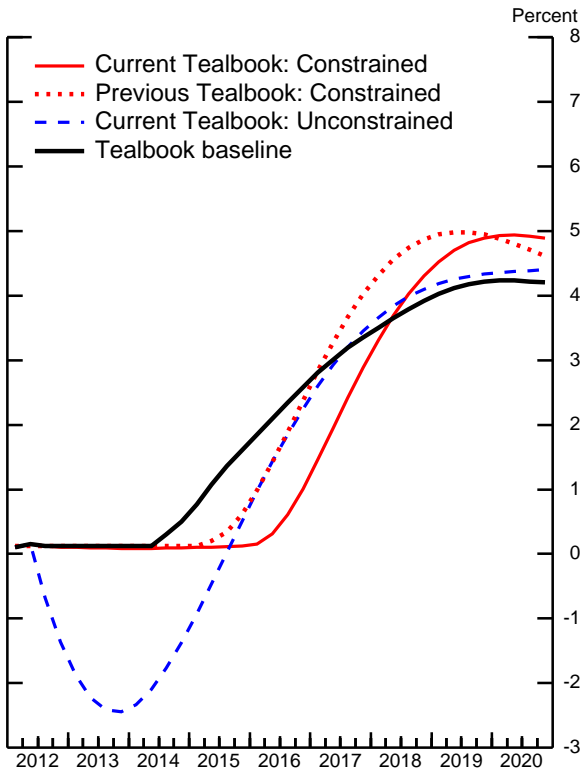
As shown in the third exhibit, “Constrained vs. Unconstrained Optimal Control Policy,” the staff’s downward revisions to the paths of real activity and inflation over the projection period imply that funds rate prescriptions from optimal control simulations of the FRB/US model are more accommodative than those reported in April.⁶ In these simulations, policymakers are assumed to place equal weights on keeping headline PCE inflation close to the Committee’s 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. The simulations indicate that, with policy constrained to remain positive, the optimal path for the federal funds rate does not rise above the effective lower bound until the second quarter of 2016, three quarters later than in the optimal path reported in the April Tealbook.⁷

⁶ The optimal policy simulations incorporate the assumptions about underlying economic conditions used in the staff’s baseline forecast, including the assumptions about balance sheet policy described in footnote 3.

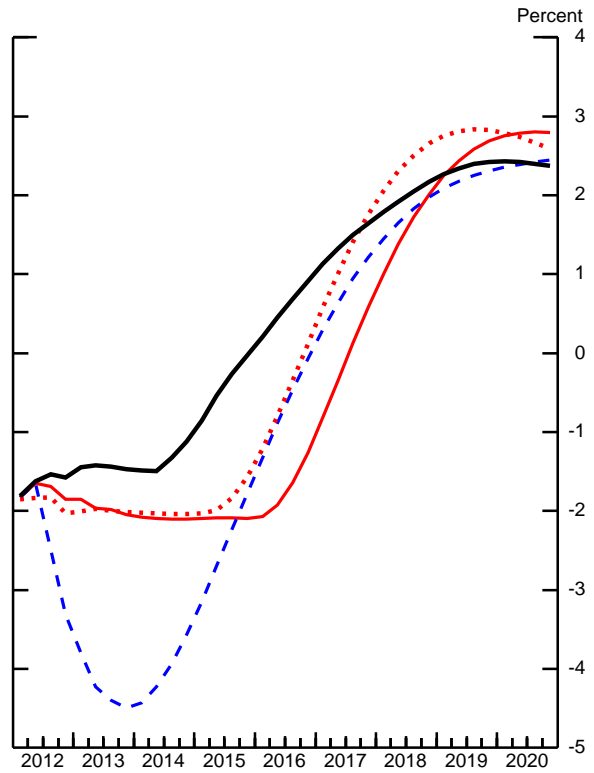
⁷ Although the loss function uses headline inflation instead of core inflation, the real federal funds rate shown in the upper right panel of the exhibit is calculated as the difference between the nominal funds rate and a four-quarter moving average of core PCE inflation. Core PCE inflation is used to compute the real rate for this illustrative purpose because it provides a less volatile measure of inflation expectations than does a four-quarter moving average of headline inflation.

Constrained vs. Unconstrained Optimal Control Policy

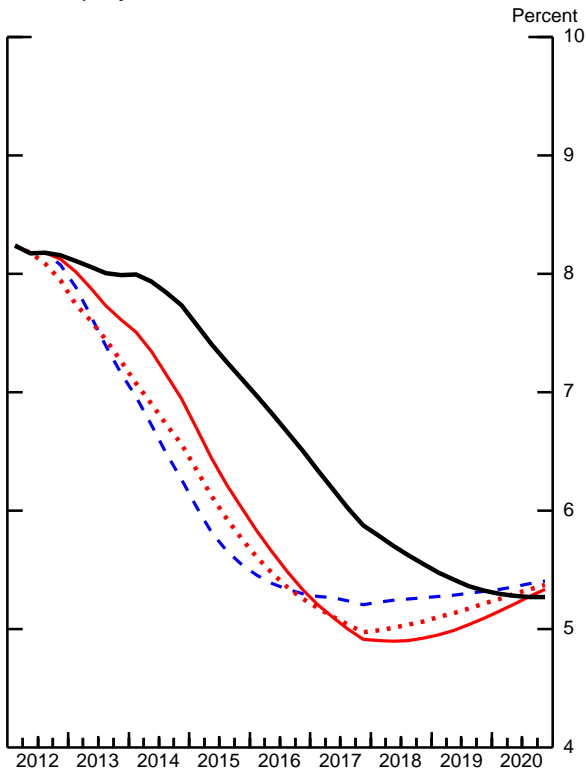
Nominal Federal Funds Rate



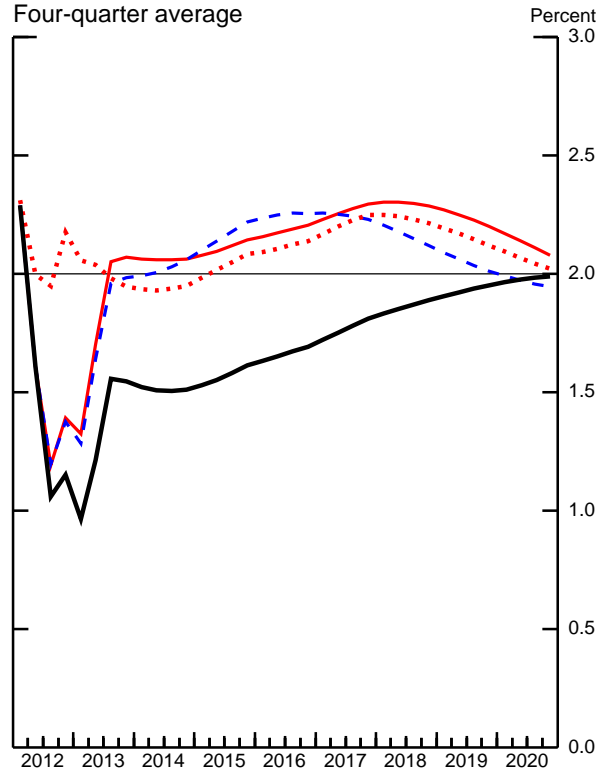
Real Federal Funds Rate



Unemployment Rate



PCE Inflation
Four-quarter average



The optimal constrained control policy keeps the funds rate lower for longer than any of the other policy approaches discussed above. As a consequence, this policy would promote a faster pace of economic recovery than in the staff's baseline outlook, as well as keep inflation close to the FOMC's goal of 2 percent. In this optimal control simulation, the gap between the unemployment rate and the staff's estimate of the effective natural rate of unemployment is closed by mid-2016, and the unemployment rate runs slightly below its natural rate over the next few years. Inflation initially exhibits a decline similar to that in the Tealbook baseline before increasing to the 2 percent target by mid-2013 and then overshooting slightly, peaking at 2.3 percent in 2018 and then gradually returning to the 2 percent target. The more rapid convergence to the Committee's assumed objectives occurs because policymakers respond to the lower bound constraint by promising to keep interest rates low for an extended period of time. As this policy is assumed to be completely credible, it boosts inflation expectations and reduces real interest rates during the first years of the simulation.⁸

If the nominal federal funds rate could fall below zero, the funds rate, under the optimal unconstrained policy, would decrease to -2.4 percent in the third quarter of 2013 and return to positive territory by the second half of 2015, implying a slightly steeper and more persistent drop than in the April Tealbook.⁹ Under these conditions, the unemployment rate would decline more rapidly than under the optimal constrained policy and close the gap with the estimated natural rate of unemployment by early 2015. Inflation would rise back to 2 percent by mid-2013, a pattern much like that in the constrained simulation. In subsequent years, inflation would slightly overshoot the 2

⁸ As discussed in "Monetary Policy Strategies" in the March 2012 Tealbook, the optimal control outcomes shown here are based on the assumption that policymakers can credibly commit to future policy actions. If instead, policymakers were assumed to reoptimize at every point in time, their scope to affect the real funds rate via changes in inflation expectations would be severely limited. In addition, the extent to which policymakers use inflation expectations as a policy tool depends on the structure of inflation dynamics. Compared with the other principal staff models (EDO and SIGMA), the FRB/US model embeds relatively strong inertia in inflation; this factor reduces the extent to which policymakers optimally seek to raise inflation expectations when faced with the effective lower bound on the funds rate.

⁹ The hypothetical stimulus provided by negative funds rates in these optimal control simulations indicates the extent to which optimal policy remains constrained by the lower bound on the federal funds rate. As noted above, these exercises hold balance sheet policy at an assumed baseline. In the presence of the lower bound, the stimulus called for by the optimal unconstrained policy simulation could be provided by taking actions, such as additional large-scale asset purchases, that would make balance sheet policy more accommodative than under the baseline assumption. Of course, the potential economic benefits of such an action would have to be balanced against the costs associated with a further elevation of the Federal Reserve's balance sheet. These considerations are discussed further in two memos sent to the Committee on April 17, 2012, "A Summary of the Costs and Benefits of Large-Scale Asset Purchases" and "Extending the Maturity Extension Program."

percent target—but less persistently than in the constrained case—moving up to 2.25 percent by mid-decade before returning to the 2 percent mark by the beginning of 2020.

The fourth exhibit, “Outcomes under Alternative Policies,” tabulates the simulation results for key variables under the selected policy rules described above.

The fifth exhibit, “Unconstrained Optimal Control Policy: Alternative Weights on Policy Objectives,” reports the unconstrained optimal control simulations shown in the third exhibit along with simulations that attach alternative weights to the different policy objectives. Under the first alternative, policymakers are assumed to place a weight on keeping the unemployment rate close to the staff’s natural rate estimate that is one-tenth of the weight in the baseline simulation (while not changing the weights on keeping headline PCE inflation close to the Committee’s 2 percent inflation goal and on minimizing changes in the federal funds rate). The federal funds rate does not fall much in this case, reaching –0.63 percent by the end of 2013 compared with –2.4 percent in the baseline case, and it rises above the effective lower bound by mid-2015. As a result, unemployment declines at a slower pace than in the other optimal control simulations, and inflation remains a bit closer to the 2 percent mark. That said, the large change to the relative weight on the unemployment gap yields only modest differences in outcomes.

Under a second alternative setting of the objective function, policymakers assign a weight on keeping headline PCE inflation close to the Committee’s 2 percent inflation goal that is one-tenth of the weight in the baseline simulation (while not changing the weights on keeping the unemployment rate close to the staff’s natural rate estimate and on minimizing changes in the federal funds rate). Inflation in this case rises more substantially above the 2 percent mark, peaking at 2.5 percent in 2017 before decreasing to 2.2 percent by the end of 2020. Through mid-decade, the path for the nominal federal funds rate is essentially the same as that prescribed when equal weights are placed on stabilizing real activity and inflation. Subsequently, the path is slightly higher. Because inflation is higher than under the equal-weights case, the real interest rate is slightly lower over the entire simulation period. As a result, the unemployment rate drops marginally below the path implied by the unconstrained optimal control baseline.¹⁰ Again, this simulation illustrates that outcomes under optimal control in the FRB/US

¹⁰ In the simulation, the unemployment rate remains somewhat below its path in the baseline optimal-control case for a number of years beyond 2020. Given the forward-looking nature of expectations in the model, this extended period of slightly tighter resource utilization helps to explain why inflation runs somewhat higher than in the baseline case from 2013 through 2020.

