Prefatory Note

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

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

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Class I FOMC – Restricted Controlled (FR)

Report to the FOMC on Economic Conditions and Monetary Policy

Book B

Monetary Policy: Strategies and Alternatives

April 19, 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 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 described further below. As shown in the left-hand columns, the near-term prescriptions for the federal funds rate from most of the rules remain at the effective lower bound in both the second and third quarters of this year. The exceptions are the prescriptions from the Taylor (1993) rule, which embeds a relatively low response to the output gap, and the first-difference rule, which responds to the change in the output gap rather than its level. The Taylor (1993) rule prescribes policy rates around 165 basis points for the next two quarters, and the first-difference rule prescribes a rate just above the effective lower bound by this summer. The right-hand columns display the rule prescriptions that arise in the absence of the lower-bound constraint. Of these, the lowest near-term value for the federal funds rate, at around −90 basis points, comes from the nominal income targeting rule, which is currently being pulled down by the recent history of negative output gaps. The near-term prescriptions from all five rules have increased a bit in response to narrower staff estimates for the output gap as well as higher projected inflation rates compared to the previous Tealbook. 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" a fuller description is provided in Book A of the Tealbook.

The 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. Short-run r^* measures the real federal funds rate that, if maintained, would return output to its potential in twelve quarters. Primarily reflecting the narrower staff projections for the output gap, the r^* estimate is 40 basis points higher than in the March Tealbook. However, at −2.5 percent, it remains well below the estimated actual real federal funds rate of −1.8 percent.

[1] Details for each rule appear in Explanatory Note A.

Strategies

Policy Rules and the Staff Projection

Near-Term Prescriptions of Selected Policy Rules

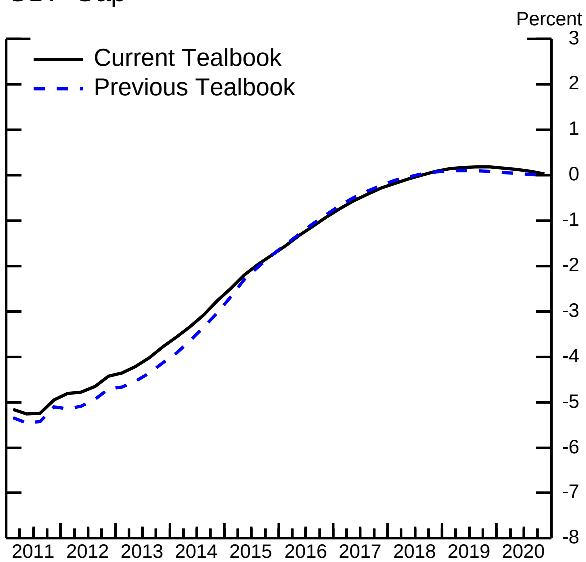
	Constrained Policy		Unconstrained Policy	
	2012Q2	2012Q3	2012Q2	2012Q3
Taylor (1993) rule	**1.70**	**1.60**	**1.70**	**1.60**
Previous Tealbook	*1.38*	*1.27*	*1.38*	*1.27*
Taylor (1999) rule	**0.13**	**0.13**	**-0.63**	**-0.67**
Previous Tealbook	*0.13*	*0.13*	*-1.10*	*-1.14*
Outcome-based rule	**0.13**	**0.13**	**0.04**	**-0.01**
Previous Tealbook	*0.13*	*0.13*	*-0.05*	*-0.20*
First-difference rule	**0.18**	**0.28**	**0.18**	**0.28**
Previous Tealbook	*0.14*	*0.20*	*0.14*	*0.20*
Nominal income targeting rule	**0.13**	**0.13**	**-0.48**	**-0.91**
Previous Tealbook	*0.13*	*0.13*	*-0.55*	*-1.04*

Memo: Equilibrium and Actual Real Federal Funds Rate

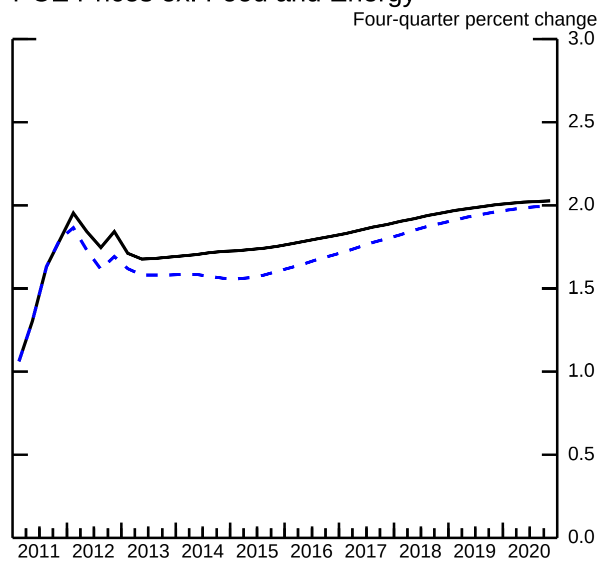
	Current Tealbook	*Previous Tealbook*
Tealbook-consistent FRB/US *r** estimate	-2.5	-2.9
Actual real federal funds rate	-1.8	-1.7

Key Elements of the Staff Projection

GDP Gap



PCE Prices ex. Food and Energy



The next exhibit, “Policy Rule Simulations,” reports dynamic simulations 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. These simulations are generated using the FRB/US model; the model is first adjusted to match the staff’s outlook for the economy, and 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 real activity and inflation in the future.[2] For comparison, the exhibit also displays the Tealbook baseline paths, which are conditioned on the prescriptions of the outcome-based rule.

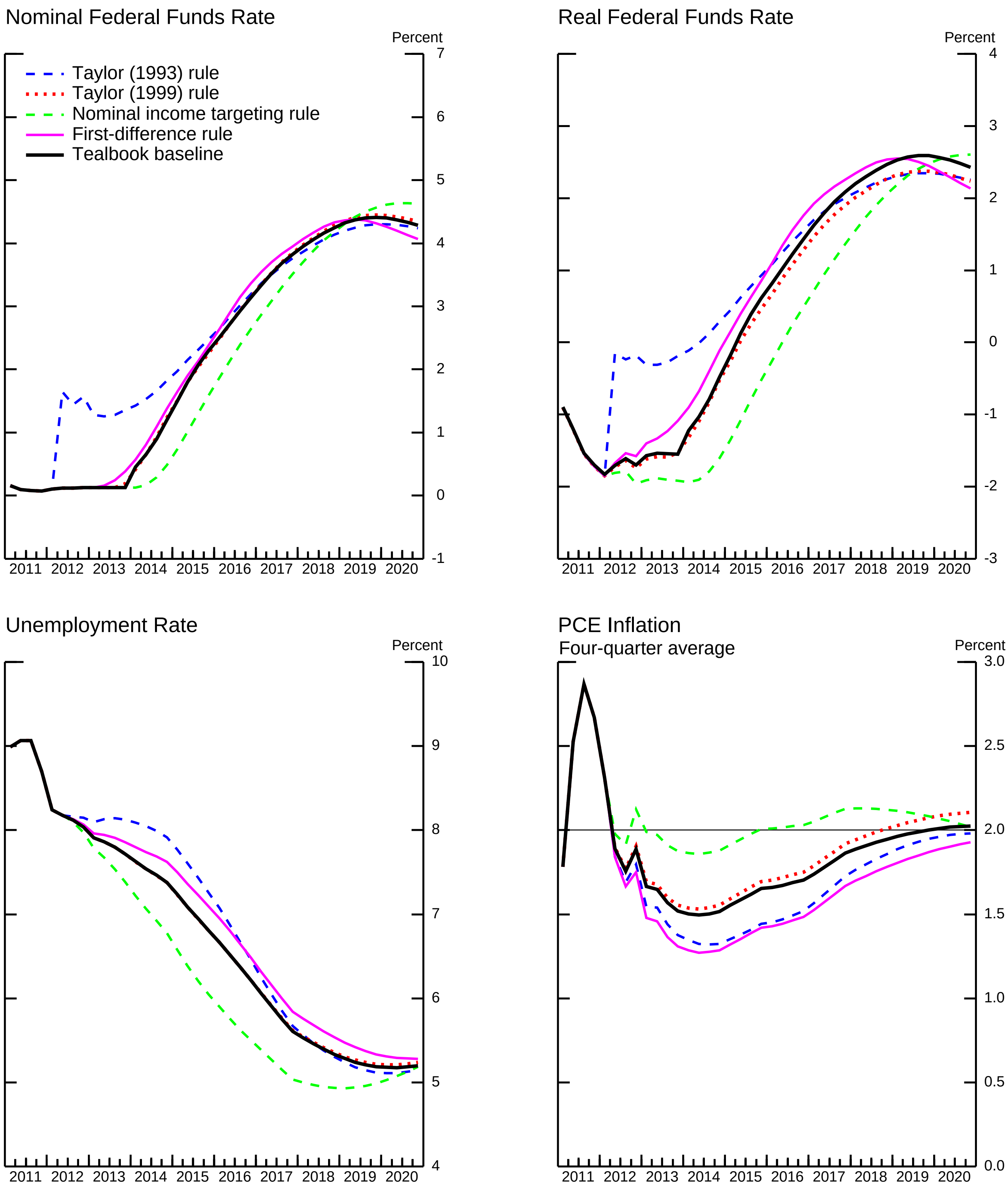
The Tealbook baseline (the outcome-based rule) and two of the other rules—the Taylor (1999) rule and the nominal income targeting rule—keep the policy rate near the lower bound at least until the beginning of 2014. The Taylor (1999) rule currently produces conditions that are very similar to those of the Tealbook baseline, including a convergence of inflation to the 2 percent goal late in the decade.[3] In contrast, under the nominal income targeting rule, the initial tightening of the funds rate occurs only in the second half of 2014, 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 than that experienced under the other rules and in inflation hovering near 2 percent for much of the decade.

