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Nomura Global Economics

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**After Recession:
The Uphill Road**

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Extraordinary Times

- Recession is severe
 - “Routine” slump – until Fall, 2008

- Recession is global
 - Near simultaneous plunge in demand and production

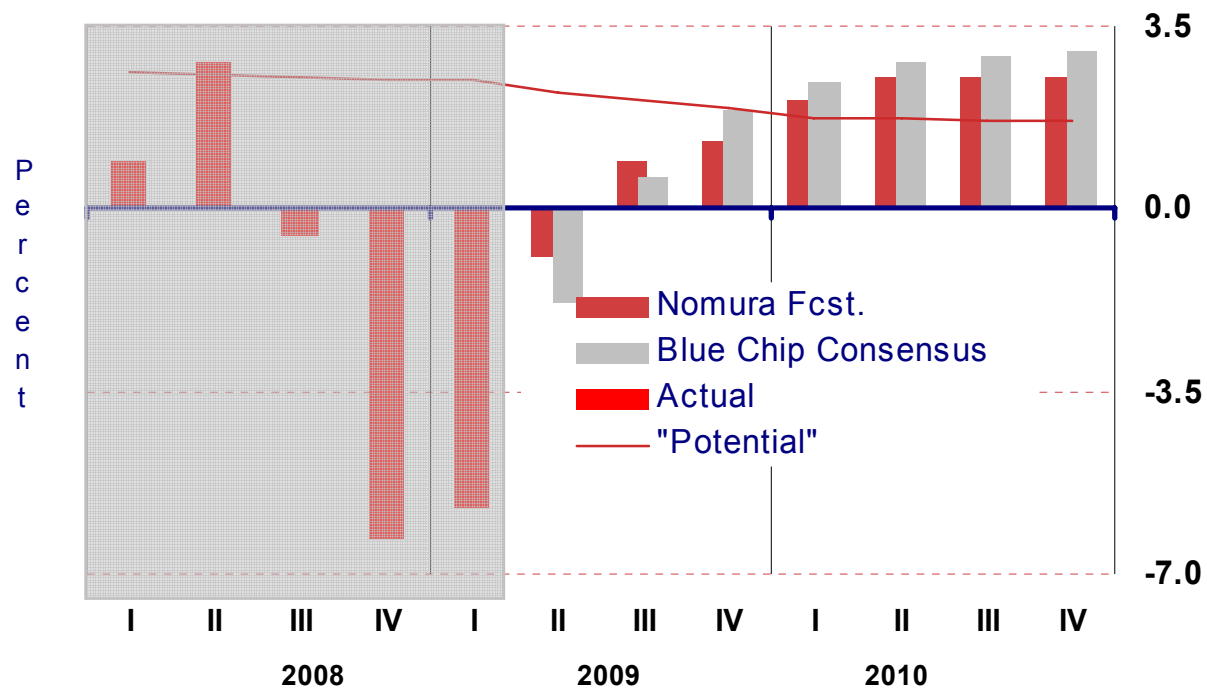
- Post-recession recovery will be drawn out
 - Legacy of the financial crisis

Recessions end . . .

- When excesses diminish
 - The excess of goods inventory
 - The excess housing stock