Outcomes under Alternative Policies

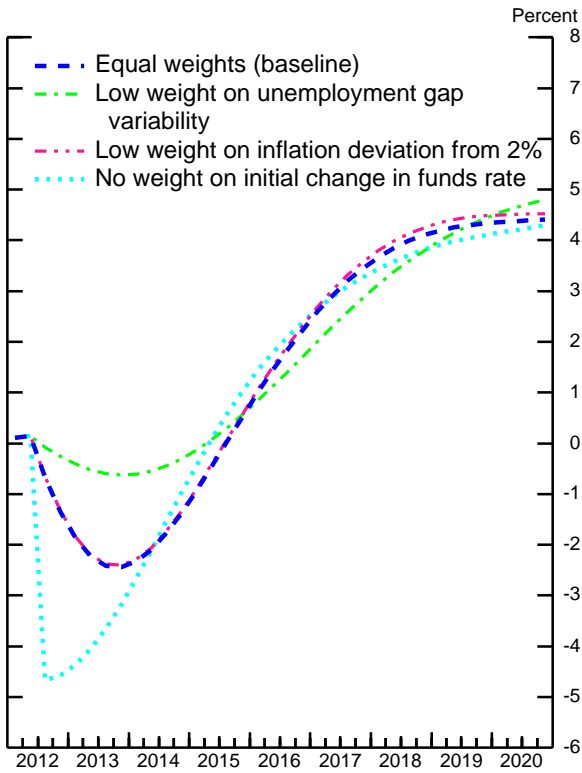
(Percent change, annual rate, from end of preceding period except as noted)

Measure and scenario	2011	2012	2013	2014	2015	2016
	H2					
<i>Real GDP</i>						
Extended Tealbook baseline	2.4	1.9	2.2	3.1	3.5	3.4
Taylor (1993)	2.4	1.7	1.6	2.8	3.6	3.7
Taylor (1999)	2.4	1.9	2.2	3.1	3.5	3.4
First-difference	2.4	1.8	1.9	2.8	3.4	3.4
Nominal income targeting	2.4	2.0	2.7	3.6	3.8	3.4
Constrained optimal control	2.4	2.1	3.1	3.9	4.0	3.5
<i>Unemployment rate¹</i>						
Extended Tealbook baseline	8.7	8.2	8.0	7.7	7.1	6.5
Taylor (1993)	8.7	8.2	8.3	8.2	7.6	6.9
Taylor (1999)	8.7	8.2	8.0	7.7	7.1	6.5
First-difference	8.7	8.2	8.1	8.0	7.5	6.8
Nominal income targeting	8.7	8.2	7.8	7.2	6.4	5.8
Constrained optimal control	8.7	8.2	7.6	6.9	6.0	5.3
<i>Total PCE prices</i>						
Extended Tealbook baseline	1.8	1.2	1.5	1.5	1.6	1.7
Taylor (1993)	1.8	1.1	1.3	1.3	1.4	1.5
Taylor (1999)	1.8	1.2	1.5	1.5	1.6	1.7
First-difference	1.8	1.1	1.3	1.2	1.3	1.4
Nominal income targeting	1.8	1.4	1.9	1.9	2.0	2.1
Constrained optimal control	1.8	1.4	2.0	2.1	2.1	2.2
<i>Core PCE prices</i>						
Extended Tealbook baseline	1.7	1.7	1.6	1.6	1.7	1.8
Taylor (1993)	1.7	1.6	1.4	1.4	1.5	1.6
Taylor (1999)	1.7	1.7	1.6	1.6	1.7	1.8
First-difference	1.7	1.6	1.4	1.3	1.4	1.5
Nominal income targeting	1.7	1.9	2.0	2.0	2.1	2.2
Constrained optimal control	1.7	1.9	2.1	2.2	2.2	2.3
<i>Federal funds rate¹</i>						
Extended Tealbook baseline	0.1	0.1	0.1	0.5	1.6	2.6
Taylor (1993)	0.1	1.4	1.0	1.3	2.0	2.7
Taylor (1999)	0.1	0.1	0.1	0.5	1.6	2.6
First-difference	0.1	0.1	0.1	0.9	1.8	2.8
Nominal income targeting	0.1	0.1	0.1	0.1	0.9	2.0
Constrained optimal control	0.1	0.1	0.1	0.1	0.1	1.0

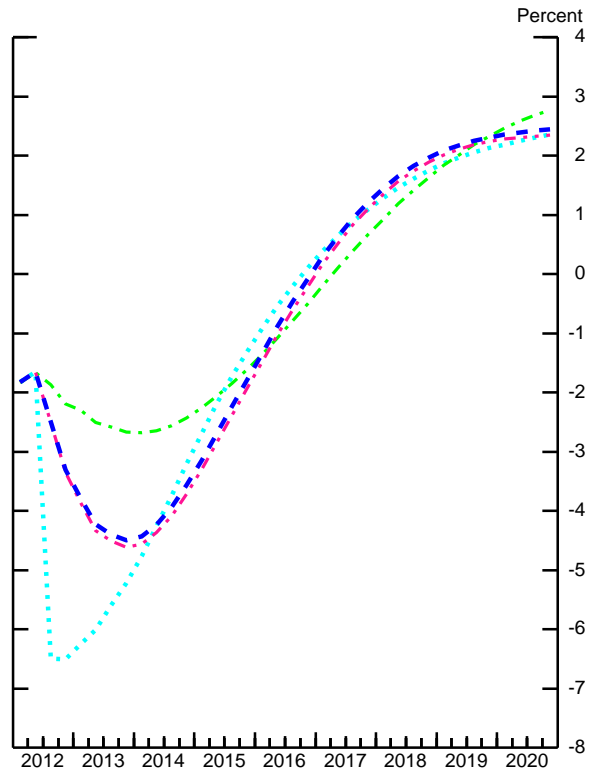
1. Percent, average for the final quarter of the period.

Unconstrained Optimal Control Policy: Alternative Weights on Policy Objectives

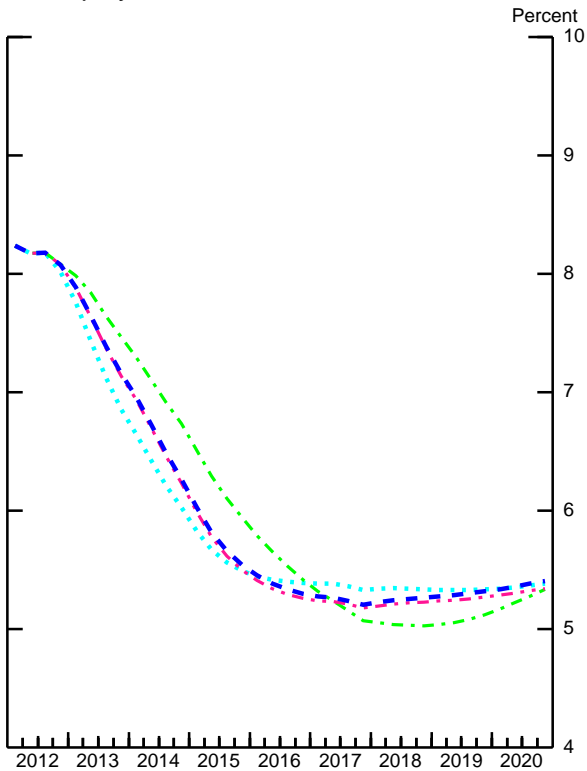
Nominal Federal Funds Rate



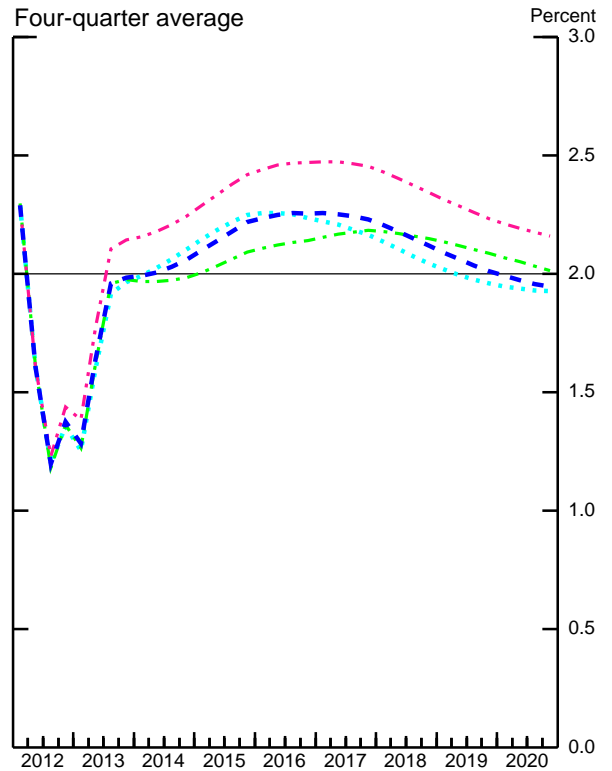
Real Federal Funds Rate



Unemployment Rate



PCE Inflation
Four-quarter average



model are only modestly sensitive to changes in the relative weights placed on stabilizing unemployment and inflation, at least given the current economic outlook.¹¹

The final variation on the objective function removes the penalty on the initial change in the funds rate while keeping all other weights (including those on funds rate changes in subsequent periods) the same as in the baseline optimal control exercise. This simulation illustrates the hypothetical case in which policymakers, following a period in which the policy rate was constrained by the lower bound, implement unconstrained optimal policy given current economic conditions. Policymakers might therefore view the initial drop in the funds rate as a reasonable measure of how much additional stimulus is currently called for according to the model estimate of optimal unconstrained policy. For this setting of policymaker objectives, the funds rate immediately declines to -4.7 percent, gradually returns to zero by mid-2015, and then increases to just above 4 percent by the end of 2019. Unemployment initially declines at a more rapid pace while inflation evolves in much the same way as under the unconstrained optimal control baseline.

¹¹ The economic outcomes are similar because the currently high rate of unemployment and low forecasted inflation rate both call for broadly similar policy prescriptions, and because the rules in both cases penalize large movements in the federal funds rate.

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Monetary Policy Alternatives

This Tealbook presents three policy alternatives (but four draft statements—labeled A, B, B', and C) for the Committee's consideration. The statements offer a range of possible policy actions, from providing more policy stimulus by undertaking new purchases of agency mortgage-backed securities (MBS) in Alternative A, to continuing the maturity extension program (MEP) in the B Alternatives, to revising the forward guidance for the federal funds rate in Alternative C. As always, the Committee could blend elements of the draft statements to construct its desired statement.

Alternatives B and B' include identical policy actions and present similar characterizations of current conditions, the economic outlook, and the risks to that outlook. However, while Alternative B follows the format that the Committee has used in its recent statements, Alternative B' follows a somewhat different format that is intended to link the Committee's policy action—in this case, the continuation of the MEP—more explicitly to its assessment of the outlook for economic growth, employment, and inflation and to the risks associated with its projections for those variables.¹

Inasmuch as real GDP appears to be growing at about the same rate in the second quarter as in the first—or perhaps a little more slowly—all four draft statements begin with the same characterization of the incoming data as the April statement, namely that the economy has been “expanding moderately.” However, the B alternatives characterize employment growth as having slowed in recent months, and Alternative A states that this pace has slowed “notably;” these three alternatives also note that the unemployment rate remains elevated. In contrast, Alternative C takes a somewhat longer view and points out that the labor market has improved “on balance, this year.” Alternatives A, B, and B' note that business fixed investment has “continued to advance,” but that household spending “appears to be rising at a somewhat slower pace than earlier in the year.” Alternative C simply states that private domestic demand has continued to advance. Alternative A and the two B alternatives remark, as in the April statement, that the housing sector remains depressed, while Alternative C drops this reference. All of the alternatives mention the recent decline in inflation and attribute it mainly to lower prices of crude oil and gasoline. Alternative C downplays the move by saying that inflation has “declined somewhat,” while

¹ Alternative B' takes as its point of departure the changes to the statement proposed in the memo by Presidents Kocherlakota, Plosser and Williams, “A State-Contingent Approach to the FOMC Statement,” distributed to the Committee on June 9, 2012.