Both the Taylor (1993) and the first-difference rules imply an earlier increase in the federal funds rate than the other rules, resulting in a higher path for the unemployment rate and, thus, inflation running below 2 percent until late in the decade. Because the Taylor (1993) rule does not respond strongly to the level of the output gap,

[2] The staff’s baseline forecast incorporates the effects of the Federal Reserve’s large-scale asset purchase programs, as well as the effects of the maturity extension program and the modifications announced in September to the Federal Reserve’s reinvestment policies. Through this channel, the policy rule simulations also incorporate the effects of these balance sheet policies; the rules themselves are not directly adjusted for the effects of balance sheet policies. In addition, the simulations also assume that no further balance sheet policies are undertaken.

[3] As in the previous Tealbook, the outcome-based and Taylor (1999) rules lead to similar paths for the federal funds rate. These two rules have similar longer-run properties, especially with respect to the response to the level of the output gap; however, their short-run responses are usually 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 change, which, because of rapid output gains in 2014 and 2015, 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 of the funds rate. These two forces are currently almost exactly offsetting each other, leading, on net, to similar funds rate prescriptions.

Policy Rule Simulations



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.

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 before the second half of next year in this set of simulations, it implies policy rates for the following years that run a bit higher than under the other rules.[4] Reflecting the forward-looking price and wage-setting behavior embedded in FRB/US, both the Taylor (1993) and the first-difference rule thus generate fairly similar average outcomes for unemployment and inflation, despite the differences in their funds rate prescriptions over the next two years.

As shown in the third exhibit, "Constrained vs. Unconstrained Optimal Monetary Policy," the staff's slight upward 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 have edged up marginally compared with those reported in the previous Tealbook.[5] 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.[6] The simulations indicate that the optimal path for the federal funds rate does not rise appreciably above zero until the second half of 2015, about one quarter earlier than in the March Tealbook.[7]

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[4] Note that the first-difference rule in this set of simulations does not prescribe tightening until late 2013, while in the "Near-Term Prescriptions" table this rule prescribes an increase in the funds rate in the fourth quarter of this year. The distinction arises because of the endogenous feedback embedded in the dynamic simulations and the forward-looking nature of the rule. In contrast to the near-term prescriptions, which are essentially driven by the staff's baseline projections for the economy, this set of simulations allows the economy to respond endogenously to the policy settings under the rule. The tighter policy under the first-difference rule leads to a weaker economy and lower inflation rates, which feed back into a later increase in the simulated funds rate prescription than does an application of the rule to the baseline projection.

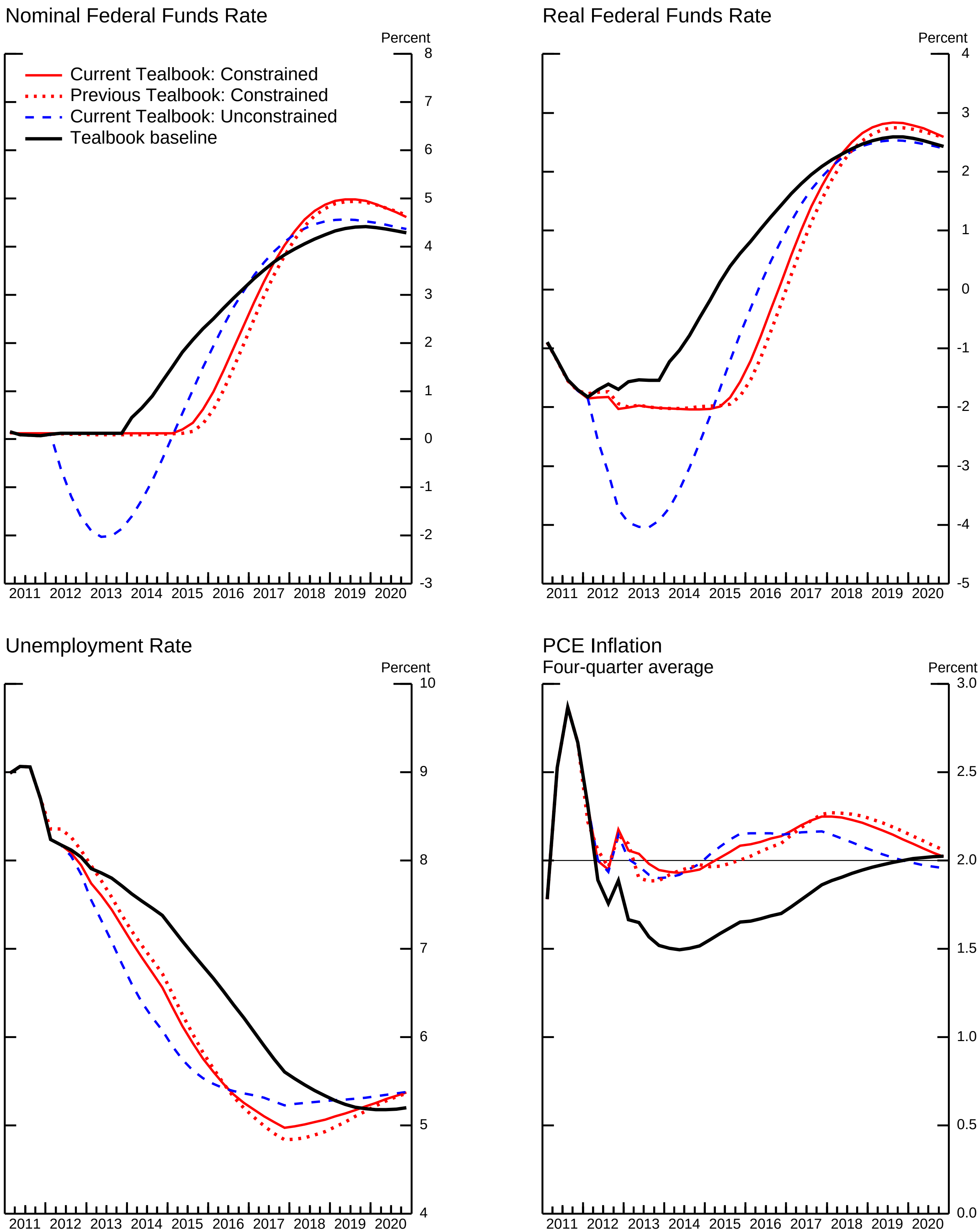
[5] The optimal policy simulations take into account the staff's baseline forecast, which incorporates the effects of the Federal Reserve's large-scale asset purchase programs, as well as the effects of the maturity extension program and the modifications announced in September to the Federal Reserve's reinvestment policies.

[6] Reflecting the transitory effects of extended unemployment benefits, the staff's estimate of the effective natural rate of unemployment falls from 6¼ percent in the first quarter of 2012 to 5¾ percent by the end of 2015, and then declines further until it reaches 5¼ percent by the end of 2017.

[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 because it provides a less volatile measure of inflation expectations than does a four-quarter moving average of headline inflation.

Strategies

Constrained vs. Unconstrained Optimal Monetary Policy



The optimal 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 an inflation rate in the medium run that is closer to the FOMC's goal of 2 percent. In the optimal control simulation, the gap between the unemployment rate and the staff's estimate of the effective natural rate of unemployment is first closed by the end of 2015, and the unemployment rate runs slightly below target over the following few years. Similarly, inflation slightly overshoots its target after 2015 and rises to about 2¼ percent in 2018, before returning to 2 percent in 2020. The faster convergence to the Committee's assumed objectives obtains because policymakers respond to the lower bound constraint by promising to keep interest rates low for an extended period of time; because this policy is assumed to be completely credible, it boosts inflation expectations and reduces real rates during the first years of the simulation.

If the nominal federal funds rate could fall below zero, the funds rate, under the optimal unconstrained policy, would decrease to –2 percent by mid-2013 and not return to positive territory until early 2015.[8] Under these hypothetical conditions, the unemployment rate would decline more rapidly than under the optimal constrained policy and would then remain roughly stable at 5¼ percent after 2016. With the unemployment rate stabilized, inflation would settle in at around 2 percent in 2018.

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

[8] 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 make balance sheet policy more accommodative than under the baseline assumption. Of course, the benefits in terms of better economic outcomes resulting from such an action would have to be balanced against the costs. 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."

