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

October 27, 2011

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

Monetary Policy Strategies

With one exception, the staff's estimates of short-run *r**—the real federal funds rate that, if maintained, would return output to its potential in 12 quarters—did not change significantly over the intermeeting period. All of the estimates of the equilibrium real federal funds rate remain negative and low by historical standards, and all except the EDO model's estimate of short-run *r** are below the estimated actual real federal funds rate. As shown in the first two columns of the table in the exhibit, "Equilibrium Real Federal Funds Rate," the estimates of short-run *r** generated by the FRB/US model and the EDO model that are conditioned on the staff's outlook for the economy (that is, the "Tealbook-consistent" measures) were unrevised, as the staff's assessment of the medium-term outlook for economic activity is little changed relative to September. The *r** estimates produced by these models based on their own projections declined slightly or were unchanged; the estimate from the single-equation model was little changed as well. In contrast, the estimate of *r** from the small structural model fell 40 basis points. This model places greater weight on its projections of the equity premium, which have increased since the September Tealbook, inducing a relatively large drop in the model's forecast for aggregate demand.[1]

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

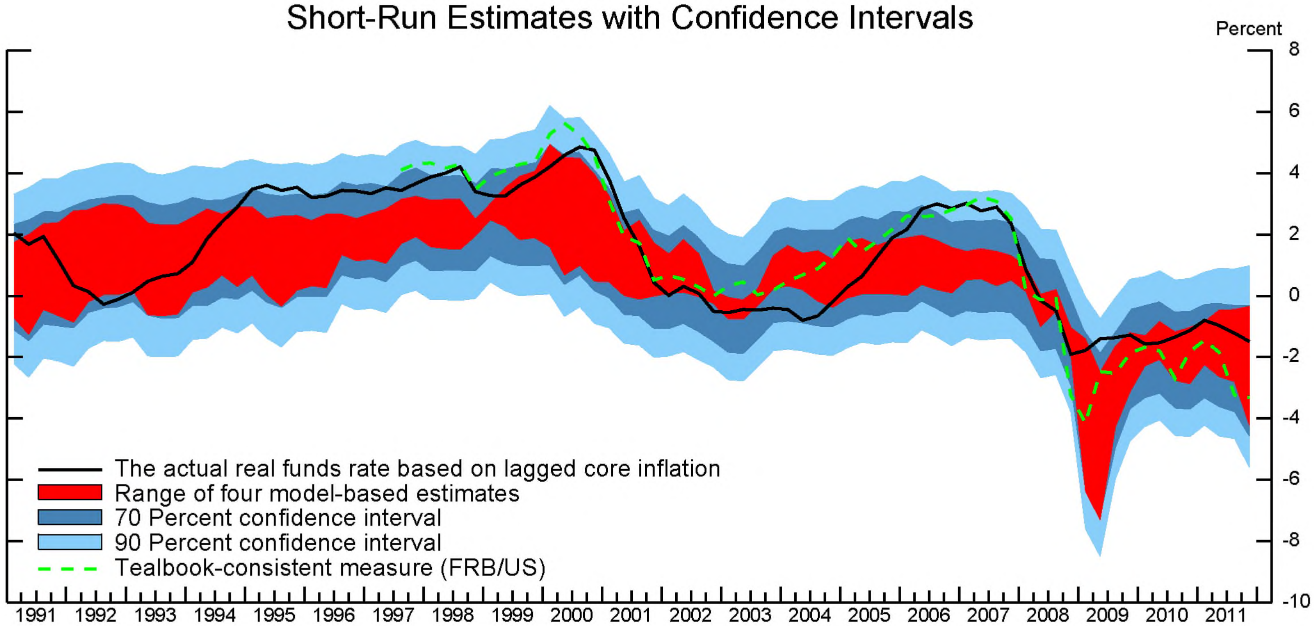
[1] Although the staff projects higher stock prices this quarter than in the September Tealbook, the equity premium forecasts of the small structural model are conditioned on stock prices in the third quarter of 2011, which are nearly 5 percent below their value in the previous Tealbook. These lower stock prices translate into an increase in the model's equity premium.

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

Strategies

Equilibrium Real Federal Funds Rate

Short-Run Estimates with Confidence Intervals

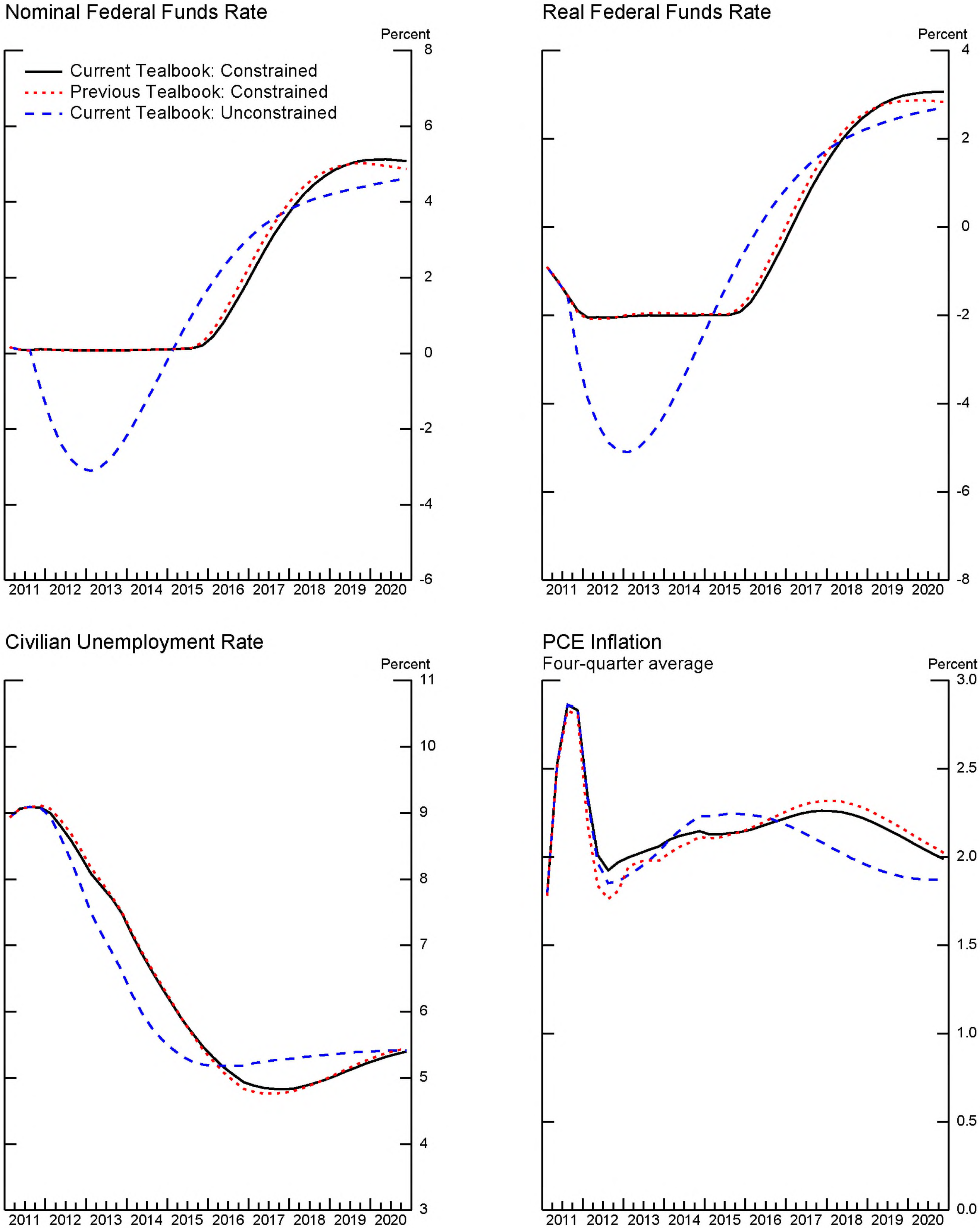


Short-Run and Medium-Run Measures (Percent)

	Current Tealbook	*Current Quarter Estimate as of Previous Tealbook*	*Previous Tealbook*
Short-Run Measures			
Single-equation model	-2.2	*-2.1*	*-2.4*
Small structural model	-4.2	*-3.8*	*-2.2*
EDO model	-0.3	*-0.2*	*-0.4*
FRB/US model	-3.2	*-3.2*	*-3.4*
Confidence intervals for four model-based estimates			
70 percent confidence interval	-4.6 to -0.3		
90 percent confidence interval	-5.6 to 1.0		
Tealbook-consistent measures			
EDO model	-4.3	*-4.3*	*-4.7*
FRB/US model	-3.3	*-3.3*	*-3.5*
Medium-Run Measures			
Single-equation model	0.9	*0.9*	*0.9*
Small structural model	0.6	*0.7*	*0.7*
Confidence intervals for two model-based estimates			
70 percent confidence interval	-0.2 to 1.7		
90 percent confidence interval	-0.7 to 2.4		
TIPS-based factor model	1.8		*1.7*
Memo			
Actual real federal funds rate	-1.5		*-1.1*

Note: Explanatory Note A provides background information regarding the construction of these measures and confidence intervals. The actual real federal funds rate shown is generated using lagged core inflation as a proxy for inflation expectations. For information regarding alternative measures, see Explanatory Note A. Estimates of *r** may change at the beginning of a quarter even when the staff outlook is unchanged because the twelve-quarter horizon covered by the calculation has rolled forward one quarter. Therefore, whenever the Tealbook is published early in the quarter, this table includes a third column labeled "Current Quarter Estimate as of Previous Tealbook."