Alternative A gives it greater emphasis by saying that inflation has “declined somewhat more than anticipated.” Each statement notes that longer-term inflation expectations have remained stable.

The alternatives also differ in their characterizations of the medium-term outlook for real activity. Alternative B downgrades the forecast modestly relative to April by predicting that growth will remain moderate in coming quarters and then will pick up “very gradually,” and that unemployment will decline “only slowly.” Alternative B’ offers the option of emphasizing the modal nature of the forecast by saying that this is the outlook the Committee “sees as ... most likely.” Alternative A does not mention a possible pickup in economic growth, and, like Alternative B, states that the Committee expects unemployment to decline “only slowly.” Alternative C retains the language of the April statement, indicating that the Committee “expects economic growth to remain moderate over coming quarters and then to pick up gradually” and that unemployment is therefore likely to “decline gradually.”

With respect to the outlook for inflation, Alternatives A and B state that the Committee expects that inflation will “run at or below the rate that it judges consistent with its dual mandate” over the medium term. Alternative B’ again provides the option of characterizing this forecast as the “most likely” outcome. Alternative C includes a projection that “inflation over the medium term will run at about” the mandate-consistent level.

As in the April statement, all four alternatives highlight the risks to the outlook from strains in global financial markets. Alternative B’ calls more attention to these strains—stating that they have increased since earlier this year—and places them within a new paragraph that is devoted exclusively to the risks to the outlook and which gives the Committee’s assessment of the balance of risks to its projections for growth and for inflation. This paragraph also notes that the risk of a sharp increase in commodity prices has eased.

Under all four alternatives the Committee would maintain the 0 to ¼ percent target range for the federal funds rate at this meeting. The B and B’ versions of the statement make no change to the guidance regarding the anticipated period of exceptionally low federal funds rates. Alternative A alters the forward guidance by removing the specific reference to “low rates of resource utilization and a subdued outlook for inflation,” which some may find too negative in tone, and offers the option of extending the expected date of

policy liftoff to mid-2015. Under Alternative C the Committee could alter the forward guidance either by making the anticipated date of the first increase in the funds rate earlier or by replacing the current forward guidance—including the date—with new language describing the factors the Committee considers in setting the forward guidance.

In light of the modest deterioration in the economic outlook summarized in the draft statement for Alternatives B and B', the Committee would, under those alternatives, continue the MEP through the end of 2012. The transactions under this program would proceed “at the current pace” of about \$44 billion per month, so that the additional purchases of long-term Treasuries would ultimately accumulate to about \$267 billion, with an equal amount of sales or redemptions at the short end of the maturity spectrum.^{2, 3} Under Alternative A, with its more-downbeat view of the medium-term outlook, the Committee would provide additional stimulus either by launching a new program to purchase \$500 billion of agency MBS by June of 2013, or by announcing an open-ended program to purchase agency MBS at an initial rate of \$40 billion per month with the intention of adjusting this rate at future meetings as conditions warrant.⁴ In addition, the A and B alternatives would specifically mention that promoting “improvement in labor market conditions” could be a reason for the Committee to “take further action.” Alternative C would simply complete the existing \$400 billion MEP at the end of this month.

² In a slight difference from the previous MEP, the Committee would now sell securities with “approximately three years” of remaining maturity or less, rather than exactly three years or less, to allow the Desk greater flexibility as it runs down its holdings of shorter-term Treasury securities. In another difference, the Desk would cease rolling over maturing Treasury securities while the MEP continues; this step would allow the Desk to achieve the objectives of the program while simplifying the sales operations required.

³ \$267 billion is essentially the total quantity of Treasury securities currently in the SOMA portfolio that will have remaining maturities of three years or less by the end of 2012 and, thus, is about the maximum size possible for the MEP continuation as it is envisioned in the B alternatives. The Committee could announce a somewhat larger MEP, say \$300 billion, but doing so would require either extending the completion date beyond the end of the year or selling securities with remaining maturities significantly in excess of three years. The Committee could also phrase the announcement of this program, as it has with previous balance-sheet programs, in terms of its ultimate size, rather than in terms of its monthly pace. For example, the Committee might announce that it “intends to purchase, by the end of 2012, about \$270 billion of Treasury securities with remaining maturities of 6 years to 30 years and to sell an equal amount of Treasury securities with remaining maturities of approximately 3 years or less.”

⁴ The size of an MBS LSAP program would be importantly informed by the expected gross production of newly issued MBS. Those securities are the most liquid, but the production of new agency MBS securities would likely not be sufficient to conduct a purchase program like that in Alternative A in an amount substantially larger than \$500 billion, unless the program were spread over a long enough period of time. The Desk can also purchase existing MBS in addition to newly issued securities to increase the size of a purchase program. In addition, if the Committee wished to engage in a larger or more rapid asset-purchase program, it could do so by purchasing a mix of MBS and Treasury securities.

In assessing the likely impact of these various balance-sheet policies, the Committee could draw on two memos it received prior to the April meeting.⁵ In those memos, the staff estimated that increasing the SOMA's holdings of agency MBS by an additional \$500 billion, or conducting a \$400 billion MEP over nine months, would each reduce the unemployment rate by about ¼ percentage point after two years and raise inflation by almost the same amount. The estimated macroeconomic effects of expanding the MEP by about \$267 billion, as in the B Alternatives, would likely be about two-thirds of that size.

Alternatives A, B, and B' also offer additional language that the Committee may wish to include in its statement if the financial strains stemming from tensions in Europe worsen appreciably before next week's FOMC meeting ends. This language announces that the Committee is monitoring the situation and that the Federal Reserve "will deploy its tools as necessary" to address any potential domestic impact.

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

⁵ "Extending the Maturity Extension Program" and "A Summary of the Costs and Benefits of Large-Scale Asset Purchases," distributed to the Committee on April 17. Note that the hypothetical MEP extension analyzed in the former memo was \$400 billion in size, 50 percent larger than the program proposed in Alternatives B and B' at this meeting.

Table 1: Overview of Policy Alternatives for the June 20 FOMC Statement

Selected Elements	April Statement	June Alternatives		
		A	B and B'	C
Forward Rate Guidance				
<i>Guidance</i>	at least through late 2014	at least through late 2014 OR at least through mid-2015	unchanged	at least through late 2014 OR at least through late 2013 OR consider range of factors, including actual and projected labor market conditions, medium-term outlook for inflation, & risks to achievement of ... objectives
Balance Sheet				
<i>MEP</i>	continue its program as announced in September (\$400 billion; complete by end of June 2012)	complete the program that it announced in September	continue to purchase at current pace Treasury securities with remaining maturities of 6 to 30 years and sell or redeem equal amount with remaining maturities of approx. 3 years or less, by end of 2012	complete the program that it announced in September
<i>Additional Purchases</i>	none	purchase an additional \$500 billion of agency MBS by the end of June 2013 OR begin purchasing agency MBS, initially at a rate of \$40 billion per month	none	none
<i>Reinvestment Policies</i>	principal payments of agency debt and MBS into agency MBS; Treasuries into Treasuries	unchanged	principal payments of agency debt and MBS into agency MBS; (suspend Treasury rollovers)	unchanged
Future Policy Action				
<i>Future Actions</i>	regularly review the size and composition of securities holdings; prepared to adjust holdings as appropriate to promote stronger recovery in context of price stability	regularly review size and composition of securities holdings; prepared to take further action as appropriate to promote a stronger economic recovery & more rapid improvement in labor market conditions in context of price stability OR will adjust pace of purchases and determine ultimate size of program as needed to...	prepared to take further action as appropriate to promote a stronger economic recovery & sustained improvement in labor market conditions in context of price stability	regularly review size and composition of securities holdings; prepared to adjust holdings as necessary to promote maximum employment & price stability



APRIL FOMC STATEMENT

1. Information received since the Federal Open Market Committee met in March suggests that the economy has been expanding moderately. Labor market conditions have improved in recent months; the unemployment rate has declined but remains elevated. Household spending and business fixed investment have continued to advance. Despite some signs of improvement, the housing sector remains depressed. Inflation has picked up somewhat, mainly reflecting higher prices of crude oil and gasoline. However, 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 expects economic growth to remain moderate over coming quarters and then to pick up gradually. Consequently, the Committee anticipates that the unemployment rate will decline gradually toward levels that it judges to be consistent with its dual mandate. Strains in global financial markets continue to pose significant downside risks to the economic outlook. The increase in oil and gasoline prices earlier this year is expected to affect inflation only temporarily, and the Committee anticipates that subsequently inflation will run at or below the rate that it judges most consistent with its dual mandate.
3. To support a stronger economic recovery and to help ensure that inflation, over time, is at the rate most consistent with its dual mandate, the Committee expects to maintain a highly accommodative stance for monetary policy. In particular, the Committee decided today to keep the target range for the federal funds rate at 0 to $\frac{1}{4}$ 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 late 2014.
4. The Committee also decided 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 to promote a stronger economic recovery in a context of price stability.

JUNE FOMC STATEMENT—ALTERNATIVE A

1. Information received since the Federal Open Market Committee met in ~~March~~ **April** suggests that the economy has been expanding moderately **this year**. ~~Labor market conditions have improved~~ **However, growth in employment has slowed notably** in recent months, **and** the unemployment rate ~~has declined but~~ remains elevated. ~~Household spending and Business fixed investment have~~ **has** continued to advance. **Household spending appears to be rising at a somewhat slower pace than earlier in the year**. Despite some signs of improvement, the housing sector remains depressed. Inflation has ~~picked up~~ **declined** somewhat **more than anticipated**, mainly reflecting ~~higher~~ **lower** prices of crude oil and gasoline, ~~However,~~ **while** 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 expects economic growth to remain moderate over coming quarters ~~and then to pick up gradually~~. Consequently, the Committee anticipates that the unemployment rate will decline ~~gradually~~ **only slowly** toward levels that it judges to be consistent with its dual mandate. **Furthermore**, strains in global financial markets continue to pose significant downside risks to the economic outlook. ~~The increase in oil and gasoline prices earlier this year is expected to affect inflation only temporarily, and~~ The Committee anticipates that ~~subsequently~~ inflation **over the medium term** will run at or below the rate that it judges most consistent with its dual mandate.
3. The Committee expects to maintain a highly accommodative stance for monetary policy. In particular, the Committee ~~decided today to~~ **will** 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~~ **maintaining** exceptionally low levels for the federal funds rate at least through [late 2014 | **mid-2015** | **in order** to support a stronger economic recovery and to help ensure that inflation, over time, is at the rate most consistent with its dual mandate.
4. The Committee also decided to ~~continue its~~ **purchase an additional | \$500 | billion of agency mortgage-backed securities by the end of June 2013. This program should put downward pressure on longer-term interest rates, support mortgage markets, and help to make broader financial conditions more accommodative. The Committee will complete this month the** program to extend the average maturity of its holdings of securities as **that it** 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~~ **take further action** as appropriate to promote a stronger economic recovery **and more rapid improvement in labor market conditions** in a context of price stability.