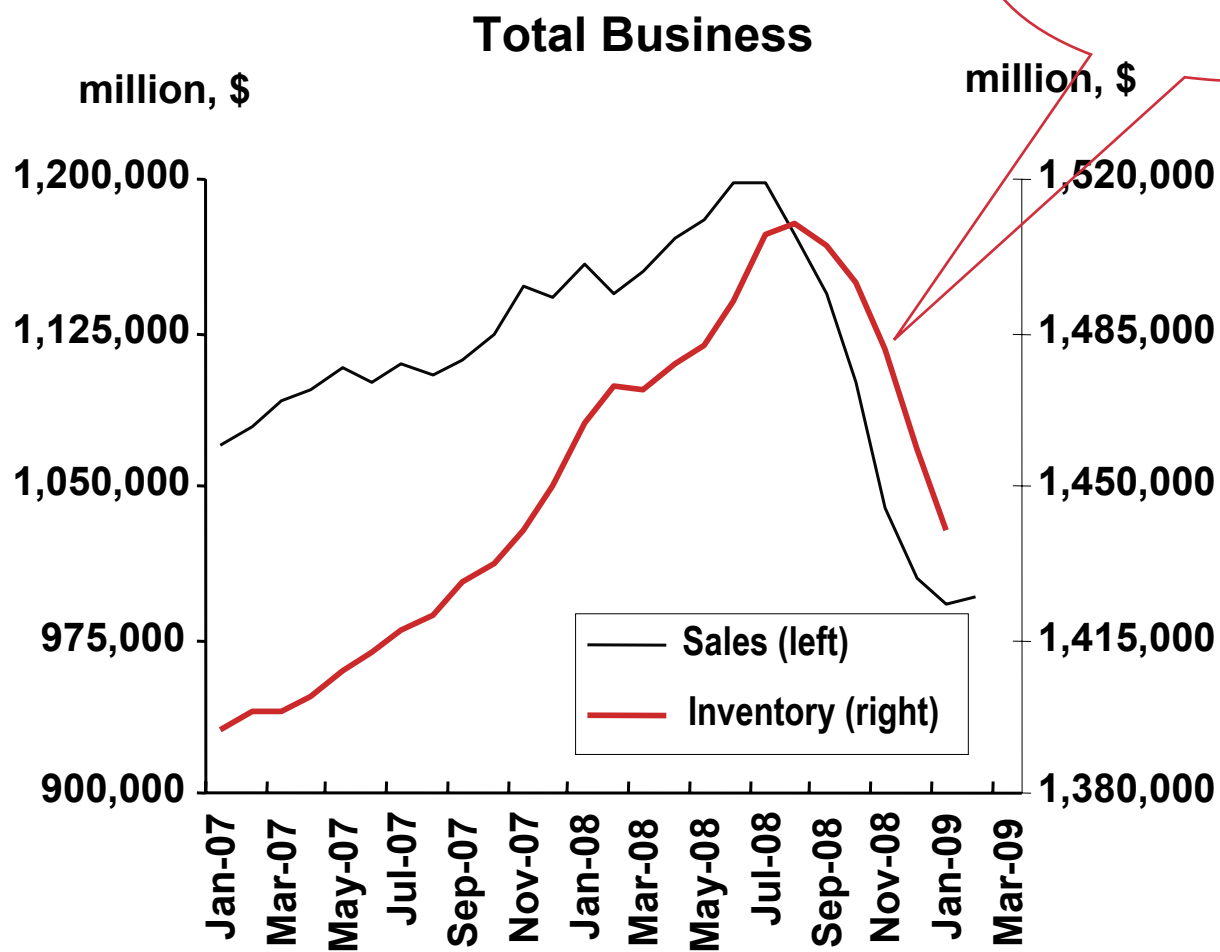
- When demand stabilizes . . .
 - Orders improve
 - Production rises

An end, of sorts, in sight ...