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



The simulations indicate that the optimal path for the federal funds rate does not begin to rise appreciably above zero until the end of 2015, about the same time as in the previous Tealbook.[3] By committing to keep the funds rate near zero for such a long stretch of time, optimal policy would promote a faster pace of economic recovery than under the baseline and somewhat higher inflation over the medium run.[4] Specifically, the unemployment rate would fall to 5 percent in 2016 (compared with 6 percent in the baseline (not shown)), while headline inflation would average about 2¼ percent in the latter half of the decade (compared with 1¾ percent in the baseline).

If the nominal funds rate could fall below zero, the optimal federal funds rate would decline to minus 3 percent in the first quarter of 2013 and would not turn positive until early in 2015. Under this unconstrained policy, the unemployment rate would fall below the staff's medium-run estimate of the effective natural rate of unemployment in the third quarter of 2014—more than a year earlier than under the constrained policy—and then settle around 5¼ percent by the middle of 2015. In contrast, the inflation outlook through mid-decade is broadly similar under the unconstrained and constrained policies, although inflation exceeds the assumed 2 percent goal a bit more in 2014 and 2015 under the unconstrained policy. However, under the constrained policy, inflation stays above target longer after 2016, and the credible promise to produce this somewhat elevated future inflation helps boost inflation expectations and lower real rates in the early part of the simulation.

As shown in the upper left panel of the exhibit "Policy Rules and Market-Based Expectations for the Federal Funds Rate," the expected funds rate implied by the estimated outcome-based policy rule is little changed relative to the September Tealbook. According to this rule, the funds rate is expected to move above its effective lower bound in the third quarter of 2014 and then to rise to 3 percent by the end of 2016.[5]

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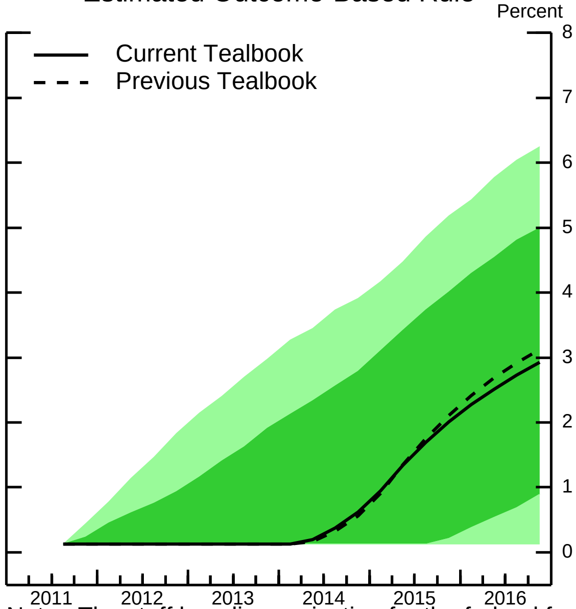
[3] Although the loss function uses headline inflation instead of core inflation, the real federal funds rate shown in the upper right panel of the exhibit is calculated as the difference between the nominal funds rate and a four-quarter moving average of core PCE inflation. Core PCE inflation is used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

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

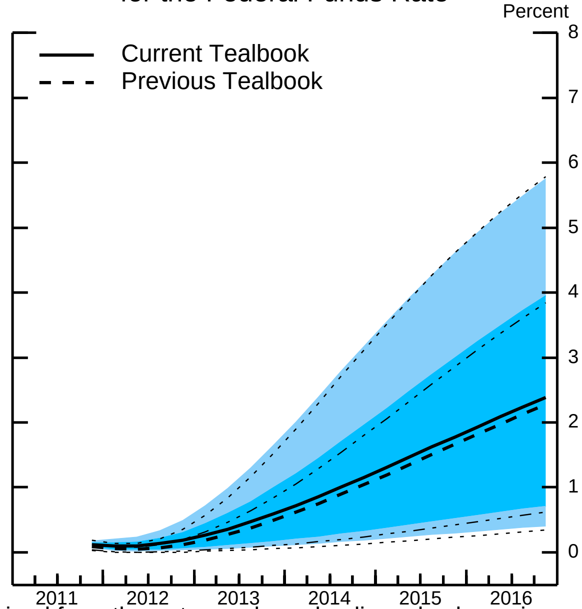
[5] The confidence interval implies a 14 percent chance that the federal funds rate is above 25 basis points this quarter. However, the estimated rule depends on the lagged federal funds rate, defined as the actual policy rate observed in the previous quarter. If instead the lagged values used in generating these

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

FRB/US Model Simulations of Estimated Outcome-Based Rule



Market-Based Expectations for the Federal Funds Rate



Note: The staff baseline projection for the federal funds rate is derived from the outcome-based policy rule shown in the top-left panel. The top-right panel depicts the mean path and confidence intervals of future federal funds rates derived from market quotes as of October 26. In both panels, dark and light shadings represent the 70 and 90 percent confidence intervals respectively. Explanatory Note B provides further background information.

Near-Term Prescriptions of Simple Policy Rules

	Constrained Policy		Unconstrained Policy	
	2011Q4	2012Q1	2011Q4	2012Q1
Taylor (1993) rule	**0.81**	**0.86**	**0.81**	**0.86**
Previous Tealbook	*0.72*	*0.74*	*0.72*	*0.74*
Taylor (1999) rule	**0.13**	**0.13**	**-2.17**	**-2.09**
Previous Tealbook	*0.13*	*0.13*	*-2.37*	*-2.35*
Estimated outcome-based rule	**0.13**	**0.13**	**-0.12**	**-0.36**
Previous Tealbook	*0.13*	*0.13*	*-0.23*	*-0.57*
Estimated forecast-based rule	**0.13**	**0.13**	**-0.20**	**-0.58**
Previous Tealbook	*0.13*	*0.13*	*-0.30*	*-0.77*
First-difference rule	**0.13**	**0.13**	**0.03**	**-0.02**
Previous Tealbook	*0.13*	*0.13*	*-0.07*	*-0.14*

Memo	2011Q4	2012Q1
Staff assumption	0.08	0.13
Fed funds futures	0.08	0.10
Median expectation of primary dealers	0.13	0.13
Blue Chip forecast (October 1, 2011)	0.10	0.10

Note: In calculating the near-term prescriptions of these simple policy rules, policymakers' long-run inflation objective is assumed to be 2 percent. Explanatory Note B provides further background information.

As shown to the right, information from financial markets suggests that investors' expectations for the path of the federal funds rate also have changed little relative to the September Tealbook. Market participants expect the funds rate to remain within its current target range until mid-2013 before rising gradually to 2.4 percent by the end of 2016.

The lower panel of the exhibit provides near-term prescriptions from simple policy rules.[6] As shown in the left-hand columns, prescriptions for the federal funds rate from most of the rules remain at or near the effective lower bound. The right-hand columns display the prescriptions that would arise from these rules in the absence of the lower-bound constraint.[7] Because the staff foresees a modest improvement in the near-term output gap, all of the unconstrained rules prescribe a slightly higher federal funds rate compared with the September Tealbook.

probabilities had not been constrained by the effective lower bound from being negative in 2009 and 2010, this probability would be negligible.

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

[7] Prescriptions from the estimated outcome-based rule, the estimated forecast-based rule, and the first-difference rule depend on the lagged federal funds rate, defined as the actual policy rate observed in the previous quarter. If the lagged values used in generating the rule prescriptions had not been constrained by the effective lower bound from becoming negative in 2009 and 2010, the prescriptions from all three rules would be further below zero both in the fourth quarter of 2011 and the first quarter of 2012.

Monetary Policy Alternatives

This Tealbook presents four policy alternatives—labeled A1, A2, B, and C—for the Committee's consideration. As always, the Committee could mix components of the various alternatives to construct its desired statement.

The alternatives provide a range of options regarding the management of the balance sheet. Alternatives A1and B maintain the maturity extension program the Committee announced at its September meeting and involve no additional balance sheet actions. In addition to the maturity extension program, Alternative A2 introduces a new $600 billion asset-purchase program consisting either entirely of longer-term Treasury securities or an equal mix of Treasuries and agency mortgage-backed securities (MBS). Alternative C announces a reduction by half in the size of the maturity extension program and an intention to complete it sooner, by the end of March 2012 (which would involve a moderate slowing of the pace of purchases and sales). All four alternatives maintain the Committee's existing policies of reinvesting principal payments on agency debt and MBS into MBS and of rolling over maturing Treasury securities at auction.

The alternatives also provide a range of options regarding forward guidance for the future path of the federal funds rate. Alternative B makes no substantive changes to the Committee's forward guidance, keeping the specification that economic conditions are likely to warrant exceptionally low levels for the federal funds rate "at least through mid-2013." Alternative A1 proposes several options for lengthening the anticipated period of near-zero rates in order to provide further policy accommodation. Specifically, it suggests either extending the date through which the Committee projects it would keep the federal funds rate target unchanged to "at least through mid-2014," or instead using quantitative information on the economic conditions that would be consistent with a commencement of tightening. Two possibilities for characterizing these economic conditions are presented: One specifies an expected date for the first increase in the target federal funds rate together with forecasts for unemployment and inflation at that time; the other specifies conditional thresholds for unemployment and inflation and indicates when the Committee expects one or both thresholds to be reached.[1] Alternative C shortens the projected time until the first increase in the target federal funds rate to the end of

[1] These features of Alternative A1 reflect the illustrative language on clarifying forward guidance presented in the memo "Approaches to Clarifying the Conditionality in the Committee's Forward Guidance," sent to the Committee on September 12, 2011.