OR

Alternatives

- 4'. The Committee also decided to ~~continue its~~ **begin purchasing additional agency mortgage-backed securities, initially at a rate of about [\$40] billion per month.** The Committee will regularly review the size and composition of its securities holdings and is prepared to adjust those holdings as appropriate **adjust the pace of purchases and determine the ultimate size of the program as needed** to promote a stronger economic recovery **and more rapid improvement in labor market conditions** in a context of price stability. **This program should put downward pressure on longer-term interest rates, support mortgage markets, and help to make broader financial conditions more accommodative. The Committee will complete this month the** program to extend the average maturity of its holdings of securities as **that it** 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.
5. **[The situation in Europe remains a source of stress in global financial markets. The Committee will continue to closely monitor European developments and their potential consequences for the economic recovery. The Federal Reserve will deploy its tools as necessary to address the effects of global financial strains on the U.S. financial system and economy.]**

JUNE FOMC STATEMENT—ALTERNATIVE B

1. Information received since the Federal Open Market Committee met in ~~March~~ **April** suggests that the economy has been expanding moderately **this year**. ~~Labor market conditions have improved~~ **However, growth in employment has slowed** in recent months, **and** the unemployment rate ~~has declined but~~ remains elevated. ~~Household spending and Business fixed investment have~~ **has** continued to advance. **Household spending appears to be rising at a somewhat slower pace than earlier in the year**. Despite some signs of improvement, the housing sector remains depressed. Inflation has ~~picked up somewhat~~ **declined**, mainly reflecting ~~higher~~ **lower** prices of crude oil and gasoline, ~~However,~~ **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 expects economic growth to remain moderate over coming quarters and then to pick up **very** gradually. Consequently, the Committee anticipates that the unemployment rate will decline ~~gradually~~ **only slowly** toward levels that it judges to be consistent with its dual mandate. **Furthermore**, strains in global financial markets continue to pose significant downside risks to the economic outlook. ~~The increase in oil and gasoline prices earlier this year is expected to affect inflation only temporarily, and~~ The Committee anticipates that ~~subsequently~~ inflation **over the medium term** will run at or below the rate that it judges most consistent with its dual mandate.
3. To support a stronger economic recovery and to help ensure that inflation, over time, is at the rate most consistent with its dual mandate, the Committee expects to maintain a highly accommodative stance for monetary policy. In particular, the Committee decided today 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 late 2014.
4. The Committee also decided to continue **through the end of the year** its program to extend the average maturity of its holdings of securities ~~as announced in September~~. **Specifically, the Committee intends to purchase Treasury securities with remaining maturities of 6 years to 30 years at the current pace and to sell or redeem an equal amount of Treasury securities with remaining maturities of approximately 3 years or less. This continuation of the maturity extension program should put downward pressure on longer-term interest rates and help to make broader financial conditions more accommodative.** The Committee is maintaining its existing ~~policies~~ **policy** 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 **take further action** as appropriate to promote a stronger economic recovery **and sustained improvement in labor market conditions** in a context of price stability.

Alternatives

5. **[The situation in Europe remains a source of stress in global financial markets. The Committee will continue to closely monitor European developments and their potential consequences for the economic recovery. The Federal Reserve will deploy its tools as necessary to address the effects of global financial strains on the U.S. financial system and economy.]**

JUNE FOMC STATEMENT—ALTERNATIVE B'

1. Information received since the Federal Open Market Committee met in ~~March~~ **April** suggests that the economy has been expanding moderately **this year**. ~~Labor market conditions have improved~~ **However, growth in employment has slowed** in recent months, **and** the unemployment rate ~~has declined but~~ remains elevated. ~~Household spending and Business fixed investment have~~ **has** continued to advance. **Household spending appears to be rising at a somewhat slower pace than earlier in the year**. Despite some signs of improvement, the housing sector remains depressed.
2. The Committee [expects | **sees it as most likely** | **that** economic growth ~~to~~ **will** remain moderate over coming quarters and then ~~to~~ pick up **very** gradually. Consequently, the Committee anticipates that the unemployment rate will decline ~~gradually~~ **only slowly** toward levels that it judges to be consistent with its dual mandate.
3. Inflation has ~~picked up somewhat~~ **declined**, mainly reflecting ~~higher~~ **lower** prices of crude oil and gasoline. ~~However,~~ Longer-term inflation expectations have remained stable. ~~The increase in oil and gasoline prices earlier this year is expected to affect inflation only temporarily and~~ The Committee [anticipates | **views it as most likely** | **that** subsequently inflation **over the medium term** will run at or below the rate that it judges most consistent with its dual mandate.
4. **In the Committee's assessment, the risks to the outlook for growth in output and employment are primarily to the downside, while the risks to the outlook for inflation are roughly balanced.** Strains in global financial markets continue to pose significant downside risks to the economic outlook **for economic activity; these risks have become somewhat greater since earlier this year. The risk of a sharp increase in the prices of oil and other commodities, which could lead to temporarily higher inflation and temporarily weaker growth, has diminished recently.**
5. ~~To support a stronger economic recovery and to help ensure that inflation, over time, is at the rate most consistent with its dual mandate, the Committee expects to maintain a highly accommodative stance for monetary policy. In particular, The Committee decided today 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 late 2014.~~
6. The Committee also decided to continue **through the end of the year** its program to extend the average maturity of its holdings of securities ~~as announced in September.~~ **Specifically, the Committee intends to purchase Treasury securities with remaining maturities of 6 years to 30 years at the current pace and to sell or redeem an equal amount of Treasury securities with remaining maturities of approximately 3 years or less. This continuation of the maturity extension**

Alternatives

program should put downward pressure on longer-term interest rates and help to make broader financial conditions more accommodative. The Committee is maintaining its existing ~~policies~~ **policy** 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.

7. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. **The Committee's action today is intended to support a stronger economic recovery and mitigate downside risks, thereby fostering a faster return of the unemployment rate to mandate-consistent levels, while maintaining inflation near its 2 percent objective in the medium term.** The Committee will regularly review the size and composition of its securities holdings and is prepared to adjust those holdings **take further action** as appropriate to promote a stronger economic recovery **and sustained improvement in labor market conditions** in a context of price stability.
8. **[The situation in Europe remains a source of stress in global financial markets. The Committee will continue to closely monitor European developments and their potential consequences for the economic recovery. The Federal Reserve will deploy its tools as necessary to address the effects of global financial strains on the U.S. financial system and economy.]**

JUNE FOMC STATEMENT—ALTERNATIVE C

1. Information received since the Federal Open Market Committee met in ~~March~~ **April** suggests that the economy has been expanding moderately, **and** labor-market conditions have improved, **on balance, this year** in recent months. The ~~unemployment rate has declined but remains elevated.~~ Household spending and business fixed investment have **Private domestic demand has** continued to advance. ~~Despite some signs of improvement, the housing sector remains depressed.~~ Inflation has ~~picked up~~ **declined** somewhat, mainly reflecting ~~higher~~ **lower** prices of crude oil and gasoline, ~~However,~~ **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 expects economic growth to remain moderate over coming quarters and then to pick up gradually. Consequently, the Committee anticipates that the unemployment rate will decline gradually toward levels that it judges to be consistent with its dual mandate. Strains in global financial markets continue to pose significant downside risks to the economic outlook. ~~The increase in oil and gasoline prices earlier this year is expected to affect inflation only temporarily, and~~ The Committee anticipates that ~~subsequently~~ inflation **over the medium term** will run at or below **about** the rate that it judges most consistent with its dual mandate.

3. To support a ~~stronger~~ **sustainable** economic recovery and to help ensure that inflation, over time, is at the rate most consistent with its dual mandate, the Committee expects to maintain a highly accommodative stance for monetary policy. In particular, the Committee decided today 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 late [2014 | **2013**].

OR

- 3'. To support a ~~stronger~~ **sustainable** economic recovery and to help ensure that inflation, over time, is at the rate most consistent with its dual mandate, the Committee expects to maintain a highly accommodative stance for monetary policy. In particular, the Committee decided today 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 late 2014.~~ **As rates of resource utilization rise toward levels consistent with maximum employment, the Committee eventually will need to make monetary policy less accommodative in order to ensure that the economy expands at a sustainable pace and to prevent inflation from persistently exceeding its longer-run objective. In determining the appropriate time to increase its target for the federal funds rate, the Committee will consider a range of factors, including actual and projected labor market conditions, the**

Alternatives

medium-term outlook for inflation, and the risks to the achievement of the Committee's objectives.

4. The Committee also decided to ~~continue its~~ **complete at the end of this month the** program to extend the average maturity of its holdings of securities as **that it** 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 **necessary** to promote a ~~stronger economic recovery in a~~ context of **maximum employment and** price stability.

THE CASE FOR ALTERNATIVE B OR B'

Policymakers might view the information received since their last meeting as pointing to both a somewhat weaker modal economic outlook and an increase in downside risks to the outlook. Accordingly, they may think it appropriate to provide some further accommodation at this meeting as in Alternative B or B', both of which would continue the MEP through the end of 2012. More specifically, FOMC participants, like the staff, may see the recent economic and financial data as supporting a modal forecast in which economic growth is likely to be about equal to potential growth in coming quarters and, absent further policy action, to pick up only very gradually thereafter. Given the apparent lack of sustained progress in the labor market, the meager rise in real disposable personal income in recent quarters, and the deceleration in consumer spending, policymakers may view the likely trajectory for economic growth as inadequate to return the unemployment rate to mandate-consistent levels within the next few years. In addition, participants may see inflation pressures as muted in light of the weaker outlook for the economy and the recent decline in the prices of oil and gasoline, and they might therefore have greater confidence that inflation will run at rates at or below the Committee's 2 percent longer-run goal over coming years. With an outlook that falls short of the Committee's objectives, members may wish to undertake additional monetary policy stimulus through an extension of the MEP.

Regardless of whether participants' modal outlook for economic growth has worsened since the April meeting, they might view the risks to the medium-run outlook as skewed more substantially to the downside. In particular, they may judge that the strains in global financial markets have intensified in recent weeks, as a result of the political uncertainty in Greece and the pressures on Spanish banks, and see a significant potential for adverse spillovers to U.S. financial markets and the U.S. economy. Accordingly, participants may place non-negligible odds on an adverse outcome in Europe driving the U.S. economy into a new downturn, along the lines of the "European Crisis with Severe Spillovers" alternative simulation. To mitigate these risks, Committee members may wish to provide some additional accommodation at this meeting through an extension of the MEP. These policymakers could also conclude that the upward movements in inflation observed earlier this year are unlikely to be sustained or to feed into longer-term expectations, given the recent declines in oil and gas prices, and thus might see little if any upside risks to inflation resulting from continuing the MEP for six months.

While policymakers may judge that the economic outlook has darkened or that downside risks have increased, they may view the outlook as significantly more uncertain than usual and conclude that it would not be appropriate to undertake a sizeable further expansion of the Federal Reserve's balance sheet as in Alternative A unless they see clearer indications that subpar growth is likely to persist. In particular, policymakers might see some chance that the situation in Europe will be resolved in a favorable manner, or they might worry that the recent slowdown in employment gains and in consumer and business spending could prove to be the temporary result of seasonal or other factors. Some participants may judge that the Committee has only limited scope to provide further monetary stimulus and so might choose to take relatively modest measures for the time being in order to reserve greater action for the event that the economy is hit by a major adverse shock or if the risk of deflation were to rise. Such an approach might seem appropriate if participants thought that a large change in policy would have a particularly positive effect on business and consumer confidence in such circumstances.⁶ Moreover, if policymakers are concerned that additional outright asset purchases could complicate the Federal Reserve's ability to exit from its extraordinarily accommodative policy stance at the appropriate time and pace, they may nonetheless be comfortable with the MEP extension in Alternatives B and B', because it would not expand the overall size of the Federal Reserve's balance sheet appreciably.

If the Committee views the situation in Europe as having deteriorated significantly, or the associated strains in global financial markets as posing an imminent threat to U.S. economic activity, it may wish to include language along the lines of the final paragraph in B and B'. (An identical paragraph is offered at the end of the draft statement in Alternative A.) This paragraph would signal that the Committee is concerned about, and paying careful attention to, developments in Europe and that the Federal Reserve stands ready to deploy its tools as necessary to support the U.S. financial system and economy. These actions might include, in addition to or instead of further adjustments to the SOMA portfolio, the introduction of emergency lending facilities and other measures to bolster the functioning of financial markets and the liquidity positions of financial institutions in the event of a new crisis.

⁶ Some participants could even feel that, with the level of uncertainty unusually high at the moment, it would be prudent to await further information before taking any action, and so not see a continuation of the MEP as a necessary step at this meeting. If so, they could adopt a statement similar to B, but omitting the policy action and including additional language to make clear that they are prepared to act if the outlook or risks were to worsen further.

As noted above, Alternatives B and B' differ chiefly in their approaches to the organization and emphasis of the statement. The structure of recent statements, which is maintained in Alternative B, provides an opening paragraph with an assessment of the recent economic data and a second paragraph summarizing the Committee's expectations for the economy over the medium term and the risks to that projection, before going on to describe the Committee's policy stance. The revision proposed in Alternative B' would first describe both current conditions and the outlook for the real economy, next it would discuss inflation and inflation expectations as well as the outlook for inflation, and then it would discuss the risks to the outlook. Finally, after announcing the policy decision, the statement in B' would include language that links the Committee's decision more explicitly to its outlook and policy objectives. Of course, a similar structure could also be applied to the policy stances envisioned in Alternatives A and C.