Source: Nomura

Business sales & inventories



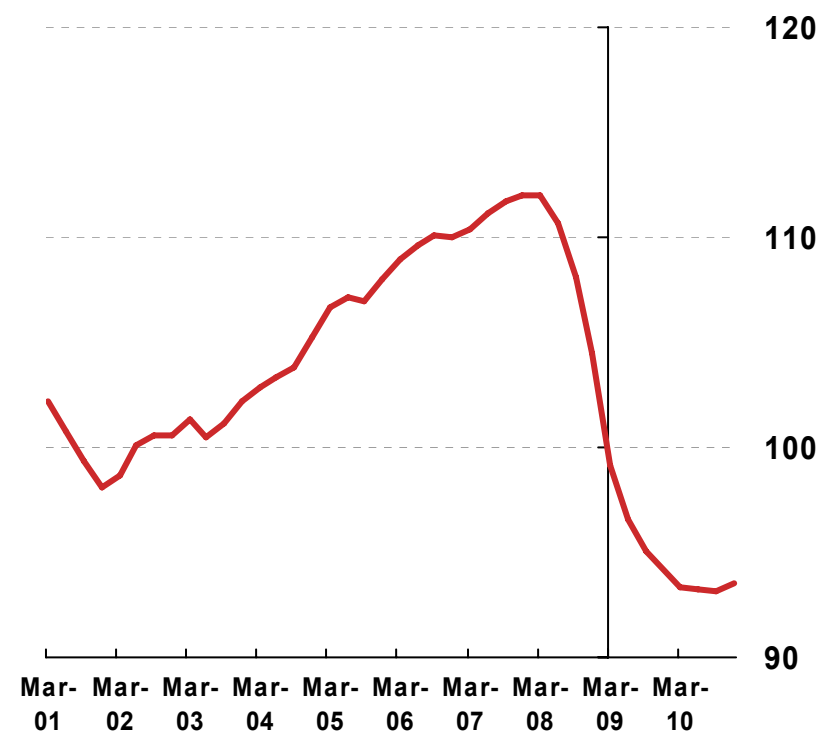
Steepest sales drop on record

Source: Nomura

Production cut sharply

■ Fed's Industrial Production Index

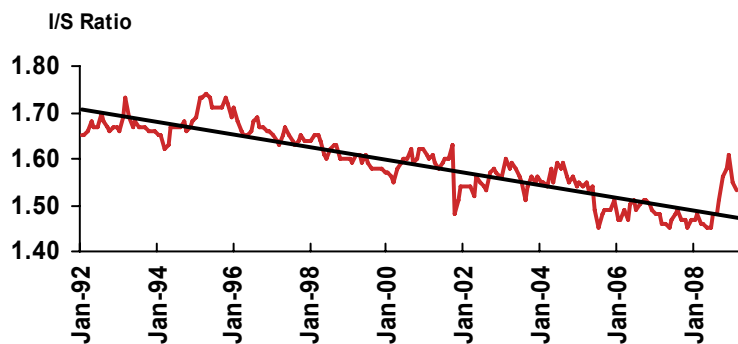
- Steepest drop since 1974
- Q1 2009 IP fell 19.1%



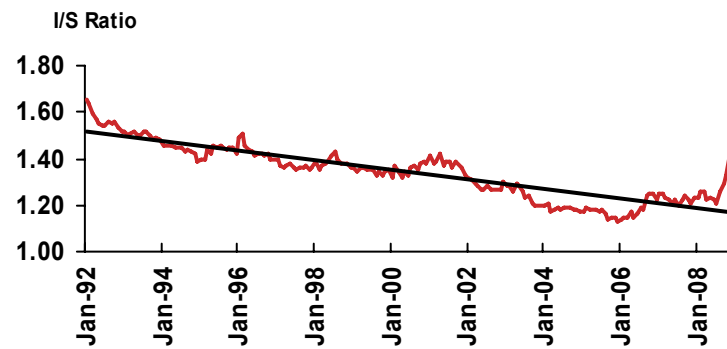
Source: Nomura

Inventory ratios jump. . .