Strategies

Outcomes under Alternative Policies

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

Measure and scenario	2011 H2	2012	2013	2014	2015	2016
Real GDP						
Extended Tealbook baseline	2.4	2.5	2.8	3.3	3.6	3.5
Taylor (1993)	2.4	2.1	2.2	3.2	3.8	3.9
Taylor (1999)	2.4	2.5	2.8	3.3	3.6	3.5
First-difference	2.4	2.4	2.6	3.1	3.5	3.5
Nominal income targeting	2.4	2.8	3.4	3.8	3.8	3.4
Constrained optimal control	2.4	2.8	3.6	4.0	4.0	3.2
Unemployment rate[1]						
Extended Tealbook baseline	8.7	8.0	7.7	7.4	6.8	6.2
Taylor (1993)	8.7	8.1	8.1	7.9	7.2	6.4
Taylor (1999)	8.7	8.0	7.7	7.4	6.8	6.2
First-difference	8.7	8.0	7.8	7.6	7.1	6.5
Nominal income targeting	8.7	7.9	7.4	6.8	6.0	5.5
Constrained optimal control	8.7	7.9	7.2	6.6	5.8	5.2
Total PCE prices						
Extended Tealbook baseline	1.7	1.9	1.5	1.5	1.7	1.7
Taylor (1993)	1.7	1.8	1.4	1.3	1.5	1.5
Taylor (1999)	1.7	1.9	1.5	1.5	1.7	1.7
First-difference	1.7	1.8	1.3	1.3	1.5	1.5
Nominal income targeting	1.7	2.1	1.9	1.9	2.1	2.0
Constrained optimal control	1.7	2.2	1.9	1.9	2.1	2.1
Core PCE prices						
Extended Tealbook baseline	1.7	1.8	1.7	1.7	1.8	1.8
Taylor (1993)	1.7	1.7	1.6	1.5	1.6	1.6
Taylor (1999)	1.7	1.8	1.7	1.7	1.8	1.8
First-difference	1.7	1.7	1.5	1.5	1.6	1.6
Nominal income targeting	1.7	2.0	2.1	2.1	2.2	2.1
Constrained optimal control	1.7	2.1	2.1	2.1	2.2	2.2
Federal funds rate[1]						
Extended Tealbook baseline	0.1	0.1	0.1	1.2	2.3	3.1
Taylor (1993)	0.1	1.6	1.4	1.8	2.5	3.2
Taylor (1999)	0.1	0.1	0.2	1.2	2.3	3.2
First-difference	0.1	0.1	0.4	1.4	2.4	3.4
Nominal income targeting	0.1	0.1	0.1	0.5	1.6	2.6
Constrained optimal control	0.1	0.1	0.1	0.1	0.6	2.4

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

Monetary Policy Alternatives

This Tealbook presents three policy alternatives—labeled A, B, and C—for the Committee's consideration. In an effort to increase clarity about the linkages between the FOMC's assessment of the economic outlook and its monetary policy decisions, each draft statement includes information about the medium-run outlook and the policy path on which that outlook is conditioned. With the same aim in mind, Alternatives A and C offer ways to modify the forward guidance. Under Alternative A, the Committee would provide more policy stimulus either by expanding the maturity extension program (MEP) or by undertaking new purchases of agency mortgage-backed securities (MBS). As always, the Committee could blend elements of the draft statements to construct its desired statement.

The draft statements for Alternatives A and B begin with the same words as the March statement: "Information received … suggests that the economy has been expanding moderately." Alternative C offers the more upbeat depiction that "the economic recovery has continued to strengthen." Alternatives A and B observe that labor market conditions have improved in recent months, but also note that the unemployment rate remains elevated. Alternative C does not describe unemployment as elevated; instead, after citing the improvement in labor markets, it points to the expansion in private payrolls in recent months. Alternative A characterizes the housing sector as depressed; Alternatives B and C offer two ways to indicate that the sector has shown some improvement but is still depressed. With respect to prices, Alternatives A and B observe that inflation "has picked up somewhat, mainly reflecting higher prices of crude oil and gasoline." Alternative C puts more emphasis on the effects of the run-up in oil and gas prices by saying that "sizable increases in the prices of crude oil and gasoline have pushed up inflation somewhat." Each statement notes that longer-term inflation expectations have remained stable.

The alternatives differ substantially in their characterization of the medium-term outlook for real activity. Alternative B states that the Committee expects economic growth "to remain moderate over coming quarters and then to pick up gradually, supported by highly accommodative monetary policy." As before, Alternative B says that the Committee anticipates that the unemployment rate "will decline gradually" toward levels it considers consistent with the dual mandate. Alternative C embodies a stronger forecast; it states that the Committee expects that economic growth will pick up over time, and that the unemployment rate "will move appreciably closer, over the next few years," to levels judged consistent with the dual mandate. Alternative A envisions less strength; it says that "absent further policy stimulus, economic growth would be unacceptably slow" and unemployment would decline "only very gradually."

With respect to the outlook for inflation, Alternative B observes that the increase in prices of crude oil and gasoline earlier this year "is expected to affect inflation only temporarily," and that "the Committee anticipates that subsequently inflation will run at or below the rate that it judges most consistent with its dual mandate." Alternative A offers the same forecast, but expresses concern about the effects of higher prices of oil and gasoline on consumers' purchasing power. While Alternative C also says that the increase in oil and gasoline prices is expected to affect inflation only temporarily, it sends a different message about the medium-run outlook for inflation by stating "the Committee anticipates that, with appropriate monetary policy, inflation over the medium term will run close to the rate that it judges most consistent with its mandate."

In light of the economic outlook summarized in the draft statement for Alternative B, the Committee would, under that alternative, maintain the 0 to ¼ percent target for the funds rate and make no change to its balance sheet policies or to its guidance regarding the anticipated period of exceptionally low federal funds rates. Under Alternative A, with its downbeat view of the medium-term outlook, the Committee would provide more stimulus either by expanding the maturity extension program (MEP) to $800 billion and continuing it through March 2013, or by launching a new program to purchase $500 billion of agency MBS.[1] While the draft statement for Alternative A maintains the current target range for the federal funds rate and reiterates that the anticipated period of exceptionally low federal funds rates extends at least through late 2014, it offers the public more information than Alternative B about the types of economic information that will inform the Committee's future policy decisions. Alternative C maintains the current target range and completes the existing $400 billion MEP, but it alters the forward guidance either by pulling forward the anticipated date of the first increase in the federal funds rate or by replacing the current forward guidance—including the date—with new, exit-oriented, language.

[1] Staff memos analyzing each of these programs were sent to Committee participants on April 17. See "Extending the Maturity Extension Program" and "A Summary of the Costs and Benefits of Large-Scale Asset Purchases."

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.

Alternatives

Table 1: Overview of Policy Alternatives for the April 25 FOMC Statement

Selected Elements	March Statement	April Alternatives		
		A	B	C
Forward Rate Guidance				
Guidance	at least through late 2014	unchanged	unchanged	In judging when to first increase its target for the federal funds rate, the Committee will consider a range of factors, including rates of resource utilization, the projected pace of improvement in labor market conditions, the contours of the medium-term inflation outlook, the stability of longer-run inflation expectations, and the balance of risks that could impede the attainment of … goals **OR** until mid-2013
Balance Sheet				
MEP	continue its program as announced in September ($400 billion; complete by end of June 2012)	complete the MEP announced in September; then purchase, between July 2012 and March 2013, an additional $400 billion of Treasury securities with remaining maturities of 6 to 30 years and sell an equal amount with remaining maturities of 4 years or less	unchanged	complete in June the program that it announced in September
Additional Purchases	none	**OR** (instead of expanding the MEP) purchase an additional $500 billion of agency MBS by the end of April 2013	none	none
Reinvestment Policies	principal payments of agency debt and MBS into agency MBS; Treasuries into Treasuries	unchanged	unchanged	unchanged
Future Policy Action				
Future Actions	regularly review the size and composition of securities holdings; prepared to adjust holdings as appropriate to promote stronger recovery in context of price stability	As in March **plus**: In judging the appropriate stance of monetary policy, the Committee will consider a range of factors, including rates of resource utilization, the projected pace of improvement in labor market conditions, the contours of the medium-run inflation outlook, the stability of longer-run inflation expectations, and the balance of risks that could impede the attainment of … goals.	unchanged	regularly review the size and composition of securities holdings; prepared to adjust holdings as appropriate to promote maximum employment and price stability

MARCH FOMC STATEMENT

1. Information received since the Federal Open Market Committee met in January suggests that the economy has been expanding moderately. Labor market conditions have improved further; the unemployment rate has declined notably in recent months but remains elevated. Household spending and business fixed investment have continued to advance. The housing sector remains depressed. Inflation has been subdued in recent months, although prices of crude oil and gasoline have increased lately. 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 moderate economic growth over coming quarters and consequently anticipates that the unemployment rate will decline gradually toward levels that the Committee judges to be consistent with its dual mandate. Strains in global financial markets have eased, though they continue to pose significant downside risks to the economic outlook. The recent increase in oil and gasoline prices will push up inflation temporarily, but 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 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 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.