2012. When providing information on the timing of liftoff, both Alternatives B and C also offer the possibility of changing the language of the conditional guidance so that it refers to a specific number of quarters into the future rather than a particular date.

Alternative A2 raises the possibility of reducing the interest rate paid on required and excess reserve balances from 25 basis points to 10 basis points in order to align those rates with current and projected levels of overnight market rates.

Regarding the characterization of recent economic conditions, the first paragraph of each alternative acknowledges the somewhat stronger tone of the data received over the intermeeting period. However, alternatives A1, A2, and B attribute much of the recent improvement to a reversal of temporary factors that had been dampening growth. All of the alternatives note that household spending has picked up in recent months and also the continuing weakness in the labor market; the tone of Alternative C is slightly more encouraging with respect to economic developments. Regarding inflation, Alternatives A1 and A2 state that it "has moderated" since earlier in the year, while Alternative B repeats the language of the September statement, saying that it "appears to have moderated." Alternative C says that inflation appears to have moderated "only somewhat."

Turning to the outlook, alternatives A1, B, and C state that the Committee continues to expect a "moderate" pace of growth over coming quarters, while alternative A2 indicates that the Committee expects growth to be "relatively modest." Alternatives A1, A2, and B note that the Committee consequently anticipates that the unemployment rate will decline "only gradually;" Alternative C offers a more positive tone by omitting "only" from this phrase. Alternatives A1, A2, and B continue to highlight downside risks to the economic outlook, including strains in global financial markets, although Alternative B no longer characterizes these risks as "significant." Alternative C drops the reference to downside risks. As in September, Alternatives A1, A2, and B project that inflation will settle "at levels at or below those consistent with the Committee's dual mandate." Alternative C modifies this projection to "levels consistent with the Committee's dual mandate."

The following table shows key elements of the policy actions contained in the alternatives. (Due to the complexity of the alternatives at this meeting, the comparisons of the other aspects of the statements that are usually included in this table are omitted for ease of use.) The table is followed by complete draft statements, then by a summary of the arguments for each alternative.

Table 1: Overview of Alternatives for the November 2 FOMC Statement

Selected Elements	September Statement	November Alternatives			
		A1	**A2**	**B**	**C**
Balance Sheet					
MEP	\$400 billion; complete by end of June 2012	unchanged	unchanged	unchanged	cut to \$200 billion; complete by end of March 2012
Reinvestments	payments of agency debt and MBS into agency MBS; Treasuries into Treasuries	unchanged	unchanged	unchanged	unchanged
Additional Purchases	none	none	\$600 billion of Treasuries by end of Sept. 2012 OR \$300 billion each of Treasuries and agency MBS by end of June 2012	none	none
Forward Guidance					
First Option	at least through mid-2013	at least through mid-2014	unchanged	unchanged	at least through 2012
Second Option		through end of 2014 and forecasts of unemployment and inflation at that time		at least for the next six to seven quarters	at least for the next four quarters
Third Option		at least as long as unemployment and inflation conditions hold; expect such conditions to prevail through end of 2014			

Alternatives

SEPTEMBER FOMC STATEMENT

1. Information received since the Federal Open Market Committee met in August indicates that economic growth remains slow. Recent indicators point to continuing weakness in overall labor market conditions, and the unemployment rate remains elevated. Household spending has been increasing at only a modest pace in recent months despite some recovery in sales of motor vehicles as supply-chain disruptions eased. Investment in nonresidential structures is still weak, and the housing sector remains depressed. However, business investment in equipment and software continues to expand. Inflation appears to have moderated since earlier in the year as prices of energy and some commodities have declined from their peaks. Longer-term inflation expectations have remained stable.

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

3. To support a stronger economic recovery and to help ensure that inflation, over time, is at levels consistent with the dual mandate, the Committee decided today to extend the average maturity of its holdings of securities. The Committee intends to purchase, by the end of June 2012, $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 3 years or less. This program should put downward pressure on longer-term interest rates and help make broader financial conditions more accommodative. The Committee will regularly review the size and composition of its securities holdings and is prepared to adjust those holdings as appropriate.

4. To help support conditions in mortgage markets, the Committee will now reinvest principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities. In addition, the Committee will maintain its existing policy of rolling over maturing Treasury securities at auction.

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

6. The Committee discussed the range of policy tools available to promote a stronger economic recovery in a context of price stability. It will continue to assess the economic outlook in light of incoming information and is prepared to employ its tools as appropriate.

NOVEMBER FOMC STATEMENT—ALTERNATIVE A1

1. Information received since the Federal Open Market Committee met in ~~August~~ **September** indicates that economic growth ~~remains slow~~ **strengthened somewhat in the third quarter, but the pickup was due predominantly to a reversal of the temporary factors that had weighed on growth earlier in the year**. Recent indicators point to continuing weakness in overall labor market conditions, and the unemployment rate remains elevated. Household spending has ~~been~~ increas**ed**~~ing~~ at ~~only a modest~~ **a somewhat faster** pace in recent months ~~despite some recovery in sales of motor vehicles as supply-chain disruptions have eased~~. ~~However,~~ Business investment in equipment and software **has** continue**d**~~s~~ to expand**, but** investment in nonresidential structures is still weak and the housing sector remains depressed. Inflation ~~appears to have~~ **has** moderated since earlier in the year as prices of energy and some commodities have declined from their peaks. Longer-term inflation expectations have remained stable.

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

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

4. The Committee also decided to keep the target range for the federal funds rate at 0 to ¼ percent. ~~and currently~~ The Committee **now** anticipates that economic conditions—including low rates of resource utilization and a subdued outlook for inflation over the medium run—are likely to warrant exceptionally low levels for the federal funds rate at least through ~~mid-2013~~ **mid-2014**.

OR

Alternatives

4´. The Committee also decided to keep the target range for the federal funds rate at 0 to ¼ percent. ~~and currently~~ The Committee **now** anticipates that economic conditions—including low rates of resource utilization and a subdued outlook for inflation over the medium run—are likely to warrant **this** exceptionally low ~~levels~~ **range** for the federal funds rate ~~at least through mid-2013~~ **through the end of 2014**. **On the basis of currently available information, the Committee projects the unemployment rate to be about [6½ to 7] percent and the inflation rate (as measured by the price index for Personal Consumption Expenditures) to be around [1¾ to 2¼] percent at that time.**

OR

4´´. The Committee also decided to keep the target range for the federal funds rate at 0 to ¼ percent. ~~and currently~~ **The Committee** anticipates that ~~economic conditions—including low rates of resource utilization and a subdued outlook for inflation over the medium run—are likely to warrant~~ **this** exceptionally low ~~levels~~ **range** for the federal funds rate **will be appropriate at least as long as the unemployment rate exceeds [7] percent, inflation (as measured by the price index for Personal Consumption Expenditures) is projected to be at or below [2½] percent in the medium term, and longer-term inflation expectations continue to be well anchored**. **On the basis of currently available information, the Committee expects these conditions to prevail through the end of 2014.**

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

NOVEMBER FOMC STATEMENT—ALTERNATIVE A2

1. Information received since the Federal Open Market Committee met in ~~August~~ **September** indicates that economic growth ~~remains slow~~ **strengthened somewhat in the third quarter, but the pickup was due predominantly to a reversal of the temporary factors that had weighed on growth earlier in the year**. Recent indicators point to continuing weakness in overall labor market conditions, and the unemployment rate remains elevated. Household spending has ~~been~~ increas**ed**~~ing~~ at ~~only a modest~~ **a somewhat faster** pace in recent months ~~despite some recovery in sales of motor vehicles as supply-chain disruptions have eased~~. ~~However,~~ Business investment in equipment and software **has** continue**d**~~s~~ to expand**, but** investment in nonresidential structures is still weak and the housing sector remains depressed. Inflation ~~appears to have~~ **has** moderated since earlier in the year as prices of energy and some commodities have declined from their peaks. Longer-term inflation expectations have remained stable.

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

3. To support a stronger economic recovery and to help ensure that inflation, over time, is at levels consistent with the dual mandate, the Committee decided today to **continue its program to** extend the average maturity of its holdings of securities **as announced in September**. ~~The Committee intends to purchase, by the end of June 2012, $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 3 years or less.~~ **In addition, the Committee intends to purchase a further [$600 billion of longer-term Treasury securities by the end of September 2012 | $300 billion of longer-term Treasury securities and $300 billion of agency mortgage-backed securities by the end of June 2012].** ~~This~~ **These** program**s** should put downward pressure on longer-term interest rates and help make broader financial conditions more accommodative. ~~To help support conditions in mortgage markets,~~ The Committee ~~will now~~ **is maintaining its existing policies of** reinvest**ing** principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities~~. In addition the Committee will maintain its existing policy~~ **and** of rolling over maturing Treasury securities at auction. The Committee will regularly review the size and composition of its securities holdings and is prepared to adjust those holdings as appropriate.

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

Alternatives

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

<u>Note: If policymakers decide it is appropriate to reduce the remuneration rate on reserve balances, the Board of Governors would issue an accompanying statement that might read:</u>

<u>In a related action, the Board of Governors voted today to reduce the interest rate paid on required and excess reserve balances from 25 basis points to 10 basis points effective with the reserve maintenance period that begins on November 17, 2011.</u>

NOVEMBER FOMC STATEMENT—ALTERNATIVE B

1. Information received since the Federal Open Market Committee met in ~~August~~ **September** indicates that economic growth ~~remains slow~~ **strengthened somewhat in the third quarter, reflecting in part a reversal of the temporary factors that had weighed on growth earlier in the year**. **Nonetheless,** recent indicators point to continuing weakness in overall labor market conditions, and the unemployment rate remains elevated. Household spending has ~~been~~ increas**ed**~~ing~~ at ~~only a modest~~ **a somewhat faster** pace in recent months ~~despite some recovery in sales of motor vehicles as supply-chain disruptions have eased~~. ~~However,~~ Business investment in equipment and software **has** continue**d**~~s~~ to expand**, but** investment in nonresidential structures is still weak, and the housing sector remains depressed. Inflation appears to have moderated since earlier in the year as prices of energy and some commodities have declined from their peaks. Longer-term inflation expectations have remained stable.