Committee members may feel that the revised structure would enhance communication with the public.⁷ Members may see a statement similar to Alternative B' as potentially providing more information about the factors that have led the Committee to its policy decisions and improved guidance about which factors are likely to influence the course of monetary policy going forward. They may view such a statement as more clearly linking the Committee's policy decisions to its projections of economic activity and its assessment of risks. Other members may prefer the current structure or may judge that the benefits of changing the structure are not sufficient to justify potentially confusing market participants.

A policy decision along the lines of Alternatives B and B' would be largely in line with the expectations of market participants. Many respondents to the Desk's latest survey of primary dealers expect the Committee to update its characterization of economic conditions to recognize the disappointing labor-market data and increased tensions in European financial markets, but they do not expect the Committee to change its forward guidance at this meeting. As in April, the dealers anticipate that the first increase in the target federal funds rate will most likely occur in the second half of 2014, and they see a slightly higher probability that lift-off will come later rather than earlier. Moreover, while the dealers place relatively low odds on the Committee altering its forward guidance at this meeting, market participants appear to have already priced in a significant chance of further balance-sheet action. Specifically, in the Desk's survey, respondents saw about a 50 percent probability of some type of easing through the size or composition of the SOMA

⁷ See the memo cited in footnote 1.

portfolio at this meeting and attached about a 40 percent probability specifically to an increase in the duration of the SOMA portfolio. Still, continuing the MEP for another six months would probably not be viewed as a sizable step by most market participants, so the market reaction to the extension of the MEP proposed in Alternatives B and B' would likely be muted. Indeed, if markets inferred that the continuation of the MEP could be the full extent of the accommodation that the Committee was likely to provide for some time, the announcement could cause longer-term interest rates to rise some and equity prices to fall. Similarly, because markets seem to be pricing in some probability of purchases of agency MBS at this meeting, MBS spreads could widen if expanding the MEP was interpreted as ruling out subsequent MBS purchases. In contrast, if market participants read the language in the statement as substantially increasing the odds of future asset purchases, longer-term interest rates might fall modestly, equity prices would rise, and the foreign-exchange value of the dollar would decline.⁸

THE CASE FOR ALTERNATIVE A

Some participants may see the shortfall of employment from their assessments of its maximum sustainable level as large and as likely to diminish only very slowly absent appreciable further policy stimulus and so prefer the larger policy move contained in Alternative A. These participants may be concerned that the recent slower pace of consumer and business spending is likely to persist. They may also be concerned that the housing sector remains depressed even if it has turned up a bit, and that the continuing overhang of foreclosed and vacant properties will restrain recovery in this sector for some time to come. Some participants may, like the staff, also expect that inflation will run persistently below the Committee's longer-run target now that the temporary effects of earlier increases in oil and gasoline prices have ebbed. These policymakers might note that the unconstrained optimal control simulations and three of five of the unconstrained near-term policy rule prescriptions presented in the "Monetary Policy Strategies" section of the Tealbook continue to call for further policy accommodation, even under the staff's baseline scenario. As a result the Committee might push back its expected timing of the first increase in the target federal funds rate and change the forward guidance in the statement

⁸ If the continuation of the MEP contained in the B alternatives appeared to put substantial upward pressure on money market interest rates (as discussed in the box "Overnight Money Market Rates and the Maturity Extension Program" in Tealbook A), policymakers could subsequently consider possible measures to offset this effect. For example, the Board of Governors could vote to lower the remuneration rate on excess reserve balances from its current level of 25 basis points, or the Committee could instruct the Desk to execute repurchase agreements while the MEP continues. Engaging in repurchase agreements, however, would expand the size of the Federal Reserve's balance sheet.

accordingly. However, participants may worry that a projection for the path of policy appreciably further ahead may not be viewed as credible by markets and may thus have only a limited impact on longer-term interest rates. Thus, they may judge that a new large-scale asset purchase (LSAP) program is a better choice than either an expansion of the MEP or an extension of the forward guidance. Such a judgment would reflect an assessment that an LSAP would have somewhat larger macroeconomic effects and that it would signal a willingness by the Committee to expand its balance sheet, suggesting that additional action might be more likely than previously expected. In this case, policymakers may also be inclined to move out the expected date of the first rise in the target federal funds rate. These considerations may lead them to favor Alternative A. Of course, additional asset purchases and an extension of the forward guidance are not mutually exclusive, and Alternative A provides the option of moving the expected liftoff date further out in addition to introducing a new LSAP program.

In addition to judging that the baseline outlook for the economy is unsatisfactory, policymakers may also view the downside risks to that outlook as having increased substantially in recent weeks. As discussed above, they may see non-trivial odds that the European crisis could ultimately impose a very substantial drag on the U.S. recovery. In addition, some policymakers may also see a significant probability that the Congress will be unable to resolve contentious fiscal issues before the turn of the year and that uncertainty about fiscal policy is likely to restrain household spending and business investment later this year. Furthermore, with a substantial fraction of unemployed workers having been jobless for long periods, some FOMC participants might want to guard against the risk that this high level of long-term unemployment, if it were to persist long enough, will depress labor supply and potential output, as in the “Future Labor-Market Damage” scenario in the Tealbook. With the inflationary effects of the earlier run-up in oil and gasoline prices having subsided, and with inflation expectations well anchored, participants may judge that the upside risks to inflation are small, and indeed they may forecast, like the staff, that the inflation rate will remain somewhat below the Committee’s long-run objective of 2 percent for a few years. Accordingly, policymakers may see both the likelihood and the costs of weaker-than-expected economic outcomes as larger than those of stronger-than-expected outcomes, and thus they may be inclined to provide significant additional monetary policy stimulus.

Some participants may concur that the economic outlook has deteriorated but may view uncertainty about the outlook as unusually large and so may be inclined to take a smaller step at this meeting and await additional information on economic and financial

developments. However, other participants could see this uncertainty itself as a reason to act aggressively—both to reduce the likelihood that severely adverse scenarios will emerge and to provide greater assurance to the public that policymakers are willing to act as needed to support the recovery. This perspective could be reinforced if policymakers also saw the risks to the economic outlook as asymmetric and weighted substantially to the downside. Although participants may be concerned that further asset purchases could involve additional risks to the Federal Reserve, they may judge those risks to be manageable. For example, if participants worry that expanding the balance sheet would impede the Committee's ability to exit from its extraordinarily accommodative policy stance at the appropriate time, they may take some reassurance from the multiple tools that have been developed to remove accommodation when it becomes appropriate to do so.

Should the Committee decide to provide further monetary stimulus, it might prefer to increase the SOMA's holdings of agency MBS with the aim of putting downward pressure on longer-term interest rates in general while also directly supporting mortgage markets. The Committee could choose to implement this plan by announcing a single program to purchase an additional \$500 billion over 12 months, as in paragraph 4 of Alternative A. Alternatively, the Committee could choose to implement an incremental, open-ended purchase program by specifying an initial monthly rate of purchases—perhaps \$40 billion per month—and stating that it would adjust the pace of purchases and determine the ultimate size of the program as needed to foster its objectives, as in paragraph 4' of Alternative A. The Committee might prefer to implement a large, discrete purchase program if it believes that investor uncertainty about the ultimate size of an open-ended program would make it less effective than a discrete program. But members might opt for an open-ended purchase program if they believe that more flexibility would allow them to better tailor the ultimate amount of purchases to evolving economic conditions. In addition, an open-ended program could boost market sentiment if market participants interpreted it to mean that the Committee would continue to expand the balance sheet as long as economic growth was insufficiently robust.

In the Desk's survey, dealers placed only about 25 percent odds on the Committee expanding the SOMA portfolio through additional securities purchases at this meeting and about 50 percent odds on such an expansion sometime within the next year, so a statement along the lines of Alternative A would come as something of a surprise to the markets. Longer-term interest rates would likely fall modestly, MBS spreads would likely tighten, and the foreign-exchange value of the dollar would likely decline. Equity prices probably would increase; however, the more-downbeat characterization of the economic outlook

contained in paragraph 2 of Alternative A could damp that rise. Investors appear to be placing only a relatively low probability on an extension of the expected liftoff date in the forward guidance, so if the Committee decided to adopt that option, the decrease in interest rates would likely be somewhat larger. The reaction could be larger still if market participants viewed the statement as signaling the Committee's willingness to undertake further actions to buttress the domestic economy against the impact of an adverse outcome in Europe. Markets do not appear to expect an open-ended purchase program along the lines of paragraph A.3', and they would probably find such a statement difficult to interpret because it would be a notable departure from past purchase programs. Thus, if the Committee were to announce such an action, market volatility and risk premiums could rise, particularly if market participants lacked clarity about the ultimate size of the program. Of course, the Chairman could help to resolve any such uncertainty by explaining the Committee's approach more thoroughly in his press conference.

THE CASE FOR ALTERNATIVE C

Policymakers may judge that, smoothing through the month-to-month fluctuations in the data, information received this year indicates that the economic recovery is on a sustainable course, as argued in the "Faster Recovery" alternative scenario. Although the recent labor-market and spending data have been weaker than the information received through the April meeting, participants may view this deterioration as primarily having to do with temporary factors, including possible seasonal and weather-related distortions, and they may note that the unemployment rate is still down nearly a full percentage point since last summer. Household spending and business fixed investment have continued to advance, and some indicators of conditions in the housing sector have turned up in recent months. Conditions in debt and capital markets improved substantially late last year and early this year; FOMC participants may judge that overall financial conditions remain supportive of economic growth even though some financial strains have reemerged in recent weeks. Thus, participants may conclude that the underlying pace of growth in output is at or above their assessment of that of potential output and so might view the pace of improvement in the labor market as adequate. If so, they may prefer to maintain a policy stance similar to that at the previous meeting and make no further changes to the Federal Reserve's balance sheet or the Committee's forward guidance, or they may even wish to begin scaling back the public's expectations for the duration of the current low range of the federal funds rate. These possibilities would be consistent with a statement like that in Alternative C.

Although some Committee members might see the economic outlook as having worsened or the downside risks as having increased since the April meeting, they may judge that the balance-sheet actions at the Committee's disposal would, at this stage, have limited potential to effect noticeable progress toward its objectives, especially because interest rates and other asset prices have lately been influenced primarily by shifting expectations regarding the European situation. These members may view the potential costs associated with further accommodation, including a possible increase in the difficulty of exiting smoothly from the current very accommodative stance of policy, as too great to justify the likely modest benefits. Moreover, with or without an extension of the MEP, policymakers may be concerned about the potential for unwanted inflation pressures to build on a number of fronts. For example, they may believe that the levels of potential output and the NAIRU have shifted adversely in recent years, as in the "Damaged Labor Market" scenario, posing a sizable risk that providing further policy stimulus—or maintaining the current stance of policy through 2014—would push resource utilization above its sustainable level. They may also see upside risks to inflation from the expansion of the Federal Reserve's balance sheet in recent years or from a long period of exceptionally low interest rates. They may judge that additional balance-sheet measures would be likely to add to these pressures if the current downside risks to the outlook do not materialize. Other participants may worry about the implications for financial stability of a sustained low-interest-rate environment and wish to reduce the incentives for market participants to take on unusual levels of risk. In these cases, Committee members might conclude that additional accommodation would be imprudent at this stage or that moving toward a somewhat less accommodative stance of policy appreciably earlier than indicated by the Committee's April statement would be appropriate.