APRIL FOMC STATEMENT—ALTERNATIVE A

Alternatives

1. Information received since the Federal Open Market Committee met in ~~January~~ **March** suggests that the economy has been expanding moderately. Labor market conditions have improved ~~further~~ **in recent months**; the unemployment rate has declined ~~notably in recent months~~ but remains elevated. Household spending and business fixed investment have continued to advance. The housing sector remains depressed. Inflation has ~~been subdued~~ **picked up somewhat** ~~in recent months~~, ~~although~~ **mainly reflecting higher** prices of crude oil and gasoline ~~have increased lately~~. **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 moderate~~ **anticipates that, absent further policy stimulus,** economic growth ~~over coming quarters~~ **would be unacceptably slow** and ~~consequently anticipates~~ that the unemployment rate ~~will~~ **would** decline **only very** gradually toward levels that the Committee judges to be consistent with its dual mandate. Strains in global financial markets ~~have eased, though they~~ continue to pose significant downside risks to the economic outlook. The ~~recent~~ increase in oil and gasoline prices **earlier this year** ~~will push up~~ **is reducing consumers' purchasing power while boosting** inflation temporarily, but the Committee anticipates that subsequently inflation will run at or below the rate that it judges most consistent with its dual mandate.

3.1 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 ~~continue~~ **expand** its program to extend the average maturity of its holdings of securities ~~as announced in September~~. **After completing the transactions that it announced last September, the Committee intends to purchase, between July 2012 and the end of March 2013, an additional $400 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 4 years or less. These transactions 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 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.

OR

3.2 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 ~~continue its~~ **purchase an additional $500 billion of**

agency mortgage-backed securities by the end of April 2013. **The Committee also will complete the** program to extend the average maturity of its holdings of securities ~~as~~ **that it** announced in September. **These transactions should put downward pressure on longer-term interest rates, support mortgage markets, and help to make broader financial conditions more accommodative.** 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.

4. The Committee also decided to keep the target range for the federal funds rate at 0 to ¼ percent and currently anticipates that economic conditions ~~— including low rates of resource utilization and a subdued outlook for inflation over the medium run —~~ are likely to warrant exceptionally low levels for the federal funds rate at least through late 2014.

5. **In judging the appropriate stance of monetary policy, the Committee will consider a range of factors, including rates of resource utilization, the projected pace of improvement in labor market conditions, the contours of the medium-run inflation outlook, the stability of longer-run inflation expectations, and the balance of risks that could impede the attainment of the Committee's goals.**

Alternatives

APRIL FOMC STATEMENT—ALTERNATIVE B

1. Information received since the Federal Open Market Committee met in ~~January~~ **March** suggests that the economy has been expanding moderately. Labor market conditions have improved ~~further~~ **in recent months**; the unemployment rate has declined ~~notably in recent months~~ but remains elevated. Household spending and business fixed investment have continued to advance. **Despite some tentative signs of improvement,** the housing sector remains depressed. Inflation has ~~been subdued~~ **picked up somewhat** ~~in recent months~~, ~~although~~ **mainly reflecting higher** prices of crude oil and gasoline ~~have increased lately~~. **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 ~~moderate~~ economic growth **to remain moderate** over coming quarters and **then to pick up gradually, supported by highly accommodative monetary policy.** Consequently**, the Committee** anticipates that the unemployment rate will decline gradually toward levels that ~~the Committee~~ **it** judges to be consistent with its dual mandate. Strains in global financial markets ~~have eased, though they~~ continue to pose significant downside risks to the economic outlook. The ~~recent~~ increase in oil and gasoline prices **earlier this year** ~~will push up~~ **is expected to affect** inflation **only** temporarily, ~~but~~ **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 ¼ percent and currently anticipate~~s~~ 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.

APRIL FOMC STATEMENT—ALTERNATIVE C

1. Information received since the Federal Open Market Committee met in ~~January~~ **March** suggests that the ~~economy has been expanding moderately~~ **economic recovery has continued to strengthen**. Labor market conditions have improved further; the unemployment rate has declined ~~notably in recent months but remains elevated~~ **somewhat more, and private payrolls have expanded moderately on average in recent months**. Household spending and business fixed investment have continued to advance. The housing sector remains depressed **but has shown some signs of improvement**. **Sizable increases in the prices of crude oil and gasoline have pushed up** inflation **somewhat** ~~has been subdued in recent months, although prices of crude oil and gasoline have increased lately~~. 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 ~~moderate~~ economic growth ~~over coming quarters~~ **to pick up over time** and consequently anticipates that the unemployment rate will ~~decline gradually~~ **move appreciably closer, over the next few years, to** ~~toward~~ levels that the Committee judges to be consistent with its dual mandate. Strains in global financial markets ~~have eased, though they~~ continue to pose significant downside risks to the economic outlook. The ~~recent~~ increase in oil and gasoline prices **earlier this year** ~~will push up~~ **is expected to affect** inflation **only** temporarily~~, but~~**;** the Committee anticipates that ~~subsequently~~**, with appropriate monetary policy,** inflation **over the medium term** will run ~~at or below~~ **close to** the rate that it judges most consistent with its dual mandate.

3.1 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~~. **In judging when to first increase its target for the federal funds rate, the Committee will consider a range of factors, including rates of resource utilization, the projected pace of improvement in labor market conditions, the contours of the medium-run inflation outlook, the stability of longer-run inflation expectations, and the balance of risks that could impede the attainment of the Committee's goals.**

OR

3.2 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~~**. In light of the improvement in the economic outlook, the Committee** ~~currently~~ **now** anticipates that economic conditions—including low rates of resource utilization and a subdued outlook for inflation over the medium run—are likely to warrant exceptionally low levels for the federal funds rate ~~at least through late 2014~~ **until mid-2013**.

4. The Committee also decided to ~~continue its~~ **complete in June 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

Policymakers might interpret the available information as indicating that neither the modal economic outlook nor the risks to the outlook have changed appreciably since they last met, and conclude that it is appropriate to make no change in the stance of monetary policy. Or policymakers might judge that the modal outlook for output and employment has improved to some extent, but that the downside risks have increased in recent weeks, suggesting that a change in the stance of policy would be premature. More specifically, FOMC participants may see the data and anecdotal evidence as supporting a modal forecast—conditioned on maintaining the current settings of the Committee's monetary policy tools through late 2014—in which economic growth is likely to be moderate in coming quarters and then to pick up over time, and in which the unemployment rate is likely to decline gradually but remain well above mandate-consistent levels over the next few years. In addition, participants might see spot and futures prices for crude oil and gasoline as consistent with the expectation, expressed in the Committee's March statement, that the boost to inflation resulting from the increase in prices of crude oil and gasoline earlier this year would be temporary, and that subsequently inflation would run at rates no higher than the Committee's 2 percent longer-run goal. While policymakers might be encouraged by recent data on economic activity and inflation, they may see financial strains—including those associated with Europe's fiscal and banking problems—as still posing significant downside risks to the economic outlook; indeed, they may see such strains as having intensified somewhat in recent weeks. Accordingly, participants might judge it appropriate to issue a statement along the lines of Alternative B, which updates the Committee's characterization of recent economic activity and adds information about its view of the medium-run outlook but does not alter the Committee's target for the federal funds rate, its balance sheet policies, or its forward rate guidance.

Alternatively, some participants might think, in light of the ongoing improvement in labor market conditions, that the economic outlook has improved significantly and that the recovery may have transitioned to a sustainable expansion. Nonetheless, with financial strains having reemerged and with uncertainty about the economic outlook still quite high, these participants may prefer, before making a change in the forward guidance that might have to be reversed later, to wait for additional information to confirm that the expansion will be sufficiently strong and durable to generate continuing reductions in the unemployment rate. Some other participants might think that the outlook for growth has improved significantly, but judge that, with unemployment still quite elevated and the recent pickup in inflation apparently beginning to ebb, the improvement does not warrant revising the forward guidance. They might, for example, now anticipate that it will become appropriate to increase the target federal funds rate early in 2015 rather than at a later date. Moreover, although the estimated outcomes-based rule (which reflects the Committee's average behavior from 1988 through 2006) suggests that the FOMC would be likely to raise the target range for the federal funds rate early in 2014 if the economy were to evolve as envisioned in the staff forecast, policymakers may conclude that it is appropriate to maintain the current target range at least until late 2014 because the Committee's ability to provide stimulus by reducing the funds rate has been constrained by the zero lower bound for an extended period, or because the macroeconomic impact of very low interest rates may be somewhat attenuated in the aftermath of the financial crisis.

Even after the nearly one percentage point decline in the unemployment rate during the past seven months, policymakers may see substantial slack in resource utilization. In addition, they may anticipate that growth will not be sufficiently rapid to bring the economy close to full employment over the medium term. Participants who anticipate only a slow reduction in resource slack may also see inflation as likely to run well below 2 percent once the temporary effects of this year's jump in oil and gasoline prices fade away. If so, they might conclude that further policy stimulus would be helpful in speeding progress toward the Committee's objectives. Nonetheless, with the recovery showing some signs of strengthening and with inflation not yet back under 2 percent, they may judge that it is appropriate to wait for additional information regarding the economic outlook before deciding whether to provide additional policy accommodation. Some other participants may judge that the Committee has only limited scope to provide further monetary stimulus and so might choose to forgo providing additional stimulus for the time being in order to preserve sufficient scope for possible future action if the economy were to be hit by an adverse shock or if the risk of deflation were to rise. Such an approach might seem appropriate if participants thought that a change in policy would have a particularly large positive effect on business and consumer confidence in such circumstances. Alternatively, some policymakers, though seeing the current economic outlook as disappointing, might conclude that the costs that would accompany additional asset purchases are likely to outweigh the benefits unless the economy suffers another adverse shock or faces a greater risk of deflation. For example, these policymakers may be concerned that additional asset purchases could complicate the Federal Reserve's ability to exit from its extraordinarily accommodative policy stance at the appropriate time and pace, or could distort the functioning of markets for Treasury securities or agency MBS.