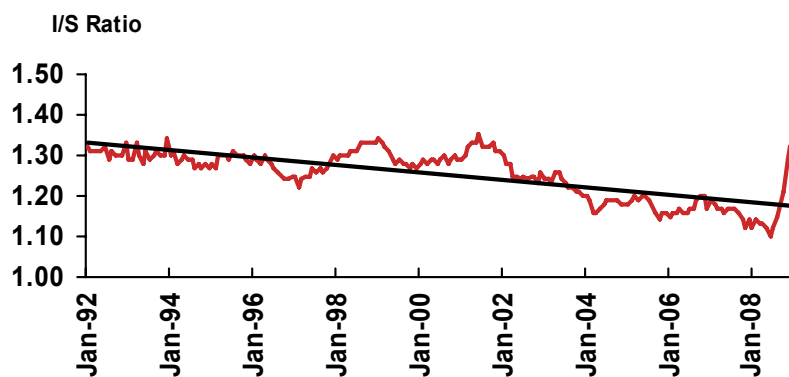
Retail



Manufacturing

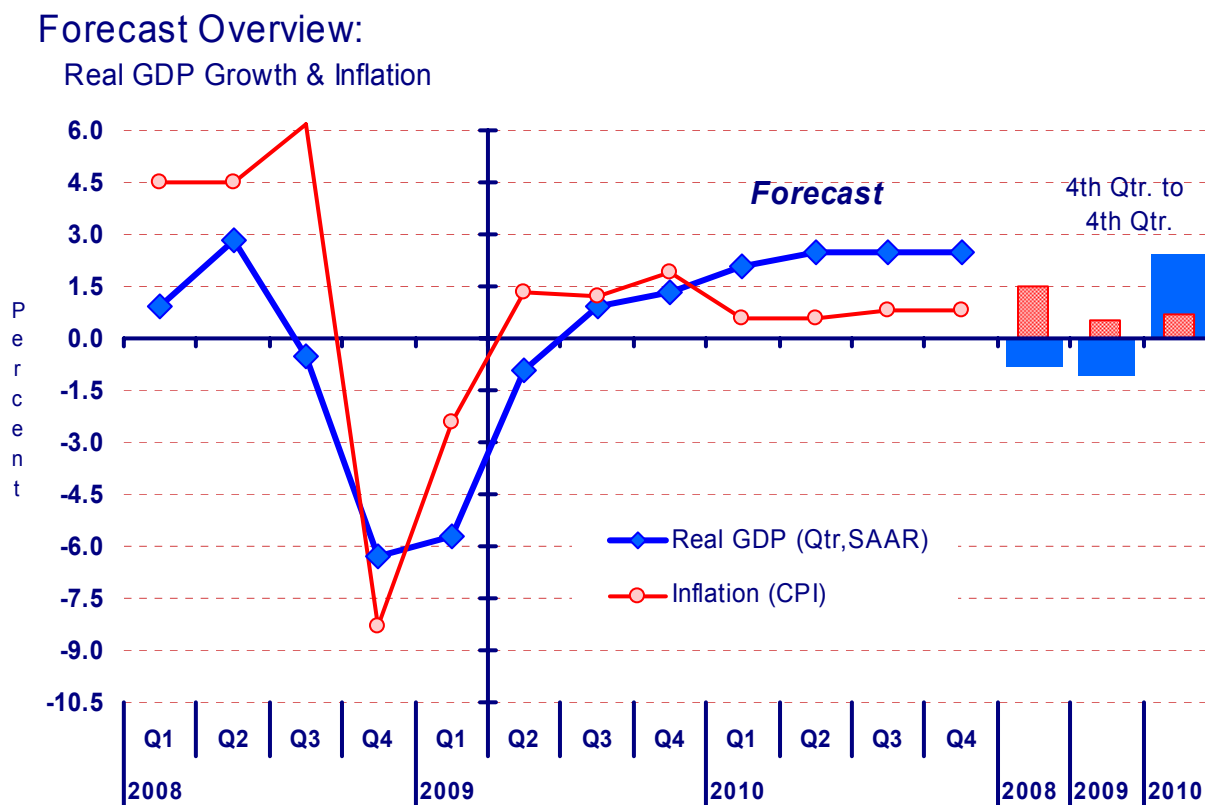


Wholesale



Real GDP Growth: 2007-2012

Actual & Forecast



Source: Nomura

Forecast as of: 5 June 2009

From recession to expansion: bottoming phase

■ Inventory liquidation

- Pricing

- Production