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

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

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

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

NOVEMBER FOMC STATEMENT—ALTERNATIVE C

1. Information received since the Federal Open Market Committee met in ~~August~~ **September** indicates that economic growth ~~remains slow~~ **of late has been somewhat stronger than the Committee had expected**. ~~Recent indicators point to continuing weakness in overall labor market conditions, and~~ **Although** the unemployment rate remains elevated, household spending has ~~been~~ increas**ed**~~ing~~ at ~~only a modest~~ **a faster** pace in recent months ~~despite some recovery in sales of motor vehicles as supply-chain disruptions have eased~~. ~~However,~~ Business investment in equipment and software continues to expand**, and** investment in nonresidential structures ~~is still weak~~ **has increased**. ~~and~~ The housing sector remains depressed. Inflation appears to have moderated **only somewhat** since earlier in the year**,** **despite a decline in the** ~~as~~ prices of energy and some commodities ~~have declined from their peaks~~. Longer-term inflation expectations have remained stable.

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

3. ~~To support a stronger economic recovery and to help ensure that inflation, over time, is at levels consistent with the dual mandate~~ **In light of the recent improvement in the economic outlook**, the Committee decided today to **reduce by half the size of the program to** extend the average maturity of its holdings of securities **that it announced in September**. ~~The Committee intends to purchase, by the end of June 2012, $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 3 years or less. This program should put downward pressure on longer-term interest rates and help make broader financial conditions more accommodative.~~ **In particular, the Committee intends to limit purchases and sales of securities under this program to $200 billion each and to complete these operations by the end of March 2012.** ~~To help support conditions in mortgage markets,~~ The Committee ~~will now~~ **is maintaining its existing policies of** reinvest**ing** principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities~~. In addition the Committee will maintain its existing policy~~ **and** of rolling over maturing Treasury securities at auction. The Committee will regularly review the size and composition of its securities holdings and is prepared to adjust those holdings as appropriate.

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

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

THE CASE FOR ALTERNATIVE B

The Committee may see the information received during the intermeeting period as pointing to essentially the same path of economic activity and unemployment over the medium run that it expected at the time of the September meeting. In particular, policymakers may note that, leaving aside the unwinding of temporary factors that were restraining activity earlier in the year, economic growth has continued at a modest pace. Although they may interpret the somewhat stronger-than-expected economic data received over the period as suggesting that the odds of a new recession have diminished, they may view the strains in global financial markets as still posing downside risks to the economic outlook. Moreover, they may judge that, with the U.S. economy operating well below potential, and with energy and commodity prices generally having declined from their earlier peaks, inflation is likely to subside to levels at or below those most consistent with the dual mandate. Furthermore, policymakers may believe that monetary policy actions taken to date have put in place sufficient support for the economic recovery. Indeed, members may note that the staff's estimates of the equilibrium real federal funds rate are largely unchanged from the previous Tealbook and so see no reason to adjust policy further at this meeting. If so, members may wish to adopt a statement like Alternative B, which contains no new policy action and language similar to that of the September statement.

Some members may note that the outlook has not improved markedly relative to the forecast that they judged warranted further easing at the September meeting, or they may view the current staff forecast of economic activity as too optimistic; in either case, they may be inclined toward further policy measures to make faster progress toward the dual mandate. Nevertheless, they may judge that it would be prudent to gauge the extent to which growth picks up in response to policy actions already in place before deciding whether to engage in new asset purchases or take other accommodative steps, particularly if they see the downside risks to growth as having diminished somewhat. In addition, members may anticipate that coming months will bring forth important information on the direction of the European situation, the persistence of the recent uptick in domestic economic growth, and the direction of core inflation. Policymakers might prefer to await the accrual of this information and, accordingly, agree to stay their hand at this meeting. In addition, the Committee may wish to complete its discussions of policy frameworks and communications before undertaking additional policy actions.

Some Committee members may believe that maintaining the current stance of policy is appropriate even though they anticipate only a gradual recovery. Specifically, they might judge that the potential costs of providing more specific forward guidance or engaging in additional asset purchases, as in Alternatives A1 and A2, outweigh the likely benefits. Even if the Committee's forward guidance contained numerical thresholds, policymakers might be concerned that an extension of the date used in the forward guidance could pose an obstacle to rapid policy adjustment should economic conditions warrant. Moreover, members may question whether the numerical thresholds proposed in Alternative A1 can adequately reflect the diversity of views among policymakers. Thus, while they may be well disposed to the spirit of Alternative A1, members may view other communications tools, such as the Summary of Economic Projections, as a superior way of conveying their expectations to the public. With regard to the possibility of additional asset purchases, as laid out in Alternative A2, members might be concerned that a significant further expansion of the Federal Reserve's balance sheet and the corresponding supply of reserve balances could pose an upside risk to inflation expectations because it might make the public doubt that the Committee will be able to withdraw accommodation in a timely fashion. In addition, policymakers might view as undesirable the increase in the Federal Reserve's exposure to capital losses that would result from a further expansion of the SOMA portfolio.

Committee members may interpret the incoming economic data or the recently improved tone in financial markets as indicating that the outlook has improved and that downside risks have receded somewhat, but they may still project unemployment to decline only gradually and inflation to settle at or below levels consistent with their mandate. Thus, they may find the early cessation of the maturity extension program suggested in Alternative C to be premature. Members may prefer to await further data to confirm that the recovery has strengthened and that unemployment has begun to decline before concluding that the full amount of the policy accommodation provided in September was not needed. They may also want greater clarity about further policy actions to be undertaken by the European authorities.

Some policymakers may find it awkward to change the projected date in the forward guidance, potentially frequently, in order to maintain what they view as a constant stance of policy. Those members might view language that specifies a period of time for the low level of the federal funds rate, rather than a date, as a clearer way of communicating their intentions to the public. If so, they may see merit in the option in Alternative B (a modified version of which is also included in Alternative C) that indicates that the federal funds rate is likely to remain in its exceptionally low range "for at least the next six to seven quarters." On the other hand, if the economy evolves about as expected—and if the Committee consequently continues over time to see the date on which it now anticipates raising the federal funds rate target as still appropriate—then the Committee would need to reduce incrementally the number of quarters it would specify.

This reasoning might suggest that stating the date of liftoff, rather than the duration of the period at the effective lower bound, could be the simpler and clearer approach.

A statement along the lines of Alternative B would be broadly in line with market expectations. Neither the information from market data nor that from the Desk's survey of primary dealers indicates a large change in expectations for the path of the federal funds rate since September, and both continue to place the expected date of liftoff significantly beyond mid-2013. Thus, any reaction in short-term interest rates to the forward guidance contained in Alternative B would likely be muted. Moreover, dealers placed low odds on any change in the Committee's asset-purchase programs at this meeting, so Alternative B would also be unlikely to result in much change in longer-term interest rates. Similarly, there would probably be little reaction in equity prices or in the foreign exchange value of the dollar.

THE CASE FOR ALTERNATIVE A1 OR A2

Policymakers may view the information received since the September meeting as confirming that additional policy accommodation is needed to promote outcomes that are more consistent with the Federal Reserve's dual mandate. In particular, they may regard the recent data on labor markets and on household and business confidence as evidence that the reasons for slow economic growth in 2011 go well beyond the transitory factors noted earlier in the year. They may also see a tightening of fiscal policy as likely and be concerned about the resulting adverse effects on economic activity and employment in the medium run, or they may view the downside risks to the economic outlook posed by financial strains in Europe as significant. Against this backdrop, policymakers may continue to view the near- and medium-term economic outlook as unacceptably weak and the downside risks as unacceptably high, perhaps even to the point of projecting that the U.S. economy could slip into a new downturn, as in the "Recession" alternative simulation of Tealbook Book A. Such an assessment could lead the Committee to provide additional accommodation, as in Alternative A1 or A2.

In addition, some participants may see the main risk to inflation over the projection period as being to the downside—for example, if they anticipate little reduction in the existing slack in labor markets over coming quarters or see large negative risks to the outlook for growth. Indeed, members may note that survey measures of inflation expectations have moved lower of late and that market-based estimates of deflation probabilities remain elevated, and they might therefore judge that the odds that inflation will fall below mandate-consistent levels and remain there for a substantial period of time are unacceptably high.

Accordingly, policymakers may conclude that both the maximum employment and price stability elements of the dual mandate justify further policy accommodation at this time. They may judge that, with the federal funds rate constrained by the zero lower bound and with elevated downside risks to both output and inflation, it would be prudent to issue stronger forward guidance, along the lines presented in Alternative A1, or to undertake additional asset purchases, as in Alternative A2. If policymakers see growing public uncertainty that the expansion will continue—much less strengthen—as contributing significantly to the weakness in household spending and to firms' continuing reluctance to hire new workers, they may judge that the language in Alternative A1 or the new balance sheet expansion in Alternative A2 would bolster the public's confidence in the Committee's commitment to support a stronger recovery and guard against deflationary pressures.