A statement like Alternative B would be largely in line with the expectations of financial 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 March employment report and increased tensions in European financial markets, but do not expect the Committee to change its forward guidance at this meeting. As in March, the dealers anticipate that the first increase in the target federal funds rate will most likely occur in the third quarter of 2014, and they see a slightly higher probability that lift-off will come later than earlier. Moreover, while the dealers place some odds on the Committee altering its forward rate guidance at some time within the next year (the median dealer sees a 15 percent probability that the Committee will move to an earlier date within the next year, and a 30 percent probability of a move to a later date), they see essentially no chance of either change at this meeting. Neither do they see any likelihood of a change in the Committee's balance sheet policies at this meeting; moreover, most dealers anticipate no guidance about the end of the MEP until the June meeting. Thus, if the Committee were to issue a statement like Alternative B, interest rates across the maturity spectrum likely would not change appreciably. Equity prices and the foreign exchange value of the dollar probably would also show little response. Nonetheless, the new language about the medium-run outlook in paragraph 2 could focus more attention on the SEP as investors seek insight into the Committee's views about the projected pace of improvement in labor market conditions and the medium-run outlook for inflation; if the SEP reveals a stronger or weaker outlook than investors anticipate, the combination of new language in the statement and the new SEP might produce a more noticeable adjustment in asset prices and yields.

THE CASE FOR ALTERNATIVE A

Some participants may see the deviation of employment from their assessments of its maximum level as large and as likely to diminish only very slowly absent further policy stimulus. These participants may be concerned that consumer spending, while growing, is still rising less rapidly than during 2010, that household income gains have been modest, and that the recent increase in energy prices has reduced households' purchasing power. They may also be concerned that activity in 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 also expect that inflation will run persistently below the Committee's longer-run target once the temporary effects of earlier increases in gasoline prices ebb. Accordingly, they may judge that further policy action is warranted, as in Alternative A. 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 a greater degree of policy accommodation, even under the staff's baseline scenario.

Moreover, FOMC participants might view the risks to the medium-run outlook as skewed to the downside. Strains in global financial markets appear to have intensified somewhat of late, and the Committee may remain concerned that policymakers in Europe will face further difficulties in resolving the situation and that the potential for adverse spillovers to U.S. financial markets and the U.S. economy is still significant. Accordingly, participants may place sizable 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" simulation. Some policymakers may also see a high probability that the Congress will be unable to resolve contentious fiscal issues before the turn of the year, with adverse consequences for growth next year, as in the "Fiscal Cliff" alternative simulation. They may also think it likely that uncertainty about fiscal policy will 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 may be concerned that these workers' attachment to the labor force could erode, as in the "Corrosion" scenario in the Tealbook. These participants might want to guard against the risk that a high level of long-term unemployment, if it were to persist long enough, will depress labor supply and potential output. With the effects of this year's run-up in oil and gasoline prices on U.S. inflation seemingly already beginning to ebb, and with inflation expectations well anchored, participants may judge that the upside risks to inflation are fairly small. 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 be inclined to provide additional monetary policy stimulus. Finally, the Committee has at its disposal multiple tools to remove policy accommodation when it becomes appropriate to do so, so members may be confident that undertaking additional asset purchases at this time would not undermine the Federal Reserve's ability to implement an effective exit strategy.

Should the Committee decide to provide further monetary stimulus, it might prefer to announce that it will expand the size of the MEP from $400 billion to $800 billion and continue it for another nine months, as in paragraph 3.1 of Alternative A. The Committee might take that action to put additional downward pressure on longer-term Treasury yields, pressure that would be transmitted to yields on longer-term corporate debt and on MBS. Alternatively, the Committee might choose to increase the SOMA's holdings of agency MBS by an additional $500 billion, as in paragraph 3.2 of Alternative A, with the aim of supporting mortgage markets while putting downward pressure on longer-term interest rates.[2] While paragraph 3.2 of Alternative A incorporates a discrete $500 billion agency MBS purchase program spread over 12 months, the Committee could instead choose to implement an incremental, open-ended purchase program by specifying an initial monthly rate of purchases—perhaps $40 to $45 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. 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 is needed to tailor the total amount of purchases to evolving economic conditions.

A statement along the lines of Alternative A would surprise financial market participants. Although the median respondent to the Desk's survey of primary dealers puts the probability of additional large-scale asset purchases being initiated within the next year at 45 percent and the probability of another MEP or similar program to increase the average duration of the SOMA portfolio at 20 percent, they see essentially no chance that such steps will be announced at this meeting. Longer-term interest rates and the foreign exchange value of the dollar likely would decline after the release of a statement like Alternative A. Equity prices probably would increase; however, the downbeat characterization of the economic outlook contained in paragraph 2 of Alternative A could damp that rise or even result in a drop in equity prices.

THE CASE FOR ALTERNATIVE C

Policymakers may judge that recent information indicates that the economic recovery is now on a firmer footing and that, abstracting from temporary fluctuations, the

[2] The staff estimates that increasing the SOMA's holdings of agency MBS by an additional $500 billion would reduce the unemployment rate by about ¼ percentage point after two years and raise inflation by about the same amount. The estimated macroeconomic effects of expanding the MEP are essentially the same. For details, see the memos cited in footnote 1.

inflation rate is trending higher. In that case, they might conclude that moving toward a somewhat less accommodative stance of policy appreciably earlier than indicated by the Committee's March statement would be appropriate to limit the risks of an undesirable increase in inflation over the medium run. If so, the Committee might prefer a statement like Alternative C.

Some participants may see the incoming data as pointing to a stronger expansion than had been anticipated earlier this year. Labor market conditions have improved notably in recent months; the improvement includes an ongoing decline in the unemployment rate and an increase in average monthly job gains relative to the summer and fall of last year. 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 growth even though some financial strains have intensified in recent weeks. Looking ahead, some participants may expect a sizable pickup in the pace of economic growth, with a correspondingly rapid decline in the unemployment rate. They may also perceive a significant risk that the sharp increase in the prices of crude oil and gasoline earlier this year and the resulting boost in headline inflation, coming in the context of the Federal Reserve's exceptionally large balance sheet, will raise inflation expectations—particularly if the economy strengthens noticeably—as in the "Virtuous Circle with Higher Inflation" alternative simulation. Against this backdrop, policymakers may judge that a timely reduction in policy accommodation is necessary to prevent the increase in actual inflation in recent months from undermining the public's confidence in the Committee's commitment to its longer-run inflation goal.

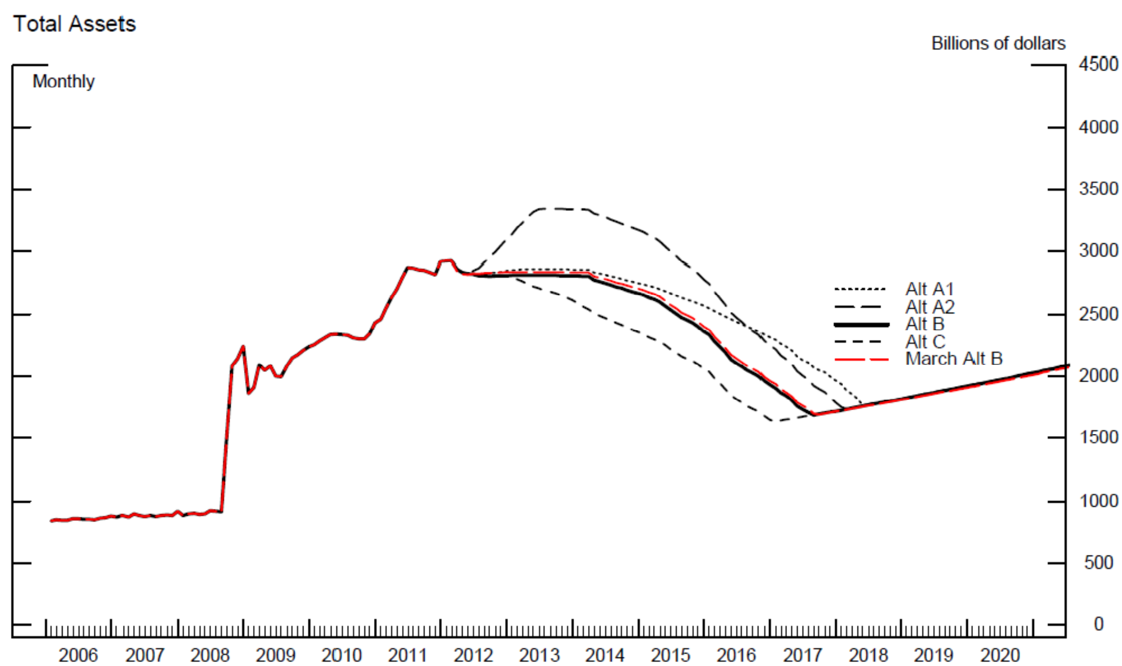
The Committee has emphasized that its forward guidance is conditional on the economic outlook and will be adjusted if the outlook changes significantly. Participants whose evolving views on the economic outlook and the appropriate path for the federal funds rate have led them to anticipate a significantly earlier lift-off than was indicated by the Committee's January and March statements might see this meeting as the right time to adjust the forward guidance, given that the release of a new SEP and the Chairman's press conference will provide an opportunity to make clear that revisions to the forward guidance reflect an improved economic outlook rather than a change in the Committee's objectives. The Committee could, as in paragraph 3.1 of Alternative C, 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 understands 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. Alternatively, as in paragraph 3.2 of Alternative C, the Committee could 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.[3]