Committee members whose outlook for the economy has not changed significantly since the April meeting, or who see risks to the outlook that might make it imprudent to change policy substantially at this juncture, may prefer to leave the forward guidance unchanged, as offered in one option in paragraph C.3. On the other hand, participants whose evolving views on the economic outlook and the appropriate path for the federal funds rate have led them to anticipate a significantly earlier first increase in the funds rate than was indicated by the Committee's statements so far this year, and who see the downside risks to the outlook as manageable, might want to adjust the forward guidance at this meeting. The Committee could, as in the other option of paragraph C.3, state that in light of the improved economic outlook it now anticipates that economic conditions will warrant a substantially shorter period of exceptionally low interest rates than it previously

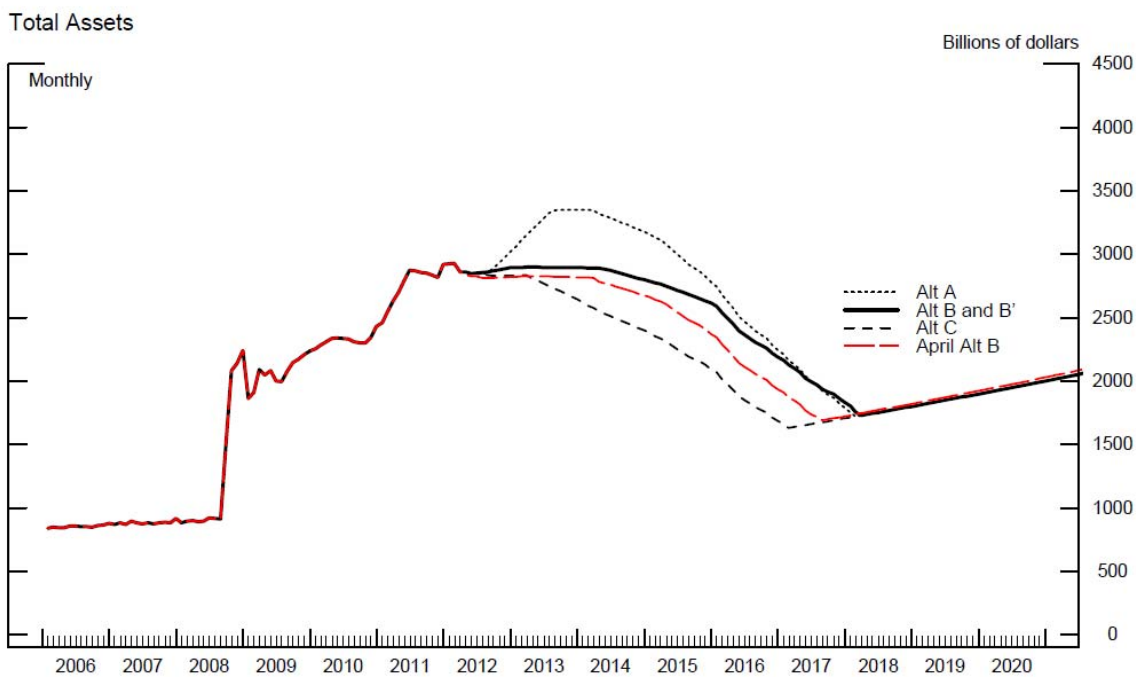
expected. Alternatively, as in paragraph 3', it could eliminate the calendar date from its forward guidance and replace it with new language that describes in somewhat greater detail the key economic factors that the Committee will consider in deciding when to first increase its target for the funds rate. If the public understood this new language, investors would modify their assessments of the likely timing of the first increase in the target funds rate as the key factors change over time.

A statement like those included in Alternative C, even the option that retains the late 2014 date, would probably garner a negative reaction in financial markets. The language likely would strike market participants as unexpectedly upbeat and as hinting toward a faster removal of policy accommodation, resulting in higher interest rates and a decline in equity prices. A statement that moved forward the expected date of policy liftoff—or that included language that investors read as indicating that the date was likely to be substantially earlier—would greatly surprise financial market participants. According to the Desk's survey, the primary dealers see zero probability that the Committee will move forward its expected date of liftoff at this meeting. Hence, moving projected liftoff closer would likely cause a sizable adjustment in market participants' expectations of the policy rate path, leaving market interest rates significantly higher at maturities beyond a year or so. If the Committee were to drop the date from its forward guidance, investors might well be quite uncertain about the Committee's intentions, at least until policymakers provided additional information about the likely path for policy. Furthermore, participants have priced in significant odds of additional asset purchases or an extension of the MEP at this meeting or in the near future, and the statement in Alternative C (with or without a change in the expected liftoff date) would be read as a signal that such action was unlikely to be forthcoming, putting further upward pressure on longer-term rates and dragging equity prices lower. Any statement along the lines of Alternative C would likely lead to an appreciation of the dollar.

LONG-RUN PROJECTIONS OF THE BALANCE SHEET AND MONETARY BASE

The staff has prepared three scenarios for the Federal Reserve’s balance sheet. The first scenario incorporates a continuation of the maturity extension program (MEP) that is consistent with Alternatives B and B’. The second scenario corresponds to Alternative A, incorporating a \$500 billion agency MBS purchase program as noted in paragraph 4 of the draft statement. This scenario is also consistent with the open-ended purchase program in paragraph 4’ of that statement if purchases last, and are expected to last, for one year. The third scenario reflects Alternative C, in which the current MEP is completed at the end of this month and no additional balance sheet action is taken in the near term, with the federal funds rate rising above the current target range in late 2013. 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 D.

Alternatives



For the balance sheet scenario that corresponds to Alternatives B and B’, the Committee is assumed to continue the MEP at its current pace through the end of 2012 instead of ending it at the end of this month as scheduled. The total amount of additional purchases under the extension of the MEP is \$267 billion. The expansion of the MEP changes the parameters of the program slightly; instead of selling the same dollar amount of securities with remaining maturities of three years or less, all Treasury securities in the

portfolio that have remaining maturities of approximately three years or less are either allowed to mature without reinvestment or are sold. The Committee's program to reinvest principal payments from its holdings of agency debt and MBS into agency MBS remains unchanged. These policy choices would keep the System Open Market Account (SOMA) securities holdings roughly constant at about \$2.6 trillion until mid-2014.

In this scenario, consistent with the statement language that the federal funds rate is expected to be at exceptionally low levels "at least through late 2014," we assume that the first increase in the target funds rate is in October 2014.⁹ The date of liftoff is a key determinant of the trajectory of the balance sheet. In April 2014, six months before the first increase in the target federal funds rate, all reinvestment is assumed to cease, and the balance sheet therefore begins to contract. Because essentially all short-dated Treasury securities in the portfolio are assumed to be sold or redeemed under the expanded MEP, in 2014 and 2015 only agency MBS and agency debt securities holdings decrease. In April 2015, six months after the initial increase in the target federal funds rate, the Committee begins to sell its holdings of agency securities at a pace that reduces the amount of these securities in the portfolio to zero in five years, that is, by March 2020.¹⁰ Through these redemptions and sales, the size of the balance sheet is normalized by March 2018.^{11,12} The balance sheet then begins to expand, with increases in SOMA holdings essentially matching the growth of Federal Reserve Bank capital and currency in circulation. The balance sheet reaches a size of \$2 trillion by the end of 2020.¹³ Compared to Alternative B from the April Tealbook, the size of the balance sheet normalizes about half a year later because the continuation of the MEP leads to the accumulation of more longer-dated Treasury securities, which mature and roll off the portfolio later than the short-dated securities they replace, and hence the balance sheet shrinks somewhat less rapidly. From March 2018

⁹ This liftoff date for the federal funds rate is the same as in the balance sheet projections from the April Tealbook Book B, but it is later than the July 2014 date assumed in the staff forecast.

¹⁰ Consistent with the exit principles the Committee announced in the minutes of the June 2011 FOMC meeting, we assume the Committee directs the Desk to only sell agency securities during the exit period in order to promote a timely return to an all-Treasury SOMA portfolio.

¹¹ The tools to drain reserve balances (reverse repurchase agreements and term deposits) 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 reverse repurchase agreements or term deposits—but would not produce an overall change in the size of the balance sheet.

¹² 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.

¹³ Projections of Federal Reserve income for this scenario are similar to those reported in the April 2012 FOMC memo "Extending the Maturity Extension Program" prepared by staff at the Federal Reserve Bank of New York and the Board of Governors.

onward, under all scenarios, the paths for total assets in the current projections are close to the Alternative B path in the April Tealbook.

In the scenario for Alternative A, the Committee is assumed to complete the current MEP this month, to purchase an additional \$500 billion of agency MBS at a pace of about \$40 billion per month beginning in July 2012 and ending in June 2013, and to continue the current reinvestment strategy. In this scenario, total assets peak at \$3.4 trillion in September 2013. As in Alternative B, in April 2014, six months before the first increase in the target federal funds rate, all reinvestment is assumed to cease, and the balance sheet begins to contract. Normalization of the size of the balance sheet occurs in February 2018, one month prior to the date of normalization under Alternatives B and B'.¹⁴ The later date of normalization in the B Alternatives reflects the fact that the longer-dated Treasury securities are held to maturity and remain in the portfolio longer than it takes to complete sales of MBS.

For the scenario that corresponds to Alternative C, the Committee completes the current MEP at the end of this month and undertakes no further balance sheet expansion or maturity extension. In this scenario, the federal funds rate is assumed to lift off in the fourth quarter of 2013, one year earlier than in the other alternatives. Correspondingly, reinvestment of principal from maturing or prepaying securities ends in April 2013, and sales of agency securities commence in April 2014.¹⁵ Because of the earlier redemptions and sales, the size of the balance sheet is normalized in February 2017, more than one year earlier than under Alternative B.

On the liability side of the balance sheet, the forecasted path for reserve balances for Alternatives B and B' remains at roughly the same \$1.5 trillion level as in the April Tealbook's Alternative B until the exit strategy begins. Thereafter, and until the balance sheet normalizes in size, the longer-maturity portfolio under Alternatives B and B' for this meeting contracts more slowly than projected under Alternative B from the April Tealbook, and therefore implies that the level of reserve balances is, for some time, higher than in the previous Tealbook. The level of reserves under Alternative A peaks at \$2 trillion—

¹⁴ If the first increase in the target federal funds rate was pushed later, the date of normalization would likewise be delayed.

¹⁵ To simplify the projections, the prepayment paths for legacy agency MBS holdings and the premiums associated with MBS reinvestment calculated under Alternative C match those for Alternative B. This simplifying assumption likely overstates somewhat both prepayments on MBS, which are reinvested into new MBS, and the associated premiums under Alternative C. As a result, the size of the balance sheet is likely somewhat larger, and the date of normalization is likely a little later than would be the case if the interest rate path was recalibrated based on this scenario.

noticeably higher than in Alternative B—because of the MBS purchase program. Under Alternative C, reserve balances start to decline earlier than in Alternative B because the exit from exceptionally accommodative policy is assumed to begin sooner.

In the scenario corresponding to Alternatives B and B', the monetary base is roughly flat from 2012 to 2014, given the trajectory for the portfolio. Once exit begins, the monetary base shrinks through the second quarter of 2018, primarily reflecting a decline in reserve balances as the balance sheet contracts. Starting in the third quarter of 2018, after reserve balances are assumed to have stabilized at \$25 billion, the monetary base begins to expand again, in line with the growth of Federal Reserve notes in circulation. The monetary base under Alternative A expands more rapidly in the near term than under Alternative B due to the MBS LSAP and then declines at a faster pace beginning in 2014 because of a larger amount of securities redemptions and a larger volume of sales. The resumption in the expansion of the monetary base in Alternative A begins in the third quarter of 2018. Under Alternative C, the monetary base begins to contract slightly sooner than under Alternative B because of the assumed earlier liftoff.

Growth Rates for the Monetary Base				
Date	Alternatives B and B'	Alternative A	Alternative C	<i>Memo: April Alternative B</i>
Percent, annual rate				
Monthly				
Jan-12	9.2	9.2	9.2	9.2
Feb-12	17.8	17.8	17.8	17.8
Mar-12	3.1	3.1	3.1	3.1
Apr-12	-12.2	-12.2	-12.2	-23.8
May-12	-8.8	-8.8	-8.8	2.5
Jun-12	7.9	7.4	7.2	13.8
Jul-12	22.5	19.3	19.3	1.3
Aug-12	10.7	9.9	5.7	5.7
Sep-12	-3.4	4.7	-8.3	-6.2
Quarterly				
2011 Q1	36.8	36.8	36.8	36.8
2011 Q2	69.3	69.3	69.3	69.3
2011 Q3	21.0	21.0	21.0	21.0
2011 Q4	-5.9	-5.9	-5.9	-5.9
2012 Q1	5.5	5.5	5.5	5.5
2012 Q2	-2.5	-2.6	-2.6	-3.3
2012 Q3	10.3	9.9	7.4	4.4
2012 Q4	-0.5	10.8	-5.1	-5.3
Annual - Q4 to Q4				
2010	0.9	0.9	0.9	0.9
2011	32.9	32.9	32.9	32.9
2012	3.2	6.0	1.3	0.3
2013	0.2	13.9	-3.8	-0.2
2014	-1.0	-3.0	-9.8	-2.4
2015	-6.6	-11.9	-13.1	-10.8
2016	-16.6	-20.2	-21.0	-19.6
2017	-18.1	-22.2	-3.3	-15.9
2018	-6.3	-4.5	5.0	5.2

Note: Not seasonally adjusted.