Important factors that might guide policymakers' preference for one of the A alternatives over the other could include their assessments of the degree to which additional transparency by the FOMC will be viewed as a credible commitment and thereby translate into meaningful economic effects, and the extent to which they are concerned about the size of the Federal Reserve's balance sheet and its possible implications for the timely removal of policy accommodation. Of course, if they wished, policymakers could also combine elements of the proposed enhanced forward guidance with additional balance sheet expansion.

Alternative A1

Alternative A1 includes several possibilities for altering the forward guidance about the expected timing of the first increase in the federal funds rate target. The most straightforward change would be to extend the conditional lower bound on this date—given as mid-2013 in the previous two FOMC statements—to a significantly later date, such as mid-2014. Policymakers might prefer this option if they do not expect to need to begin the removal of policy accommodation for several years but do not at this time wish to provide numerical information about the economic conditions that would lead them to increase the target, perhaps because they are concerned that an articulation of those conditions might be interpreted by the public as a statement about the Committee's longer-run objectives. Although the staff forecast of economic activity and inflation, in combination with the estimated outcomes-based rule, suggests that the target range for the federal funds rate will be unchanged through mid-2014, the Desk's most recent survey indicated that more than half of the primary dealers expect the first increase in the federal funds rate target to occur by the end of the first quarter of 2014. Given these expectations, if the Committee were to state that it currently does not anticipate raising the federal funds rate before mid-2014, that announcement could lower market expectations of short-term interest rates beyond 2013 and so put downward pressure on medium- and longer-term interest rates and upward pressure on asset prices.

Alternatively, policymakers might prefer to provide an expectation for the date of policy liftoff, rather than a lower bound, using language like "through the end of 2014" instead of "at least through mid-2014." In this case, they may prefer to include forecasts of the economic conditions they expect to prevail at that time in order to clarify the conditional nature of the projected date, as in paragraph 4´ of Alternative A1. Or policymakers may wish to emphasize the levels of unemployment and inflation that they see as consistent with the removal of policy accommodation, in which case they may find paragraph 4´´ a more appealing option. That formulation characterizes the Committee's reaction function in terms of sufficient conditions for continued low levels of the federal funds rate, while still providing an expectation (rather than an expected lower bound) for the date at which the target rate will first be raised.

Members may find attractive the additional transparency associated with the conditional forward guidance contained in the latter two versions of Alternative A1. To the extent that the quantitative guidance specified in Alternative A1 reduced the public's uncertainty about the Committee's economic outlook and its policy reaction function, a statement along those lines could reduce market volatility, and, in current circumstances, foster more accommodative financial conditions. By giving market participants greater clarity about the economic conditions that the Committee judges would be likely to warrant raising the target for the federal funds rate, a statement using the sort of conditional forward guidance contained in paragraphs 4´ and 4´´ could also reduce the chance that medium- and longer-term rates will rise too soon or too quickly as the recovery progresses.

Any of the changes in forward guidance considered in Alternative A1 would be somewhat, but not altogether, unexpected by market participants. Respondents to the Desk's dealer survey placed only about 25 percent odds on a substantial change in the Committee's forward guidance at this meeting, but they saw more than a 50 percent chance of a change in the guidance within the next year. Treasury yields would likely move lower, particularly around the two- to five-year sector, as investors priced in lower expected short-term rates for a longer period and possibly lower term premiums in response to reduced uncertainty about the path for policy. If the inclusion of threshold values for inflation were read as suggesting that the Committee might be comfortable with levels of inflation above 2 percent for a significant period of time, medium-term inflation compensation could increase. In either case, equity prices would probably rise, and the exchange value of the dollar would likely decline.

Alternative A2

Policymakers may view additional large-scale asset purchases, rather than changes to the forward-guidance language, as the better means of providing additional stimulus. Staff estimates suggest that purchases of $600 billion of longer-term Treasury securities, one of the possibilities presented in Alternative A2, would push down the level of medium- and longer-term private interest rates and might ease financial conditions enough to reduce the unemployment rate by ¼ percentage point at the end of 2013. Staff also estimates that such a program would increase PCE inflation by about ¼ percentage point over time. These estimates are subject to considerable uncertainty, but would be in addition to the effects the staff believes will ultimately be produced by the completion of the Committee's maturity extension program announced in September. Because of operational constraints, and the overlapping purchases being conducted under the maturity extension program, the additional Treasury purchases likely could not be completed until September 2012. If the Committee split its purchases between longer-term Treasuries and agency MBS, as in the other option in Alternative A2, then the purchases could be completed by the end of June 2012. The Committee might prefer some MBS purchases if it is concerned about the possible effects on the functioning of the Treasury market of $600 billion of additional Treasury purchases. In addition, some participants may see the moribund conditions in the housing sector as a critical contributor to the weak economic recovery and so want to purchase some MBS as a way of providing support to that sector. In contrast, other participants may prefer to purchase only Treasury securities, perhaps because they see MBS purchases as causing an undesirable distortion in the allocation of credit.

Some policymakers may see potential benefits from reducing the interest rate paid on required and excess reserve balances (referred to collectively here as the IOER rate) to 10 basis points.[2] Doing so would put downward pressure on a range of money market rates, and so lower longer-term rates, at least to some degree. In addition, lower money market rates could prompt investors to shift their holdings toward riskier assets, pushing down risk premiums and adding to monetary stimulus. Such a reduction in the IOER rate also could mitigate concern about the Federal Reserve appearing to subsidize banks by paying an overnight rate that is noticeably above other risk-free, short-term rates. However, other participants may see a further

[2] Additional considerations related to possible changes in the remuneration rate on excess reserves can be found in the memo, "Reconsidering Lowering the IOER Rate," sent to the Committee on October 25, 2011.

reduction in money market rates as likely to accelerate outflows from money market mutual funds and be concerned that if that adjustment were sufficiently rapid there might be disruptions in short-term credit intermediation that could adversely affect the economy. This risk would be reduced, but not eliminated, by a decision to keep the IOER rate at 10 basis points rather than reducing it to zero. Cutting the IOER rate also would damp depository institutions' incentive to borrow and hold excess reserves, likely resulting, in particular, in a further reduction in trading volume in the federal funds market and potentially in greater volatility in the effective federal funds rate. Moreover, banks might impose greater fees on deposit accounts, a development that could lead to a negative response by the public. If participants generally thought that a reduction in the IOER rate would be helpful, on balance, the Board could adopt such a reduction, and that step could be noted in the press release containing the FOMC statement.

An additional asset purchase program, like those offered in Alternative A2, would come as a surprise to market participants at this time; in the Desk's survey, primary dealers assigned less than a 10 percent chance to further securities purchases being announced at this meeting. Longer-term interest rates would decline notably, and shorter-term interest rates would probably move a bit lower as well, since market participants would likely associate the action with a longer duration of a near-zero target federal funds rate, even if the date specified in the statement was left unchanged. If the additional purchase program included a significant amount of MBS, the spread on those securities would likely narrow somewhat with respect to Treasuries. Primary dealers, on average, saw about a 20 percent probability of a cut in the remuneration rate on required and excess reserves at some point within the next two years, but the probability of such a change at the November meeting was notably smaller. Thus, if the interest rate on excess reserves were reduced, shorter-term yields would likely decline a few basis points, in addition to the effects of any other actions the Committee announced. The effect could be amplified by the increase in reserve balances generated by the new purchase program. With any combination of the options in Alternative A2, equity prices would probably increase, and the exchange value of the dollar would likely decline.

THE CASE FOR ALTERNATIVE C

Some Committee members may see the level of potential output as significantly below the level in the staff's baseline scenario and may thus view additional policy accommodation—or even the accommodation currently in place—as more likely to result in inflationary pressures than in significant improvements in output and employment. Indeed, those members might note that measures of core inflation have moved appreciably higher over the last year, and they may be concerned that inflation, over the medium term, could run above levels consistent with the dual mandate unless action is taken to reduce monetary accommodation. They may also conclude that the current stance of monetary policy, including the maturity extension program, poses an unacceptably large risk to the stability of inflation expectations.

Moreover, members may judge that information received since the September meeting indicates that the recent increase in economic growth only partly reflects the reversal of transitory factors and that the underlying pace of recovery is stronger than projected in the staff's baseline forecast, perhaps along the lines of the "Faster Snapback" alternative simulation. They may also view the downside risks to growth posed by the strains in global financial markets as having moderated in recent weeks, and they may believe that liquidity facilities are a better tool than monetary policy for addressing the potential difficulties those strains might create for the U.S. financial system. Against this backdrop, members may judge that the most appropriate step at this stage is to scale back the pace and magnitude of the maturity extension program as outlined in Alternative C.