A statement along the lines of Alternative C would surprise financial market participants. According to the Desk's survey, the primary dealers see essentially zero probability of a change in the forward rate guidance at this meeting. Hence, the change in forward guidance envisioned in Alternative C—particularly the focus on exit in paragraph 3.1 in combination with the more sanguine economic outlook in paragraph 2—would likely cause a sizable adjustment in market participants' policy expectations, leaving market interest rates significantly higher at maturities beyond a year or so. Equity prices likely would fall, and the foreign exchange value of the dollar would rise. If the Committee were to drop the date from its forward guidance, investors might well be quite uncertain, at least temporarily, about the Committee's intentions, at least until policymakers provided additional information.

[3] Policymakers could also end the current maturity extension program at the end of this month, two months sooner than announced in September. The Desk estimates that it will have executed a bit more than $300 billion of purchases, and nearly the same amount of sales, by the end of April.

LONG-RUN PROJECTIONS OF THE BALANCE SHEET AND MONETARY BASE

The staff has prepared four scenarios for the Federal Reserve's balance sheet: two for Alternative A and one each for Alternative B and Alternative C. The first scenario for Alternative A, referenced as Alternative A1 below, is consistent with the $400 billion expansion of the maturity extension program (MEP) described in paragraph 3.1 of the draft statement for that alternative. Alternative A2 instead incorporates the $500 billion agency MBS purchase program included in paragraph 3.2 of that draft statement. 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.



For the balance sheet scenario that corresponds to Alternative B, the Committee is assumed to complete the current MEP that it announced last September, purchasing a total of $400 billion (par value) of Treasury securities with remaining maturities of six years or more and selling the same par amount of securities with remaining maturities of three years or less by the end of June 2012. The Committee also continues to reinvest principal payments from its holdings of agency debt and MBS into agency MBS, while principal from maturing Treasury securities is reinvested at auction according to the

Desk's current practice (that is, reinvesting roughly proportionally across all Treasury securities that are being issued on the date the securities mature). These policy choices would keep System Open Market Account (SOMA) securities holdings roughly constant at about $2.6 trillion 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.[1] Based on this liftoff date, all reinvestment is assumed to cease—and the balance sheet therefore begins to contract—in April 2014, six months before the first increase in the target federal funds rate. In April 2015, six months after the initial increase in the target federal funds rate, the projection assumes that the Committee begins to sell its remaining holdings of agency MBS and agency debt securities at a pace that reduces the amount of these securities in the portfolio to zero in five years—that is, by March 2020.[2] The combination of no reinvestment and the sale of agency securities normalizes the size of the balance sheet by August 2017.[3,4] The balance sheet then begins to expand, with increases in SOMA holdings essentially matching the growth of Federal Reserve capital and notes in circulation. The balance sheet reaches a size of $2 trillion by the end of 2020. The size of the balance sheet normalizes at nearly the same time under Alternative B as it did in the March Tealbook. From June 2018 onward, under all scenarios, the paths for total assets in the current projections are close to the baseline path in the March Tealbook.

In the scenario for A1, the Committee is assumed to initiate a new MEP that begins immediately following the completion of the current MEP in June. Except for a modest change in the maturity range of securities being sold, these operations would broadly follow those conducted under the current MEP. Over a nine-month period, the Desk would sell $400 billion (par value) of Treasury securities with remaining maturities

[1] This liftoff date for the federal funds rate is the same as in the March Alternative B balance sheet projection, but later than the January 2014 date assumed in the staff forecast.

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

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

[4] 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.

of four years or less and purchase the same amount of Treasury securities with remaining maturities of six years or more. As in Alternative B, reinvestment of all SOMA securities ends in April 2014, the target federal funds rate lifts off in October 2014, sales of agency securities commence in April 2015, and holdings of agency securities fall to zero over five years.[5] In this scenario, total assets would remain at roughly $2.8 trillion until mid-2014, at which point total assets initially decline due to the end of reinvestment. Normalization occurs in May 2018, nine months later than under Alternative B, reflecting the effects of the extended MEP in lengthening the average maturity of Treasury holdings and slowing the pace of redemptions.

In the scenario for Alternative A2, the Committee is assumed not only to complete the current MEP and continue the current reinvestment strategy but also to purchase an additional $500 billion of agency MBS at a pace of about $40 billion per month beginning in May 2012 and extending through April 2013. In this scenario, total assets peak at $3.3 trillion in July 2013. The additional purchases of agency MBS under Alternative A2 postpone the normalization of the size of the balance sheet until February 2018, six months later than under Alternative B.

For the scenario that corresponds to Alternative C, the Committee completes the current MEP in June 2012. In this scenario, the federal funds rate is assumed to lift off in mid-2013, one and a quarter years earlier than assumed in the other alternatives and, correspondingly, reinvestment of principal from maturing or prepaying securities ends earlier, in January 2013. Sales of agency securities also commence earlier, in January 2014. The size of the balance sheet is normalized in January 2017, seven months sooner than under Alternative B, primarily reflecting the earlier halt to reinvestment of principal and the earlier start of asset sales that result from the earlier liftoff of the target federal funds rate.

On the liability side of the balance sheet, the forecasted path for reserve balances for Alternative B is roughly unchanged from the previous Tealbook's baseline. Under Alternative A1, reserve balances remain elevated for a longer period of time than in the baseline, reflecting the portfolio having more longer-dated Treasury securities after the

[5] Under Reserve Bank accounting, losses on the SOMA portfolio are only reflected in net income when securities are sold. Under the current projections, even under Alternative A2, which has the highest volume of asset sales, losses are projected to be smaller than net earnings. Considerable uncertainty surrounds these projections, however, and under plausible assumptions, losses could exceed earnings; in that case, remittances to the Treasury would cease, and a deferred asset would be booked.

implementation of the extended MEP. Alternative A2's reserve balances peak at $2 trillion—noticeably higher than in Alternative B—because of the MBS purchase program. Under Alternative C, reserve balances decline earlier than in the baseline because the exit is assumed to begin earlier.

In the scenario corresponding to Alternative B, the monetary base is relatively steady on net in 2012 and 2013, and then shrinks through the third quarter of 2017, primarily reflecting a decline in reserve balances that results from the assumed policy actions beginning in 2014 to remove policy accommodation and normalize the balance sheet. Starting in the fourth quarter of 2017, after reserve balances are assumed to have stabilized at $25 billion, the monetary base expands again, in line with the growth of Federal Reserve notes in circulation. The monetary base under Alternative A1 follows a path similar to that under Alternative B, though the resumption in the expansion of the monetary base is delayed by one year to the fourth quarter of 2018. The monetary base under Alternative A2 expands substantially in the near term reflecting the rise in reserve balances that comes from the additional asset purchases. As the balance sheet is normalized in this scenario, the monetary base follows a path similar to that in Alternative B. Under Alternative C, the monetary base begins to contract sooner than under the baseline because of the assumed earlier liftoff.

Alternatives

Growth Rates for the Monetary Base					
Date	Alternative B	Alternative A1	Alternative A2	Alternative C	*Memo: March Tealbook*
			Percent, annual rate		
			Monthly		
Jan-12	9.2	9.2	9.2	9.2	9.2
Feb-12	17.8	17.8	17.8	17.8	18.0
Mar-12	3.1	3.1	3.1	3.1	11.3
Apr-12	-23.8	-24.5	-24.4	-24.2	-31.7
May-12	2.5	1.8	1.9	1.7	-13.7
Jun-12	13.8	13.9	18.2	13.1	16.2
Jul-12	1.3	2.7	14.1	1.1	6.8
Aug-12	5.7	8.3	23.3	5.8	10.0
Sep-12	-6.2	-3.9	12.3	-6.3	-5.1
			Quarterly		
2011 Q1	36.8	36.8	36.8	36.8	36.8
2011 Q2	69.3	69.3	69.3	69.3	69.3
2011 Q3	21.0	21.0	21.0	21.0	21.0
2011 Q4	-5.9	-5.9	-5.9	-5.9	-5.9
2012 Q1	5.5	5.5	5.5	5.5	6.4
2012 Q2	-3.3	-3.6	-3.1	-3.6	-7.4
2012 Q3	4.4	5.6	15.7	4.0	6.0
2012 Q4	-5.3	-3.4	13.4	-5.4	-4.5
			Annual - Q4 to Q4		
2010	0.9	0.9	0.9	0.9	0.9
2011	32.9	32.9	32.9	32.9	32.9
2012	0.3	1.0	8.0	0.1	0.1
2013	-0.2	0.5	10.9	-3.8	-0.3
2014	-2.4	-1.2	-2.7	-10.5	-2.0
2015	-10.8	-6.6	-11.6	-13.0	-10.7
2016	-19.6	-10.4	-20.2	-21.5	-19.8
2017	-15.9	-16.2	-22.2	-0.1	-17.7
2018	5.2	-12.0	-3.4	5.2	5.0

Note: Not seasonally adjusted.