DEBT, BANK CREDIT, AND MONEY FORECASTS

Domestic nonfinancial sector debt is projected to expand at an annual rate of 4¾ percent this year, driven by a significant expansion in federal government debt and a modest rise in private nonfinancial debt. Over the next two years, we expect growth of domestic nonfinancial debt to slow to an average of about 4 percent as federal debt advances less rapidly and private debt accelerates only gradually. Nonfinancial business debt is forecasted to increase at a modest pace over the projection period, reflecting favorable financing conditions and increasing capital expenditures. We project home mortgage debt to decline again this year and to edge up only a little in the next two years, as financing conditions are expected to remain tight, weakness in housing demand is expected to continue, and house prices are expected to increase only slowly. Meanwhile, consumer credit is projected to expand throughout the forecast period, with its growth rate rising from 5¾ percent in the first half of 2012 to about 7½ percent in 2014, driven by increasing student loans and rising expenditures on consumer durables as well as a gradual easing in credit conditions for such loans.

Commercial bank credit is expected to increase at a moderate pace over the forecast period. Core loans—the sum of commercial and industrial (C&I), real estate, and consumer loans—grow modestly through the remainder of 2012, supported mainly by continued strength in C&I lending. Though C&I loans grow more slowly after this year, total core loan growth picks up somewhat in 2013 and 2014 as improvements in borrowers' credit quality and a further gradual easing of lending standards and terms lead to a small acceleration in residential real estate loans and moderate growth in consumer loans. Commercial real estate loans are projected to contract through mid-2013, and only edge up thereafter; high vacancy rates, depressed prices for commercial properties, and the poor credit quality of existing loans are likely to suppress activity in this sector. We project that banks' securities holdings will rise at a moderate pace, with growth in this category slowing in 2013 and 2014 as deposit growth ebbs and the expansion in bank loans strengthens.

We project M2 to continue to grow faster than nominal income during the second half of 2012. Increasing uncertainty about European financial developments will likely encourage investors to add to their elevated holdings of safe assets included in M2. In the near term, a continued shift of deposits from offshore bank branches to onshore entities also will boost M2 growth.¹⁶ In 2013 and 2014, M2 is projected to grow less rapidly than

¹⁶ Offshore deposits have been captured by the FDIC's assessment base since April of 2011, negating the benefit to banks of booking these deposits abroad.

nominal income. We expect that some portion of elevated M2 balances will begin to unwind in 2013 following the expiration of the unlimited FDIC insurance on noninterest-bearing transactions deposits.¹⁷ M2 growth is projected to slow further in 2014, in line with the projected firming in monetary policy and an assumed shift of investor portfolios away from M2 assets and toward riskier investments as the economic outlook improves.

Turning to the components of M2, liquid deposits are projected to grow at a brisk pace for the remainder of 2012 but much less rapidly in 2013 and 2014. In contrast, retail money market funds and small time deposits decline throughout the forecast period. Currency growth is projected to slow gradually to a pace consistent with its historical average of 6 percent by mid-2013 and to continue at that pace through the end of the projection period.

¹⁷ The Dodd-Frank Act provides temporary unlimited deposit insurance coverage for noninterest-bearing transaction accounts from December 31, 2010, through December 31, 2012. Deposits insured under this provision have grown by \$500 billion to reach \$1.5 trillion since the Act went into effect, and now comprise 15 percent of M2.

Growth Rates for M2

(Percent, seasonally adjusted annual rate)

Monthly Growth Rates	Tealbook Forecast*
Jan-12	15.9
Feb-12	3.1
Mar-12	3.6
Apr-12	5.3
May-12	4.0
Jun-12	7.8
Jul-12	4.5
Aug-12	4.2
Sep-12	4.2
Oct-12	3.9
Nov-12	4.0
Dec-12	4.0
Quarterly Growth Rates	
2012 Q1	8.4
2012 Q2	4.7
2012 Q3	5.1
2012 Q4	4.0
2013 Q1	1.9
2013 Q2	2.3
2013 Q3	3.2
2013 Q4	3.2
2014 Q1	3.4
2014 Q2	3.3
2014 Q3	0.5
2014 Q4	-1.4
Annual Growth Rates	
2012	5.7
2013	2.7
2014	1.4

* This forecast is consistent with nominal GDP and interest rates in the Tealbook Book A baseline forecast. Actual data through May 2012; projections thereafter.



DIRECTIVE

The directive that was issued in April appears on the next page, followed by drafts for a June directive that correspond to each of the policy alternatives.

The directives for Alternative C would instruct the Desk to leave the total face value of domestic securities in the SOMA about unchanged and to take appropriate steps to complete by the end of June 2012 the \$400 billion maturity extension program that was announced last September. The directive for Alternatives A, B, and B' also would instruct the Desk to complete the maturity extension program that was announced last September. In addition, under Alternative A, the Committee would direct the Desk either to execute purchases of agency MBS in order to raise the total face value of the domestic securities holdings to about \$3.1 trillion (\$500 billion more than the SOMA's current holdings) by the end of June 2013 or to begin purchasing MBS at a pace of about \$40 billion per month. Under Alternatives B and B', the Committee would direct the Desk to undertake a second maturity extension program in the amount of about \$267 billion from July 2012 through December 2012. Each of the draft directives would also instruct the Desk to continue the current practice of reinvesting principal payments on all agency debt and agency MBS in agency MBS, and Alternatives A and C would also continue the practice of rolling over maturing Treasury securities at auction. Alternatives B and B' would suspend the practice of rolling of maturing Treasuries while the maturity extension program was in place, to allow a portion of the SOMA's holdings of short-term Treasury securities to be redeemed as a part of this program.

April 2012 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.

June 2012 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 by the end of June 2013 in order to increase the total face value of domestic securities held in the System Open Market Account to approximately \$3.1 trillion. | 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 **and coupon swap** 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.

June 2012 Directive—Alternative B or 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. **Following the conclusion of these purchases, the Committee directs the Desk to purchase Treasury securities with remaining maturities of 6 years to 30 years with a total face value of about \$267 billion by the end of December 2012, and to sell or redeem Treasury securities with remaining maturities of approximately 3 years or less with a total face value of about \$267 billion. For the duration of this program, the Committee directs the Desk to suspend its current policy** ~~The Committee also directs the Desk to maintain its existing policies of rolling over maturing Treasury securities into new issues. and~~ **The Committee directs the Desk to maintain its existing policy** 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~~ **These actions should** 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.

June 2012 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 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.

Explanatory Notes

A. Policy Rules Used in “Monetary Policy Strategies”

The table below gives the expressions for the selected policy rules used in “Monetary Policy Strategies.” In the table, R_t denotes the nominal federal funds rate for quarter t , while the right-hand-side variables include the staff’s projection of trailing four-quarter core PCE inflation for the current quarter and three quarters ahead (π_t and $\pi_{t+3|t}$), the output gap estimate for the current period as well as its one-quarter-ahead forecast (gap_t and $gap_{t+1|t}$) and the forecast of the three-quarter-ahead annual change in the output gap ($\Delta^4 gap_{t+3|t}$). The value of policymakers’ long-run inflation objective, denoted π^* , is 2 percent. The nominal income targeting rule responds to the nominal income gap, which is defined as the difference between nominal income yn_t (100 times the log of the level of nominal GDP) and a target value yn_t^* (100 times the log of potential nominal GDP), where potential nominal GDP is defined as potential real GDP multiplied by a price target equal to the actual GDP deflator in the fourth quarter of 2007 and growing thereafter at a steady rate of 2 percent per year.¹

Taylor (1993) rule	$R_t = 2.25 + \pi_t + 0.5(\pi_t - \pi^*) + 0.5gap_t$
Taylor (1999) rule	$R_t = 2.25 + \pi_t + 0.5(\pi_t - \pi^*) + gap_t$
Outcome-based rule	$R_t = 1.2R_{t-1} - 0.39R_{t-2} + 0.19[0.79 + 1.73\pi_t + 3.66gap_t - 2.72gap_{t-1}]$
First-difference rule	$R_t = R_{t-1} + 0.5(\pi_{t+3 t} - \pi^*) + 0.5\Delta^4 gap_{t+3 t}$
Nominal income targeting rule	$R_t = 0.75R_{t-1} + 0.25(2.25 + \pi^* + y_n - y_n^*)$

The first two of the selected rules were studied by Taylor (1993, 1999). The outcome-based rule uses policy reactions estimated using real-time data over the sample 1988:Q1–2006:Q4. The intercept of the outcome-based rule was chosen so that the real interest rate consistent with normal resource utilization over the medium term implied by the rule corresponded to the 2¼ percent rate that is embedded in the FRB/US model. The intercepts of the Taylor (1993, 1999) rules are set at 2¼ percent—instead of Taylor’s original value of

¹ See Christopher Erceg, Michael T. Kiley, and J. David López-Salido (2011) for analysis of this rule. The nominal GDP targeting rule in “Monetary Policy Strategies” differs slightly from the rule studied in that memo in setting the target equal to potential nominal GDP (rather than applying a growth rate to actual nominal GDP for the final quarter of 2007) and in having an interest-rate smoothing coefficient of 0.75 (a more standard value than the 0.9 value employed in the memo). Background on the relationship between simple interest-rate rules and nominal income targeting is provided in Bennett T. McCallum and Edward Nelson (1999) and Athanasios Orphanides (2003).

2 percent—for the same reason. The 2¼ percent real rate estimate also enters the long-run intercept of the nominal income targeting rule. The prescriptions of the first-difference rule do not depend on assumptions regarding r^* or the level of the output gap; see Orphanides (2003).

Near-term prescriptions from these rules are calculated using Tealbook projections for inflation and the output gap. The first-difference rule, the estimated outcome-based rule, and the nominal income targeting 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.

REFERENCES

Erceg, Christopher, Michael Kiley, and David López-Salido (2011). “Alternative Monetary Policy Frameworks.” Memo sent to the Committee on October 6, 2011.

McCallum, Bennett T., and Edward Nelson (1999). “Nominal Income Targeting in an Open-Economy Optimizing Model,” *Journal of Monetary Economics*, Vol. 43 (June), pp. 553–578.

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

Taylor, John B. (1993). “Discretion versus Policy Rules in Practice,” *Carnegie-Rochester Conference Series on Public Policy*, Vol. 39 (December), pp. 195–214.

Taylor, John B. (1999). “A Historical Analysis of Monetary Policy Rules,” in John B. Taylor, ed., *Monetary Policy Rules*. University of Chicago Press, pp. 319–341.

B. Estimates of the Equilibrium and Actual Real Rates

An estimate of the equilibrium real rate appears as a memo item in the first exhibit, “Policy Rules and the Staff Projection.” The concept of the short-run equilibrium real rate underlying the estimate corresponds to the level of the real federal funds rate that is consistent with output reaching potential in twelve quarters using the projection for the economy of FRB/US, the staff’s large-scale econometric model of the U.S. economy. This estimate depends on a very broad array of economic factors, some of which take the form of projected values of the model’s exogenous variables. The estimate reported is the “Tealbook-consistent” estimate of r^* , which is generated after the paths of exogenous variables in the FRB/US model are adjusted so that they match those in the extended Tealbook forecast. Model simulations then determine the value of the real federal funds rate that closes the output gap conditional on the exogenous variables in the extended baseline forecast.

The estimated actual real federal funds rate reported in the exhibit 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 midpoint of the target range for the federal funds rate on the Tealbook Book B publication date.

C. FRB/US Model Simulations

The exhibits of “Monetary Policy Strategies” that report results from simulations of alternative policies are derived from dynamic simulations of the FRB/US model. The simulated policy rule is assumed to be in force over the whole period covered by the simulation. For the optimal control simulations, the dotted line labeled “Previous Tealbook” is derived from the optimal control simulations, when applied to the previous Tealbook projection.