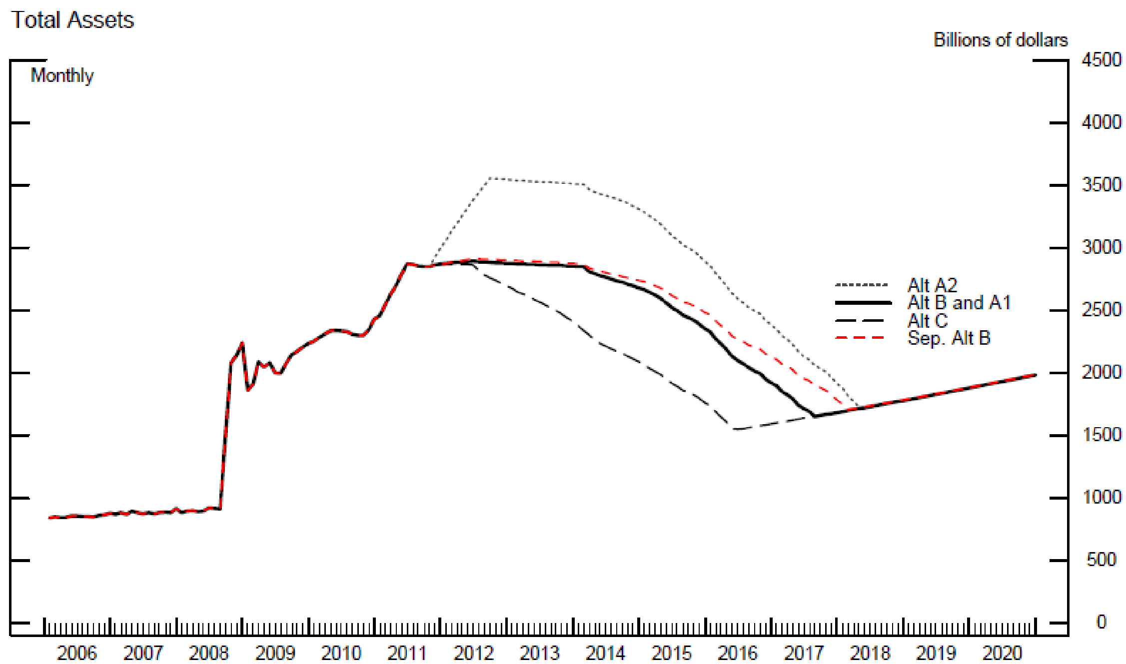
If Committee members believe that the level of potential output is appreciably lower than the staff estimates, or if they anticipate a stronger medium-term pickup in real activity than envisioned in the staff's baseline scenario, they may see a significant risk that inflation will increase even if the maturity extension program is reduced in size. If so, they may also judge it to be appropriate to change the forward guidance to provide a greater degree of flexibility to begin removing policy accommodation in response to economic developments, as in paragraph 4 of Alternative C. In particular, if economic growth picks up strongly and rates of resource utilization increase steadily, some members may judge it appropriate to begin withdrawing monetary policy accommodation well before mid-2013 even though unemployment, at the time, might be well above the staff's estimate of its longer-run, mandate-consistent level. These policymakers may be more comfortable stating a projection of the end of 2012, rather than mid-2013, as the earliest likely date for an increase in the target federal funds rate. Alternatively, they could specify an expected duration of exceptionally low levels of the federal funds rate of at least "four quarters," rather than the "six to seven quarters" proposed in Alternative B. Some participants may also favor a statement that includes the balanced final sentence in Alternative C, in which the Committee would state that it "will continue to assess the economic outlook in light of incoming information and is prepared to employ its tools as appropriate to promote its objectives of maximum employment and stable prices," rather than a statement that indicates the Committee is prepared to employ its policy tools "to promote a stronger economic recovery in a context of price stability".

A statement like that in Alternative C would come as a considerable surprise to market participants, who appear to be expecting no change in the policy stance at this meeting and who seem to place very low odds on the maturity extension program not being completed as announced in September. Longer-term interest rates would likely rise further, and shorter-term rates would also move higher as market participants priced in a faster exit from the current accommodative policy stance. Equity prices would likely fall, and the exchange value of the dollar would probably rise, although the increase could be tempered if the retreat of policy were viewed as severely contractionary.

Alternatives

LONG-RUN PROJECTIONS OF THE BALANCE SHEET AND MONETARY BASE

The staff has prepared three scenarios for the Federal Reserve's balance sheet that correspond to the policy alternatives A1, A2, B, and C; although the language in the statements differs, Alternatives A1 and B share the same baseline balance sheet projection. Projections under each scenario are based on assumptions about the trajectory of various components of the balance sheet. Details of these assumptions, as well as projections for each major component of the balance sheet, can be found in Explanatory Note C.



For the balance sheet scenario that corresponds to Alternatives A1 and B (the baseline), the Committee is assumed to continue the Maturity Extension Program (MEP) announced in September, in which it will sell $400 billion (par value) of Treasury securities with remaining maturities of 3 years or less and purchase the same amount of securities with remaining maturities of 6 years or more by the end of June 2012. It is also assumed that the Committee reinvests the proceeds from principal repayments of its holdings of agency debt and MBS into agency MBS, while Treasury securities that mature are reinvested at auction according to the Desk's current practice (reinvesting roughly proportionally across all Treasury securities that are being issued on those dates). These assumptions imply that the System Open Market Account (SOMA) security holdings remain constant at about $2.6 trillion, and the size of the balance sheet, which includes other assets in addition to the SOMA portfolio, holds roughly steady at about $2.9 trillion. In March 2014, six months before the assumed first increase in the target federal funds rate, all security reinvestment ceases, and the balance sheet begins to contract appreciably. In March 2015, roughly six months after the assumed first increase in the target federal funds rate, 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 February 2020.[3, 4] This action, along with the cessation of reinvestment, normalizes the size of the balance sheet by August 2017.[5,6]

After reserve balances have reached the assumed $25 billion floor, the balance sheet begins to expand, with increases in holdings of Treasury securities essentially matching the growth of Federal Reserve capital and notes in circulation. The balance sheet reaches a size of $2 trillion by the end of 2020.

In the scenario corresponding to Alternative A2, the Committee is also assumed to continue the MEP announced in September. In addition, the Committee is assumed to decide to purchase a further $600 billion of longer-term Treasury securities by the end of September 2012.[7] Furthermore, it is assumed that, until six months prior to the liftoff in the target federal funds rate, principal payments on agency securities are reinvested in agency MBS, while principal payments from Treasury securities that mature are reinvested at auction. As in Alternatives A1 and B, the target federal funds rate is assumed to lift off in the third quarter of 2014. Sales of agency securities commence six months after the liftoff in the target federal funds rate and reduce holdings to zero over five years. As a result of this policy action, SOMA security holdings peak at $3.2 trillion and total assets peak at $3.6 trillion in September 2012. The higher path for SOMA under Alternative A2, primarily reflecting the $600 billion additional

[3] 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.

[4] It is possible that the communication strategy in Alternative A1 would induce the path of the 10-year Treasury yield to be slightly lower than what is in Alternative B through the medium term. If so, this could result in slightly higher prepayments for agency MBS in Alternative A1, which would change the mix of prepayments and sales that would be required to reduce the amount of MBS in the portfolio to zero over the five year period.

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

[6] The projected timing of the normalization of the size of the balance sheet depends importantly on the assumed level of reserve balances that is consistent with the conduct of monetary policy, which we take as $25 billion. A higher level of such reserve balances would, all else equal, lead to an earlier normalization of the size of the balance sheet.

[7] The projections presented here are based on the $600 billion Treasury purchase program. Alternative A2 also offered an option under which the Federal Reserve would purchase $300 billion of agency MBS and $300 billion of Treasury securities by the end of June 2012.

purchases of Treasury securities, postpones the normalization of the size of the balance sheet until the second quarter of 2018, two quarters later than under the baseline.

For the scenario that corresponds to Alternative C, the Committee is assumed to modify the MEP that began in September by limiting the program to $200 billion—half its announced size—and to complete these operations by the end of March 2012. In addition, we assume that the Committee continues to reinvest the proceeds from maturing Treasury securities at auction and reinvest payments of principal from agency securities in agency MBS. In this scenario, the federal funds rate is assumed to lift off at the beginning of 2013, more than a year-and-a-half earlier than assumed in Alternatives A1, A2, and B.[8] Reinvestment of principal from maturing or prepaying securities ends six months prior to federal funds rate liftoff, in mid-2012. Likewise, sales of agency securities under Alternative C commence in mid-2013, also earlier than in the baseline, and these sales also last for five years. The normalization of the size of the balance sheet occurs in mid-2016, more than a year sooner than in the baseline, primarily reflecting the earlier liftoff date of the federal funds rate.

Under Alternatives A1 and B, the size of the balance sheet normalizes earlier than in the September Tealbook baseline projection. The baseline projections in both the current and previous Tealbooks assume agency securities will be sold over five years so that these holdings fall to zero by early 2020. However, in the last Tealbook, principal payments of agency securities in the near term were reinvested in longer-term Treasury securities, some of which mature and roll off the balance sheet after 2020, while in the current Tealbook, principal payments of agency securities are reinvested in agency MBS, which roll off the balance sheet or are sold by 2020. Under Alternative A2, the path for total assets remains noticeably above the baseline trajectory in the September Tealbook because of the additional large-scale asset purchase program. Finally, for Alternative C, the balance sheet normalizes nearly two years earlier than the September Tealbook baseline due to the projected earlier liftoff of the target federal funds rate, the associated halt in the reinvestment of principal payments on securities holdings, and the commencement of asset sales. From May 2018 onward, the paths for total assets in the current projections align with the baseline path in the September Tealbook.

[8] The prepayment paths for agency MBS holdings and premiums calculations in Alternative C are based on the interest rate path used in Alternatives A1 and B. This assumption may cause both prepayments and premiums to be somewhat overstated in Alternative C. If so, the estimate of the size of the balance sheet will be biased upward and the date of normalization will be pushed a bit later, but likely not by an appreciable amount.

On the liability side of the balance sheet, the forecasted paths for reserve balances for Alternatives A1 and B are lower after redemptions begin than in the previous Tealbook until reserve balances fall to $25 billion. Under Alternative A2, reserve balances peak at $2.3 trillion—more than $500 billion higher than in all other scenarios—by the end of the large scale asset purchase program. Subsequently, the path for reserve balances under Alternative A2 falls to $25 billion in May 2018—roughly three quarters later than under Alternatives A1 and B, and nearly two years later than under Alternative C.