DEBT, BANK CREDIT, AND MONEY FORECASTS

Domestic nonfinancial sector debt is projected to expand at an annual rate of about 4¾ percent in the first half of the year, driven by a significant expansion in federal government debt and a modest rise in private nonfinancial debt. For the remainder of the forecast period ending in 2014, domestic nonfinancial debt growth is expected to slow to a pace of about 4 percent, on average, as federal debt advances less rapidly and private debt accelerates only gradually. Nonfinancial business debt is projected to increase at a modest pace over the forecast period, reflecting favorable financing conditions and increasing capital expenditures. Home mortgage debt is projected to bottom out this year and edge up a little in the next two years, as financing conditions are expected to remain tight, weakness in housing demand is anticipated to continue, and house prices are expected to increase only slowly. Meanwhile, consumer credit is projected to expand throughout the forecast period, accelerating from a pace of 6½ percent in the first half of this year to about 7¾ percent in 2014, driven by increasing student loans and growing expenditures on consumer durables as well as financing conditions that are more favorable than those for mortgages.

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—are projected to expand modestly during the remainder of 2012 before picking up somewhat in 2013 and 2014, consistent with the anticipated gradual pickup in economic growth, as well as improvements in borrowers' credit quality and banks' willingness to lend over that period. Among the core loan categories, C&I loans are expected to show strong growth over the forecast period, continuing the brisk expansion observed in this loan category in recent months. In contrast, commercial real estate loans are projected to contract through mid-2013, and only edge up thereafter, as high vacancy rates, depressed prices for commercial properties, and the poor credit quality of existing loans are likely to suppress activity in this sector. As for lending to households, residential real estate loans on banks' books are expected to move up only a little through the end of 2013 and then grow modestly in 2014, while consumer loans are expected to advance gradually over the next three years. Banks' securities holdings are projected to rise at a moderate pace, with growth in this category slowing in 2013 and 2014, driven by slower deposit growth and the stronger expansion in bank loans relative to 2012.

Staff anticipates that M2 will grow at roughly the same pace as nominal income over the remainder of this year. However, the level of M2 is expected to remain elevated relative to that predicted by historical relationships with nominal income and opportunity cost, reflecting investors' continued strong desire to hold safe and liquid assets. Over the medium term, investors are expected to shift their portfolios toward higher-yielding non-M2 assets due to anticipated declines in safe haven demands as the economic outlook improves. Consequently, the rise in M2 is expected to slow to a pace appreciably below that of nominal GDP in 2013. The expansion of M2 in 2013 is also expected to be restrained by the expiration of unlimited FDIC insurance on noninterest-bearing transaction accounts at the end of 2012. In 2014, the projected tightening of monetary policy in the staff forecast combined with investors' reallocation of assets away from M2 is expected to cause the money stock to contract. Turning to the components of M2, liquid deposits are expected to grow moderately for the remainder of 2012, slow somewhat in 2013, and contract in 2014, in line with the portfolio reallocation anticipated over this period. In contrast, retail money funds and small time deposits are projected to decline through 2013 and then increase slowly as the rates paid on these products adjust upward in response to tighter monetary policy. Currency growth is expected to continue its solid pace in the near term, boosted by strong international demand, before returning to a pace consistent with its historical average of 6 percent by early 2013.

Growth Rates for M2

(Percent, seasonally adjusted annual rate)

Monthly Growth Rates	Tealbook Forecast*
Jan-12	15.9
Feb-12	3.0
Mar-12	3.6
Apr-12	7.4
May-12	3.3
Jun-12	3.3
Jul-12	4.8
Aug-12	4.8
Sep-12	4.8
Oct-12	4.3
Nov-12	4.2
Dec-12	4.2
Quarterly Growth Rates	
2012 Q1	8.4
2012 Q2	4.7
2012 Q3	4.3
2012 Q4	4.5
2013 Q1	1.4
2013 Q2	3.0
2013 Q3	3.2
2013 Q4	1.9
Annual Growth Rates	
2012	5.6
2013	2.4
2014	-1.8

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

DIRECTIVE

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

The directives for Alternatives B and 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 Alternative A also would instruct the Desk to complete the maturity extension program that was announced last September. In addition, under Alternative A, the Committee either would direct the Desk to undertake a second $400 billion maturity extension program from July 2012 through March 2013, or the Committee would direct the Desk 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 April 2013. Each of the draft directives also would instruct the Desk to continue the current practice of rolling over maturing Treasury securities at auction and of reinvesting principal payments on all agency debt and agency MBS in agency MBS.

March 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.

Alternatives

April 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. **In addition, the Committee directs the Desk to purchase, between July 2012 and the end of March 2013, 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 4 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~~ **these actions are intended** 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.

OR

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. **In addition, the Committee directs the Desk to execute purchases of agency mortgage-backed securities in order to increase the total face value of domestic securities held in the System Open Market Account to approximately $3.1 trillion by the end of April 2013.** 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.

April 2012 Directive—Alternative B

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

April 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.

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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	$R_t = R_{t-1} + 0.5\left(\pi_{t+3\|t} - \pi^*\right) + 0.5\Delta^4 gap_{t+3\|t}$
Nominal income targeting rule	$R_t = 0.75R_{t-1} + 0.25(2.25 + \pi^* + yn_t - yn_t^*)$

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 2

[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).

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 April 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 March 30, 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 A1, A2, and B assume that the target federal funds rate begins to increase in October 2014, consistent with the statements' language 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 March Tealbook for the Alternative A and B balance sheet projections, but later than that assumed in the April Tealbook staff forecast.[2] The projection for the scenario corresponding to Alternative C assumes the target rate lifts off in July 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]

ASSETS

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

- The assumptions under Alternative B are:
    - Over the nine months beginning in October 2011, the FOMC is assumed to purchase $400 billion in par value of Treasury securities with remaining maturities of six years or more and sell the same par amount of Treasury securities with remaining maturities of three years or less. The FOMC reinvests the proceeds from principal

[2] 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 April Tealbook staff forecast by 2019. The projected path of the 10-year Treasury yield in these alternatives is the yield assumed in the April 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 term premium effect associated with a larger SOMA portfolio than would be projected using the current Tealbook's liftoff date.

[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.

Explanatory Notes

payments on its agency securities holdings in agency MBS. Treasury securities are rolled over at auction according to the Desk's current practice (that is, reinvesting roughly proportionally across all Treasury securities that are being issued on the date the securities mature).

- Principal payments from Treasury securities and agency MBS and agency debt securities are reinvested until April 2014—six months prior to the assumed increase in the target federal funds rate.[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 A1, the Committee is assumed to begin the next MEP immediately following the completion of the current MEP in June. Except for a modest change in the maturity range of securities being sold, these operations would broadly follow those conducted under the current MEP. Over a nine-month period, the Desk would sell $400 billion par value of Treasury securities with remaining maturities of four years or less and purchase the same par amount of Treasury securities with remaining maturities of six years or more. The committee is also assumed to maintain its policies of reinvesting principal payments from its holdings of agency securities into agency MBS and of rolling over maturing Treasury securities at auction. As in the baseline, reinvestment ends in April 2014—six months prior to the assumed increase in the federal funds rate—and sales of agency securities begin in April 2015 and continue for five years.

- In the scenario corresponding to Alternative A2, the Committee is assumed to begin a $500 billion LSAP program in May 2012 where it purchases current coupon agency MBS at a rate of about $40 billion per month through April 2013. In addition, the Committee is expected to complete the current MEP and follow the same reinvestment policies as outlined in Alternatives A1 and B.

- In the scenario corresponding to Alternative C, the Committee is expected to complete the current MEP in June of this year. 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 January 2013, six months prior to the assumed increase in the federal funds rate, which is July 2013. Sales of agency securities begin in January 2014 and continue for five years.

[4] Projected prepayments of agency MBS reflect interest rate projections as of April 17, 2012.

- Because current and expected near-term rates are below the average coupon rate on outstanding Treasury securities, the market value at which these securities are purchased will generally exceed their face value, with a larger premium for longer-maturity securities. As a result, although the par value of securities holdings remains constant under the current MEP in the baseline and Alternative C, as well as in the extended MEP in A1, premiums associated with securities, and hence total assets, will have risen on net by about $59 billion in Alternatives B and C by the end of this program and a bit more in Alternative A1. Reserve balances will increase by the same amount.

- The large-scale asset purchase program in Alternative A2 would put downward pressure on market interest rates, in particular mortgage rates, and result in more MBS prepayments than in the baseline. The lower path for interest rates in this alternative also leads to purchases of Treasury securities at prices that include a greater net premium relative to their face value than in the baseline.