D. 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 June 2012 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 May 31, 2012. 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, B, and B’ assume that the target federal funds rate begins to increase in October 2014, consistent with the forward guidance in the FOMC’s statement that the federal funds rate is expected to be at exceptionally low levels “at least through late 2014.” This date of liftoff is the same as that used in the April Tealbook for the Alternative A1, A2, and B balance sheet projections, but later than that assumed in the June Tealbook staff forecast.² The projection for the scenario corresponding to Alternative C assumes the target rate lifts off in October 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.³

² In the balance sheet forecast, the federal funds rate remains below 25 basis points through September 2014, then moves up gradually over time and converges to the projection assumed in the June Tealbook staff forecast by the end of the forecast horizon. The projected path of the 10-year Treasury yield in these alternatives is the yield assumed in the June Tealbook staff forecast adjusted for the expectations effect of a later target federal funds rate liftoff (see the box on “Forward Rate Guidance and Policy Expectations” from the January Tealbook Book B) and for the reduction in term premiums caused by the extension of the MEP (the staff forecast is not conditioned on an extended MEP) as well as the later liftoff date for the federal funds rate and associated later beginning of asset redemptions and sales.

³ 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: Increases in term deposits and reverse repurchase agreements would be matched by corresponding declines in reserve balances. Presumably, these draining tools would be wound down as the balance sheet returns to its steady state growth path, so that the projected paths for Treasury securities presented in the Tealbook remain valid.

ASSETS

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

- The assumptions under Alternatives B and 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, as part of its ongoing maturity extension program (MEP).
 - In addition, the FOMC is assumed to continue the MEP at its current pace through the end of 2012, directing the Desk to purchase Treasury securities with remaining maturity of 6 years to 30 years and to sell or redeem Treasury securities with remaining maturity of approximately 3 years or less. In total, the FOMC purchases an additional \$267 billion in longer-term Treasury securities as a result of the MEP extension.
 - The FOMC continues to reinvest the proceeds from principal payments on its agency securities holdings in agency MBS until April 2014—six months prior to the assumed increase in the target federal funds rate.⁴ 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 analytical providers, long-run average prepayment speeds of MBS, and interest rate projections from the Tealbook. The projected rate of prepayment is sensitive to these underlying assumptions.
- In the scenario corresponding to Alternative A, the Committee is assumed to begin a \$500 billion LSAP program in July 2012 under which it purchases current coupon agency MBS at a rate of about \$40 billion per month through June 2013. In addition, the Committee is expected to complete the MEP in June and, unlike in Alternatives B and B', is assumed to follow current reinvestment policies. Beginning in April 2014, six months prior to the assumed increase in the federal funds rate in October 2014, principal payments from securities are allowed to roll off the portfolio. Sales of agency securities begin in April 2015 and continue for five years.
- In the scenario corresponding to Alternative C, the Committee is expected to complete the current MEP in June of this year and no further balance sheet action is undertaken in the near term. 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 April 2013, six months prior to the assumed increase in

⁴ Projected prepayments of agency MBS reflect interest rate projections as of June 13, 2012.

the federal funds rate in October 2013. Sales of agency securities begin in April 2014 and continue for five years.

- Because current and expected rates in the near term 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 current MEP, premiums associated with securities purchases and sales in this program, and hence total assets, will have risen on net by about \$70 billion by the end of this program. A continuation of the MEP, as in B and B', will boost premiums on net an additional \$60 billion by the end of the year.
- The large-scale asset purchase program in Alternative A would put downward pressure on market interest rates, in particular primary and secondary mortgage rates.
- The current and near-term market value of agency MBS is assumed to be four percent above its face value. As a result, for Alternative A, the \$500 billion LSAP program will cause unamortized premiums on the Federal Reserve's balance sheet to rise by roughly \$20 billion relative to a scenario without this program. The increase in premiums is reflected in higher total assets and in higher reserve balances.
- The level of central bank liquidity swaps is assumed to decline gradually, as the recent foreign central bank swap auctions mature, and then return to zero in January 2014.
- 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

- Credit through the Term Asset Backed Securities Loan Facility (TALF) 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 not to repay a TALF loan.
- The assets held by Maiden Lane LLC and Maiden Lane III LLC decline to zero gradually over time. The last historical month included in the analysis is May 2012. As a result, recent sales from Maiden Lane LLC and Maiden Lane III LLC are not taken into account.

LIABILITIES AND CAPITAL

- Federal Reserve notes in circulation grow in line with the staff forecast for money stock currency through the last quarter of 2014. Afterwards, Federal Reserve notes in circulation grow at the same rate as nominal GDP, as in the extended Tealbook projection.
- The level of reverse repurchase agreements (RRPs) is assumed to remain around \$70 billion, about the average level of RRP associated with foreign official and international accounts observed over the past three years.
- Balances held in the U.S. Treasury's General Account (TGA) follow recent patterns until the assumed increase in the target federal funds rate in each alternative. At that point, the TGA slowly drops back to its historical target level of \$5 billion 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.⁵
- In general, increases in the level of Federal Reserve assets are matched by higher levels of reserve balances. All else equal, 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 and 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.

⁵ The annual growth rate of capital impacts the date of normalization of the size of the balance sheet and the size of the SOMA portfolio. Growth in Reserve Bank capital has been modest over the past two years; however, even if Federal Reserve capital were assumed to be constant, normalization only would be pushed later by about a quarter.

TERM PREMIUM EFFECTS⁶

- Under Alternatives B and B', the current staff estimates of the contemporaneous term premium effect on the yield of the ten-year Treasury note is negative 71 basis points. Based on the projection for the balance sheet, that term premium effect converges slowly toward zero over the forecast period as the portfolio normalizes. The path of the term premium effect is more negative than in the April Tealbook Alternative B because of the assumed continuation of the MEP.
- Under Alternative A, the term premium effect is a bit larger than in Alternatives B and B', at negative 77 basis points. The larger term premium effect is a result of the assumed balance sheet program.
- Under Alternative C, the term premium effect is somewhat smaller than under Alternatives B and B', at negative 53 basis points. The smaller term premium effect is a result of no continuation of the MEP and the earlier assumed increase in the federal funds rate that, in turn, leads to earlier asset sales.

⁶ Staff estimates use the model outlined in the appendix of the January 18, 2012, memo "Possible MBS Large-Scale Asset Purchase Program" written by staff at the Federal Reserve Bank of New York and the Board of Governors. More details of the model can be found in "Term Structure Modeling with Supply Factors and the Federal Reserve's Large Scale Asset Purchase Programs" by Li and Wei, FEDS working paper # 37, 2012.

10-Year Treasury Term Premium Effect				
Date	Alternatives B and B'	Alternative A	Alternative C	<i>Memo: April Alternative B</i>
Basis Points				
Quarterly Averages				
2012 Q2	-71	-77	-53	-61
2012 Q3	-68	-74	-50	-58
2012 Q4	-65	-71	-46	-55
2013 Q1	-62	-68	-43	-51
2013 Q2	-58	-64	-39	-48
2013 Q3	-54	-60	-36	-45
2013 Q4	-50	-56	-33	-41
2014 Q1	-47	-51	-30	-38
2014 Q2	-43	-47	-27	-35
2014 Q3	-40	-43	-25	-32
2014 Q4	-37	-39	-23	-29
2015 Q1	-34	-36	-21	-27
2015 Q2	-31	-33	-19	-24
2015 Q3	-28	-29	-17	-22
2015 Q4	-26	-27	-15	-20
2016 Q1	-24	-24	-14	-18
2016 Q2	-22	-21	-13	-16
2016 Q3	-20	-19	-12	-15
2016 Q4	-18	-17	-11	-13
2017 Q1	-16	-16	-10	-12
2017 Q2	-15	-14	-9	-11
2017 Q3	-14	-13	-9	-10
2017 Q4	-13	-11	-9	-10
2018 Q1	-12	-10	-8	-9
2018 Q2	-11	-10	-8	-8
2018 Q3	-10	-9	-8	-8
2018 Q4	-10	-8	-8	-8
2019 Q1	-9	-8	-7	-7
2019 Q2	-9	-7	-7	-7
2019 Q3	-8	-7	-7	-7
2019 Q4	-8	-7	-6	-6
2020 Q1	-7	-6	-6	-6
2020 Q2	-7	-6	-6	-5
2020 Q3	-6	-5	-5	-5
2020 Q4	-6	-5	-5	-5

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

Billions of dollars

	<u>May 31, 2012</u>	<u>2012</u>	<u>2014</u>	<u>2016</u>	<u>2018</u>	<u>2020</u>
Total assets	2,849	2,894	2,798	2,190	1,800	2,000
Selected assets						
Liquidity programs for financial firms	22	15	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	22	15	0	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	5	3	1	0	0	0
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	19	19	15	12	7	4
Securities held outright	2,606	2,593	2,547	1,986	1,636	1,860
U.S. Treasury securities	1,661	1,653	1,653	1,430	1,426	1,860
Agency debt securities	93	77	39	16	2	0
Agency mortgage-backed securities	852	863	855	539	207	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	195	264	234	192	157	135
Total liabilities	2,794	2,833	2,716	2,081	1,657	1,810
Selected liabilities						
Federal Reserve notes in circulation	1,068	1,111	1,253	1,390	1,539	1,693
Reverse repurchase agreements	70	70	70	70	70	70
Deposits with Federal Reserve Banks	1,636	1,633	1,375	604	30	30
Reserve balances held by depository institutions	1,499	1,543	1,370	599	25	25
U.S. Treasury, General Account	112	90	5	5	5	5
Other Deposits	25	0	0	0	0	0
Interest on Federal Reserve Notes due to U.S. Treasury	2	0	0	0	0	0
Total capital	55	62	82	108	143	189

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 A

Billions of dollars

	<u>May 31, 2012</u>	<u>2012</u>	<u>2014</u>	<u>2016</u>	<u>2018</u>	<u>2020</u>
Total assets	2,849	3,019	3,176	2,246	1,800	2,000
Selected assets						
Liquidity programs for financial firms	22	15	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	22	15	0	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	5	3	1	0	0	0
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	19	19	15	12	7	4
Securities held outright	2,606	2,771	2,962	2,078	1,670	1,892
U.S. Treasury securities	1,661	1,652	1,597	1,223	1,345	1,892
Agency debt securities	93	77	39	16	2	0
Agency mortgage-backed securities	852	1,042	1,327	839	323	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	195	211	197	156	123	104
Total liabilities	2,794	2,957	3,095	2,138	1,657	1,811
Selected liabilities						
Federal Reserve notes in circulation	1,068	1,111	1,253	1,390	1,539	1,693
Reverse repurchase agreements	70	70	70	70	70	70
Deposits with Federal Reserve Banks	1,636	1,757	1,754	660	30	30
Reserve balances held by depository institutions	1,499	1,667	1,749	655	25	25
U.S. Treasury, General Account	112	90	5	5	5	5
Other Deposits	25	0	0	0	0	0
Interest on Federal Reserve Notes due to U.S. Treasury	2	0	0	0	0	0
Total capital	55	62	82	108	143	189

Explanatory Notes

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

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

Billions of dollars

	<u>May 31, 2012</u>	<u>2012</u>	<u>2014</u>	<u>2016</u>	<u>2018</u>	<u>2020</u>
Total assets	2,849	2,830	2,399	1,685	1,800	2,000
Selected assets						
Liquidity programs for financial firms	22	15	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	22	15	0	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	5	3	1	0	0	0
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	19	19	15	12	7	4
Securities held outright	2,606	2,591	2,211	1,535	1,680	1,893
U.S. Treasury securities	1,661	1,652	1,537	1,182	1,641	1,893
Agency debt securities	93	77	39	16	1	0
Agency mortgage-backed securities	852	863	635	336	37	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	195	201	171	138	113	103
Total liabilities	2,794	2,768	2,317	1,576	1,657	1,811
Selected liabilities						
Federal Reserve notes in circulation	1,068	1,111	1,253	1,390	1,539	1,693
Reverse repurchase agreements	70	70	70	70	70	70
Deposits with Federal Reserve Banks	1,636	1,569	976	99	30	30
Reserve balances held by depository institutions	1,499	1,478	971	94	25	25
U.S. Treasury, General Account	112	90	5	5	5	5
Other Deposits	25	0	0	0	0	0
Interest on Federal Reserve Notes due to U.S. Treasury	2	0	0	0	0	0
Total capital	55	62	82	108	143	189

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

Explanatory Notes