In the scenario corresponding to Alternatives A1 and B, the monetary base is projected to start contracting in the second quarter of 2013 and it continues to do so through the fourth quarter of 2017, reflecting the decline in reserve balances. Starting in the beginning of 2018, after reserve balances are assumed to have stabilized at $25 billion, the monetary base expands again, in line with the growth of Federal Reserve notes in circulation.

Growth Rates for the Monetary Base				
Date	Alternatives B and A1	Alternative A2	Alternative C	*Memo*: September Tealbook
		Percent, annual rate		
		Monthly		
Aug-10	-2.4	-2.4	-2.4	-2.4
Sep-10	-10.2	-10.2	-10.2	-10.2
Oct-10	-9.8	-9.8	-9.8	-9.8
Nov-10	3.2	3.2	3.2	3.2
Dec-10	16.8	16.8	16.8	16.8
Jan-11	23.3	23.3	23.3	23.3
Feb-11	57.6	57.6	57.6	57.6
Mar-11	97.8	97.8	97.8	97.8
Apr-11	74.4	74.4	74.4	74.4
May-11	42.1	42.1	42.1	42.1
Jun-11	35.9	35.9	35.9	35.9
Jul-11	27.0	27.0	27.0	27.0
Aug-11	2.0	2.0	2.0	3.6
Sep-11	-10.5	-10.5	-10.5	-10.3
Oct-11	1.5	1.4	1.1	2.2
Nov-11	10.6	24.6	9.7	15.2
Dec-11	0.8	28.7	-0.1	4.5
		Quarterly		
2010 Q3	-6.4	-6.4	-6.4	-6.4
2010 Q4	-3.2	-3.2	-3.2	-3.2
2011 Q1	36.8	36.8	36.8	36.8
2011 Q2	69.4	69.4	69.4	69.4
2011 Q3	21.1	21.1	21.1	21.4
2011 Q4	0.8	7.0	0.4	2.7
2012 Q1	2.4	28.5	1.5	12.5
2012 Q2	7.1	31.9	5.4	7.7
		Annual - Q4 to Q4		
2009	52.5	52.5	52.5	52.5
2010	0.9	0.9	0.9	0.9
2011	35.2	37.3	35.0	35.9
2012	3.1	26.3	-2.6	5.0
2013	-0.8	-0.9	-10.3	-1.2
2014	-6.1	-5.4	-14.9	-4.9
2015	-12.2	-12.7	-16.5	-9.3

Note: Not seasonally adjusted.

DEBT, BANK CREDIT, AND MONEY FORECASTS

Domestic nonfinancial sector debt is projected to increase at an annual rate of 5 percent in the fourth quarter of 2011, driven by continued rapid expansion in federal government debt and a modest rise in private nonfinancial debt, before slowing to a 4¼ percent pace in 2012 and 2013. This moderation in debt growth reflects the projected slowdown in the rise in federal debt that begins in the first quarter of 2012 and extends through the projection period. Nonfinancial business debt is forecast to continue rising moderately over the forecast period, in part due to further increases in capital expenditures. Despite historically low mortgage rates, home mortgage debt is projected to contract further in the next two quarters and then to stay about flat through 2013. Consumer credit is forecast to rise moderately into early next year, and to gradually accelerate over the medium term. The expansion in consumer credit is expected to outweigh slightly the contraction in mortgage debt in the near term. The growth in household debt is then expected to pick up very slowly over the forecast horizon, reaching a pace of only 1¾ percent in 2013, still quite low by historical standards.

Commercial bank credit is projected to increase moderately in the fourth quarter of 2011, and that pace is expected to persist for the rest of the forecast period. Core loans—which include commercial and industrial (C&I), real estate, and consumer loans—are generally expected to expand very modestly for most of 2012 and then accelerate gradually through 2013 as the restraint from still-stringent lending standards, weak demand from high-quality borrowers, and ongoing balance sheet adjustments in the household sector is expected to slowly ease over the forecast horizon. C&I loans are projected to increase steadily over the next two years while lending to businesses backed by commercial real estate is expected to contract, primarily due to poor market fundamentals and the weak credit quality of existing loans. With respect to lending to households, residential real estate loans outstanding on banks' books are projected to remain largely unchanged through 2012 and to rise only slightly in 2013, reflecting subdued housing demand along with the factors noted above that are generally restraining core loan growth. Consumer loans are projected to increase moderately through the forecast period supported by the rise in spending on consumer durables. Banks' securities holdings are anticipated to expand at a moderate pace that decreases gradually in the latter part of the forecast horizon as loan growth strengthens.

After a robust increase in 2011, M2 is projected to expand at an average annual rate of about 2½ percent over the forecast period, well below the pace that would be predicted by the historical relationships of M2 with nominal income and opportunity cost. In the near term, money growth is held down by the assumption that households, institutional investors, and asset managers gradually begin to shift their portfolios away from safe M2 assets toward riskier assets outside of M2, as some of the financial market strains that contributed to rapid money growth this summer begin to fade. Later in the forecast period, improvements in both financial market conditions and the economic outlook are expected to lead households and businesses to continue shifting their portfolios toward riskier assets, further damping the rise in M2. Over the forecast period, liquid deposits are projected to expand at a solid rate, albeit well below the pace observed in recent years, while retail money market mutual funds and small time deposits are projected to contract. Currency is expected to expand at its historical average rate.

Growth Rates for M2

(Percent, seasonally adjusted annual rate)

Monthly Growth Rates	Tealbook Forecast*
Jan-11	3.3
Feb-11	8.3
Mar-11	3.8
Apr-11	4.3
May-11	6.9
Jun-11	11.7
Jul-11	26.6
Aug-11	30.0
Sep-11	5.9
Oct-11	4.3
Nov-11	3.0
Dec-11	2.0
Quarterly Growth Rates	
2011 Q1	5.0
2011 Q2	6.1
2011 Q3	19.8
2011 Q4	6.9
Annual Growth Rates	
2010	3.2
2011	9.8
2012	1.9
2013	3.0

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

DIRECTIVE

The September directive appears below. Drafts for a November directive corresponding to each of the four policy alternatives appear on subsequent pages. The directive for Alternatives A1 and B would instruct the Desk to take appropriate steps to continue to purchase, by the end of June 2012, $400 billion of Treasury securities with remaining maturities of 6 to 30 years and to sell an equal amount of existing Treasury holdings with remaining maturities of 3 years or less so as to increase the average maturity of the SOMA portfolio while leaving the total face value of domestic securities in the SOMA about unchanged. The directive for Alternative C would instruct the Desk to reduce the amount of these purchases and sales to a total level of $200 billion each and to conduct these operations by the end of March 2012. The directive for Alternative A2 would instruct the Desk to continue conducting the maturity extension program announced in September and to take appropriate steps to raise the total face value of domestic securities holdings to about $3.3 trillion, either by purchasing sufficient longer-term Treasury securities by the end of September 2012 or by purchasing an equal mix of longer-term Treasuries and agency MBS by the end of June 2012. The Directives for all of the alternatives 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.

September 2011 FOMC Directive

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to 1/4 percent. The Committee directs the Desk 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 policy of rolling over maturing Treasury securities into new issues and to reinvest 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.

November 2011 FOMC Directive — Alternative A1

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 1/4 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 polic~~y~~**ies** of rolling over maturing Treasury securities into new issues and ~~to~~ **of** reinvest**ing** 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

November 2011 FOMC Directive — Alternative A2

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 1/4 percent. The Committee directs the Desk to **continue the maturity extension program it began in September to** purchase, by the end of June 2012, Treasury securities with remaining maturities of approximately 6 years to 30 years with a total face value of $400 billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face value of $400 billion. **The Committee also directs the Desk to execute purchases of longer-term Treasury securities in order to increase the total face value of domestic securities held in the System Open Market Account to approximately $3.3 trillion by the end of September 2012.** The Committee also directs the Desk to maintain its existing polic~~y~~**ies** of rolling over maturing Treasury securities into new issues and ~~to~~ **of** reinvest**ing** 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.

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 1/4 percent. The Committee directs the Desk to **continue the maturity extension program it began in September to** purchase, by the end of June 2012, Treasury securities with remaining maturities of approximately 6 years to 30 years with a total face value of $400 billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face value of $400 billion. **The Committee also directs the Desk to execute purchases of longer-term Treasury securities and of agency mortgage-backed securities of approximately equal face amounts in order to increase the total face value of domestic securities held in the System Open Market Account to approximately $3.3 trillion by the**

end of June 2012. The Committee also directs the Desk to maintain its existing polic~~y~~**ies** of rolling over maturing Treasury securities into new issues and ~~to~~ **of** reinvest**ing** 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

November 2011 FOMC Directive — Alternative B

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to 1/4 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 polic~~y~~**ies** of rolling over maturing Treasury securities into new issues and ~~to~~ **of** reinvest**ing** 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.