- 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 A2, the $500 billion LSAP program will cause unamortized premiums on the Federal Reserve's balance sheet to rise by roughly $20 billion relative to the baseline. 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 through June, as the recent foreign central bank swap auctions mature, and then return to zero in July 2012.

- In all scenarios, a minimum level of $25 billion is set for reserve balances. Once reserve balances drop to this level, the Desk first purchases Treasury bills to maintain this level of reserve balances going forward. Purchases of bills continue until such securities comprise one-third of the Federal Reserve's total Treasury securities holdings—about the average share prior to the crisis. Once this share is reached, the Federal Reserve buys coupon securities in addition to bills to maintain an approximate composition of the portfolio of one-third bills and two-thirds coupon securities.

Liquidity Programs and Credit Facilities

- 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 to not repay a TALF loan.

- The assets held by Maiden Lane LLC and Maiden Lane III LLC decline to zero gradually over time.

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 RRPs 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 EFFECTS[6]

- Under Alternative B, the current staff estimates of the contemporaneous term premium effect on the yield of the ten-year Treasury note is negative 61 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.
- Under either version of Alternative A, the term premium effect is somewhat larger than in the baseline, at negative 77 basis points. The larger term premium effect is a result of the balance sheet programs assumed.
- Under Alternative C, the term premium effect is somewhat smaller than under Alternative B, at negative 54 basis points. The smaller term premium effect is a result of the lower projected path for the balance sheet that results from the earlier assumed increase in the federal funds rate.

[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 Federal Reserve Board of Governors.

Term Premium Effect				
Date	Alternative B	Alternative A1	Alternative A2	Alternative C
Basis Points Quarterly Averages				
2012 Q2	-61	-77	-77	-54
2012 Q3	-58	-74	-74	-51
2012 Q4	-55	-71	-71	-48
2013 Q1	-51	-67	-67	-44
2013 Q2	-48	-64	-63	-41
2013 Q3	-45	-60	-59	-37
2013 Q4	-41	-56	-55	-34
2014 Q1	-38	-52	-51	-31
2014 Q2	-35	-48	-47	-28
2014 Q3	-32	-45	-43	-26
2014 Q4	-29	-41	-39	-23
2015 Q1	-27	-38	-35	-21
2015 Q2	-24	-35	-32	-19
2015 Q3	-22	-32	-29	-17
2015 Q4	-20	-29	-26	-15
2016 Q1	-18	-27	-23	-14
2016 Q2	-16	-25	-21	-13
2016 Q3	-15	-22	-19	-11
2016 Q4	-13	-20	-17	-10
2017 Q1	-12	-19	-15	-10
2017 Q2	-11	-17	-13	-9
2017 Q3	-10	-15	-12	-8
2017 Q4	-10	-14	-11	-8
2018 Q1	-9	-13	-10	-8
2018 Q2	-8	-12	-9	-8
2018 Q3	-8	-11	-9	-7
2018 Q4	-8	-10	-8	-7
2019 Q1	-7	-10	-8	-7
2019 Q2	-7	-9	-7	-7
2019 Q3	-7	-9	-7	-6
2019 Q4	-6	-8	-6	-6
2020 Q1	-6	-8	-6	-6
2020 Q2	-5	-7	-5	-5
2020 Q3	-5	-7	-5	-5
2020 Q4	-5	-6	-5	-5

Explanatory Notes

Federal Reserve Balance Sheet
End-of-Year Projections -- Alternative A1

Billions of dollars

	Mar 30, 2012	2012	2014	2016	2018	2020
Total assets	2,859	2,857	2,758	2,324	1,820	2,028
Selected assets						
Liquidity programs for financial firms	46	0	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	46	0	0	0	0	0
Lending through other credit facilities	7	3	1	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	7	3	1	0	0	0
Support for specific institutions	23	20	16	12	7	4
Credit extended to AIG	0	0	0	0	0	0
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	23	20	16	12	7	4
Securities held outright	2,594	2,589	2,515	2,121	1,653	1,882
U.S. Treasury securities	1,661	1,650	1,629	1,570	1,445	1,882
Agency debt securities	96	77	39	16	2	0
Agency mortgage-backed securities	837	862	847	535	206	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	187	244	225	190	160	142
Total liabilities	2,805	2,795	2,676	2,215	1,677	1,839
Selected liabilities						
Federal Reserve notes in circulation	1,057	1,115	1,257	1,403	1,561	1,723
Reverse repurchase agreements	97	70	70	70	70	70
Deposits with Federal Reserve Banks	1,631	1,593	1,333	726	30	30
Reserve balances held by depository institutions	1,550	1,507	1,328	721	25	25
U.S. Treasury, General Account	43	86	5	5	5	5
Other Deposits	37	0	0	0	0	0
Interest on Federal Reserve Notes due to U.S. Treasury	3	0	0	0	0	0
Total capital	54	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 A2

Billions of dollars

	Mar 30, 2012	2012	2014	2016	2018	2020
Total assets	2,859	3,094	3,171	2,251	1,821	2,028
Selected assets						
Liquidity programs for financial firms	46	0	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	46	0	0	0	0	0
Lending through other credit facilities	7	3	1	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	7	3	1	0	0	0
Support for specific institutions	23	20	16	12	7	4
Credit extended to AIG	0	0	0	0	0	0
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	23	20	16	12	7	4
Securities held outright	2,594	2,850	2,952	2,077	1,685	1,915
U.S. Treasury securities	1,661	1,650	1,596	1,228	1,362	1,915
Agency debt securities	96	77	39	16	2	0
Agency mortgage-backed securities	837	1,123	1,318	833	320	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	187	220	201	161	129	110
Total liabilities	2,805	3,032	3,089	2,142	1,677	1,839
Selected liabilities						
Federal Reserve notes in circulation	1,057	1,115	1,257	1,403	1,561	1,723
Reverse repurchase agreements	97	70	70	70	70	70
Deposits with Federal Reserve Banks	1,631	1,830	1,745	654	30	30
Reserve balances held by depository institutions	1,550	1,744	1,740	648	25	25
U.S. Treasury, General Account	43	86	5	5	5	5
Other Deposits	37	0	0	0	0	0
Interest on Federal Reserve Notes due to U.S. Treasury	3	0	0	0	0	0
Total capital	54	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 B

Billions of dollars

	Mar 30, 2012	2012	2014	2016	2018	2020
Total assets	2,859	2,819	2,674	1,936	1,821	2,028
Selected assets						
Liquidity programs for financial firms	46	0	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	46	0	0	0	0	0
Lending through other credit facilities	7	3	1	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	7	3	1	0	0	0
Support for specific institutions	23	20	16	12	7	4
Credit extended to AIG	0	0	0	0	0	0
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	23	20	16	12	7	4
Securities held outright	2,594	2,589	2,482	1,779	1,692	1,915
U.S. Treasury securities	1,661	1,650	1,596	1,228	1,483	1,915
Agency debt securities	96	77	39	16	2	0
Agency mortgage-backed securities	837	862	847	535	206	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	187	207	175	145	122	109
Total liabilities	2,805	2,757	2,593	1,828	1,677	1,839
Selected liabilities						
Federal Reserve notes in circulation	1,057	1,115	1,257	1,403	1,561	1,723
Reverse repurchase agreements	97	70	70	70	70	70
Deposits with Federal Reserve Banks	1,631	1,555	1,249	339	30	30
Reserve balances held by depository institutions	1,550	1,469	1,244	334	25	25
U.S. Treasury, General Account	43	86	5	5	5	5
Other Deposits	37	0	0	0	0	0
Interest on Federal Reserve Notes due to U.S. Treasury	3	0	0	0	0	0
Total capital	54	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 C

Billions of dollars

	Mar 30, 2012	2012	2014	2016	2018	2020
Total assets	2,859	2,814	2,357	1,649	1,820	2,028
Selected assets						
Liquidity programs for financial firms	46	0	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	46	0	0	0	0	0
Lending through other credit facilities	7	3	1	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	7	3	1	0	0	0
Support for specific institutions	23	20	16	12	7	4
Credit extended to AIG	0	0	0	0	0	0
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	23	20	16	12	7	4
Securities held outright	2,594	2,589	2,171	1,499	1,698	1,918
U.S. Treasury securities	1,661	1,650	1,519	1,176	1,698	1,918
Agency debt securities	96	77	39	16	0	0
Agency mortgage-backed securities	837	862	613	306	0	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	187	202	169	138	115	106
Total liabilities	2,805	2,752	2,275	1,541	1,677	1,839
Selected liabilities						
Federal Reserve notes in circulation	1,057	1,115	1,257	1,403	1,561	1,723
Reverse repurchase agreements	97	70	70	70	70	70
Deposits with Federal Reserve Banks	1,631	1,550	932	52	30	30
Reserve balances held by depository institutions	1,550	1,464	926	47	25	25
U.S. Treasury, General Account	43	86	5	5	5	5
Other Deposits	37	0	0	0	0	0
Interest on Federal Reserve Notes due to U.S. Treasury	3	0	0	0	0	0
Total capital	54	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