November 2011 FOMC Directive — Alternative C

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to 1/4 percent. The Committee directs the Desk to **modify the maturity extension program it began in September so as to** purchase, by the end of **March** ~~June~~ 2012, Treasury securities with remaining maturities of approximately 6 years to 30 years with a total face value of **$200** ~~$400~~ billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face value of **$200** ~~$400~~ billion. The Committee also directs the Desk to maintain its existing polic~~y~~**ies** of rolling over maturing Treasury securities into new issues and ~~to~~ **of** reinvest**ing** 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. Measures of the Equilibrium Real Rate

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

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

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

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

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

Proxy used for expected inflation	Actual real federal funds rate (current value)	Tealbook-consistent FRB/US-based measure of the equilibrium real funds rate (current value)	Projected real funds rate (twelve-quarter-ahead average)
Lagged core inflation	–1.5	–3.3	–1.4
Lagged headline inflation	–2.7	–3.5	–1.5
Projected headline inflation	–1.2	–3.2	–1.3

Explanatory Notes

B. Analysis of Policy Paths and Confidence Intervals

Rule Specifications

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

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

FRB/US Model Simulations

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

INFORMATION FROM FINANCIAL MARKETS

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

NEAR-TERM PRESCRIPTIONS OF SIMPLE POLICY RULES

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

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

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

GENERAL ASSUMPTIONS

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

The Tealbook projections for the scenarios corresponding to Alternatives A1, A2, and B assume that the target federal funds rate begins to increase in September 2014, consistent with the monetary policy path in the Tealbook extension derived from the outcome-based rule, while the projection for the scenario corresponding to Alternative C assumes the target rate lifts off in January 2013. The balance sheet projections assume that no use of short-term draining tools is necessary to achieve the projected path for the federal funds rate.[1]

ASSETS

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

- The assumptions under Alternatives A1 and B are:
  - Beginning in October 2011, the FOMC is assumed to sell $400 billion in par value of Treasury securities with remaining maturities of 3 years or less and to purchase the same par amount of Treasury securities with remaining maturities of 6 years or more. This activity takes place over 9 months.
  - The FOMC will reinvest the proceeds from principal payments from its agency securities holdings primarily in newly issued agency MBS in the To-Be-Announced (TBA) market. Consistent with current practice, Treasury securities are rolled over at auction.
  - Principal payments from Treasury securities and agency MBS and agency debt securities are reinvested until March 2014—six months prior to the assumed increase in the target federal funds rate.[2]

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

[2] Projected prepayments of agency MBS reflect interest rates as of October 25, 2011.

Explanatory Notes

- o The Federal Reserve begins to sell agency MBS and agency debt securities in March 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 February 2020.
- o For agency MBS, the rate of prepayment is based on staff models using estimates of housing market factors from one of the program's investment managers, long-run average prepayment speeds of MBS, and interest rate projections from the Tealbook.[3] The projected rate of prepayment is sensitive to these underlying assumptions.

- In the scenario corresponding to Alternative A2, the Committee is assumed to begin purchasing longer-term Treasury securities at a rate of about $55 billion per month over eleven months in addition to those planned to be purchased in the MEP program.[4] In addition, the Committee is expected 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.
- In the scenario corresponding to Alternative C, the Committee is expected to limit its previously announced MEP program so that it purchases $200 billion in long-term securities and sells $200 billion in short-term securities, with operations completed by March 2012. Principal payments from Treasury securities continue to be reinvested at auction and principal payments from agency MBS and agency debt securities are reinvested in agency MBS until July 2012.
- 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. As a result, although the par value of securities holdings remains constant under Alternatives A1 and B, total assets, which include the premiums associated with the securities, will rise by about $40 billion. Reserve balances will increase by the same amount.
- The large-scale asset purchase program in Alternative A2 would put downward pressure on the 10-year Treasury yield and result in more MBS prepayments than in the baseline.[5] The lower path for the interest rate would also imply that purchases of Treasury securities would be made at prices that include a premium above their face value that exceeds the premium in the baseline.

[3] Projected prepayments on the existing stock of agency MBS are from a new FRBNY staff model that is based on the prepayment model of one of the investment managers; projected prepayments associated with expected future purchased agency MBS relies on a Board model that is based on the Bond Market Association prepayment model.

[4] The projections presented here are based on the $600 billion Treasury purchase program. Alternative A2 also offered an option under which the Federal Reserve would purchase $300 billion of agency MBS and $300 billion of Treasury securities.

[5] See the memo "Possible Large-Scale Asset Purchase Program in the Treasury Market" by Board and FRBNY staff for more details of the estimated term premium effect associated with the $600 billion large-scale asset purchase program.

- 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 going forward. Purchases of bills continue until these securities comprise one-third of the Federal Reserve's total Treasury security holdings—about the average share prior to the crisis. Once this share is reached, the Federal Reserve buys notes and bonds in addition to bills to maintain an approximate composition of the portfolio of one-third bills and two-thirds coupon securities.

Liquidity Programs and Credit Facilities

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

LIABILITIES AND CAPITAL

- Federal Reserve notes in circulation grow in line with the staff forecast for money stock currency through the last quarter of 2013. Afterwards, Federal Reserve notes in circulation grow at the same rate as nominal GDP, as in the extended Tealbook projection.
- Over the next six months, the level of reverse repurchase agreements is assumed to decline to $70 billion, about the average level observed over the past three years.
- The U.S. Treasury's General Account (TGA) follows the staff forecast through March 2012.[6] Then, the TGA slowly drops back to its historical target level of $5 billion by January 2013 as it is assumed that the Treasury will implement a new cash management system and invest funds in excess of $5 billion. The TGA remains constant at $5 billion over the remainder of the forecast period.

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

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

Federal Reserve Balance Sheet
End-of-Year Projections -- Alternative A2

Billions of dollars

	Sep 30, 2011	2012	2014	2016	2018	2020
Total assets	2,853	3,546	3,310	2,385	1,778	1,985
Selected assets						
Liquidity programs for financial firms	1	0	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	0	0	0	0	0	0
Lending through other credit facilities	11	4	0	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	11	4	0	0	0	0
Support for specific institutions	47	46	32	18	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	47	46	32	18	7	4
Securities held outright	2,644	3,234	3,066	2,198	1,629	1,854
U.S. Treasury securities	1,665	2,255	2,175	1,651	1,432	1,854
Agency debt securities	108	77	39	16	2	0
Agency mortgage-backed securities	871	902	852	531	195	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	150	261	211	170	142	126
Total liabilities	2,801	3,476	3,218	2,263	1,616	1,770
Selected liabilities						
Federal Reserve notes in circulation	996	1,070	1,203	1,351	1,498	1,652
Reverse repurchase agreements	84	70	70	70	70	70
Deposits with Federal Reserve Banks	1,656	2,318	1,928	826	33	33
Reserve balances held by depository institutions	1,597	2,306	1,920	819	25	25
U.S. Treasury, General Account	56	10	5	5	5	5
U.S. Treasury, Supplementary Financing Account	0	0	0	0	0	0
Other balances	3	3	3	3	3	3
Interest on Federal Reserve Notes due to U.S. Treasury	1	0	0	0	0	0
Total capital	52	70	93	123	162	215

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

Explanatory Notes

Federal Reserve Balance Sheet
End-of-Year Projections -- Alternatives B and A1

Billions of dollars

	Sep 30, 2011	2012	2014	2016	2018	2020
Total assets	2,853	2,878	2,681	1,923	1,778	1,985
Selected assets						
Liquidity programs for financial firms	1	0	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	0	0	0	0	0	0
Lending through other credit facilities	11	4	0	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	11	4	0	0	0	0
Support for specific institutions	47	46	32	18	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	47	46	32	18	7	4
Securities held outright	2,644	2,634	2,487	1,772	1,657	1,877
U.S. Treasury securities	1,665	1,655	1,597	1,226	1,460	1,877
Agency debt securities	108	77	39	16	2	0
Agency mortgage-backed securities	871	902	852	530	195	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	150	192	160	133	114	104
Total liabilities	2,801	2,808	2,588	1,800	1,616	1,770
Selected liabilities						
Federal Reserve notes in circulation	996	1,070	1,203	1,351	1,498	1,652
Reverse repurchase agreements	84	70	70	70	70	70
Deposits with Federal Reserve Banks	1,656	1,650	1,299	364	33	33
Reserve balances held by depository institutions	1,597	1,637	1,291	356	25	25
U.S. Treasury, General Account	56	10	5	5	5	5
U.S. Treasury, Supplementary Financing Account	0	0	0	0	0	0
Other balances	3	3	3	3	3	3
Interest on Federal Reserve Notes due to U.S. Treasury	1	0	0	0	0	0
Total capital	52	70	93	123	162	215

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

Explanatory Notes

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

Billions of dollars

	Sep 30, 2011	2012	2014	2016	2018	2020
Total assets	2,853	2,696	2,088	1,592	1,778	1,985
Selected assets						
Liquidity programs for financial firms	1	0	0	0	0	0
Primary, secondary, and seasonal credit	0	0	0	0	0	0
Central bank liquidity swaps	0	0	0	0	0	0
Lending through other credit facilities	11	4	0	0	0	0
Term Asset-Backed Securities Loan Facility (TALF)	11	4	0	0	0	0
Support for specific institutions	47	46	28	18	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	47	46	28	18	7	4
Securities held outright	2,644	2,480	1,924	1,461	1,671	1,888
U.S. Treasury securities	1,665	1,595	1,356	1,218	1,671	1,888
Agency debt securities	108	77	39	16	0	0
Agency mortgage-backed securities	871	809	529	227	0	0
Net portfolio holdings of TALF LLC	1	1	1	0	0	0
Total other assets	150	164	135	113	100	93
Total liabilities	2,801	2,625	1,995	1,469	1,616	1,770
Selected liabilities						
Federal Reserve notes in circulation	996	1,070	1,203	1,351	1,498	1,652
Reverse repurchase agreements	84	70	70	70	70	70
Deposits with Federal Reserve Banks	1,656	1,468	706	33	33	33
Reserve balances held by depository institutions	1,597	1,455	699	25	25	25
U.S. Treasury, General Account	56	10	5	5	5	5
U.S. Treasury, Supplementary Financing Account	0	0	0	0	0	0
Other balances	3	3	3	3	3	3
Interest on Federal Reserve Notes due to U.S. Treasury	1	0	0	0	0	0
Total capital	52	70	93	123	162	215

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

Explanatory Notes

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