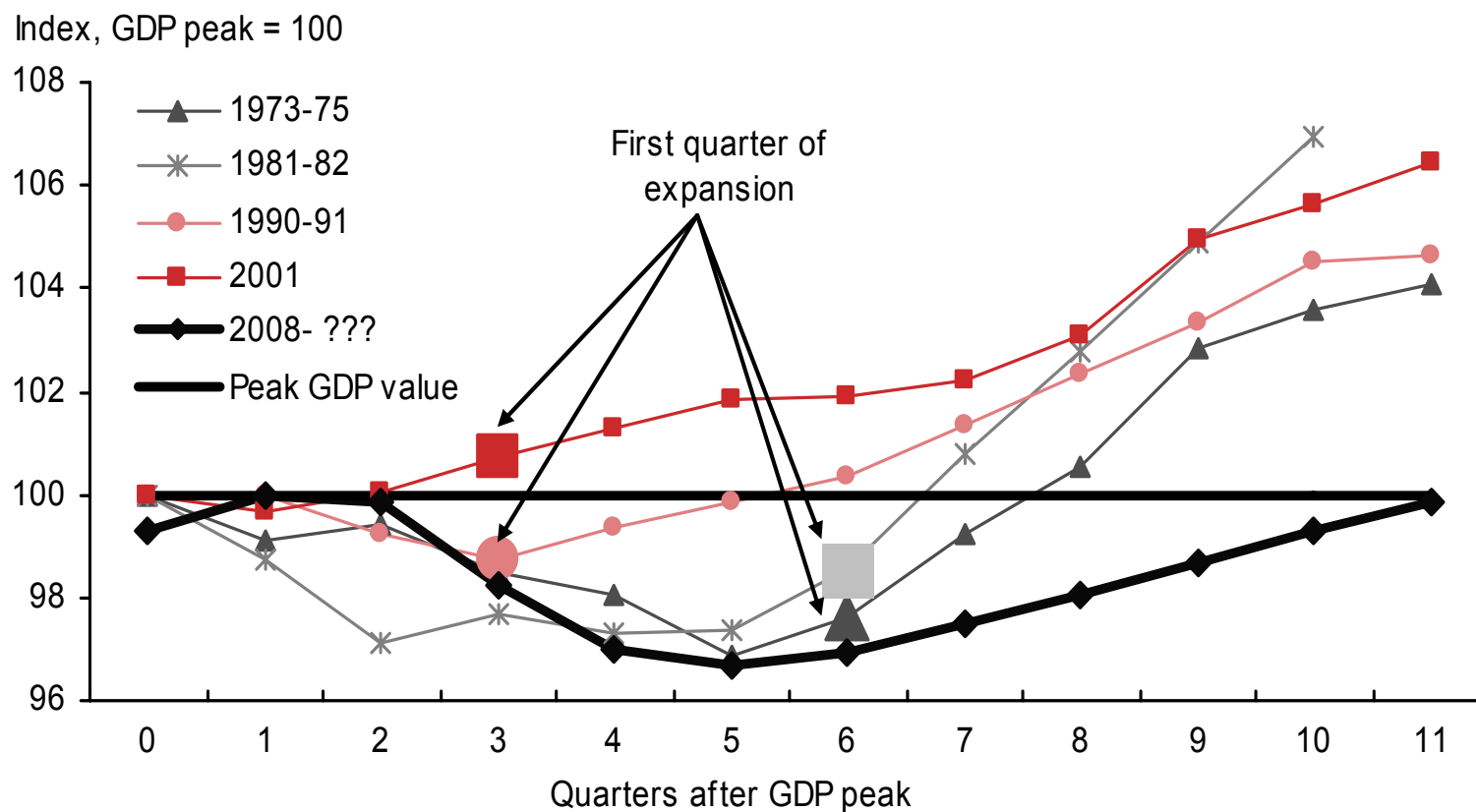
■ Demand stabilizes

- Orders resume

■ Production resumes

- Hiring stabilizes

Recession ends, but recovery comes later



Source: Nomura

From recession to expansion: recovery

- Inventory restocking

- Demand strengthens
 - Orders accelerate

- Production accelerates
 - Re-hiring

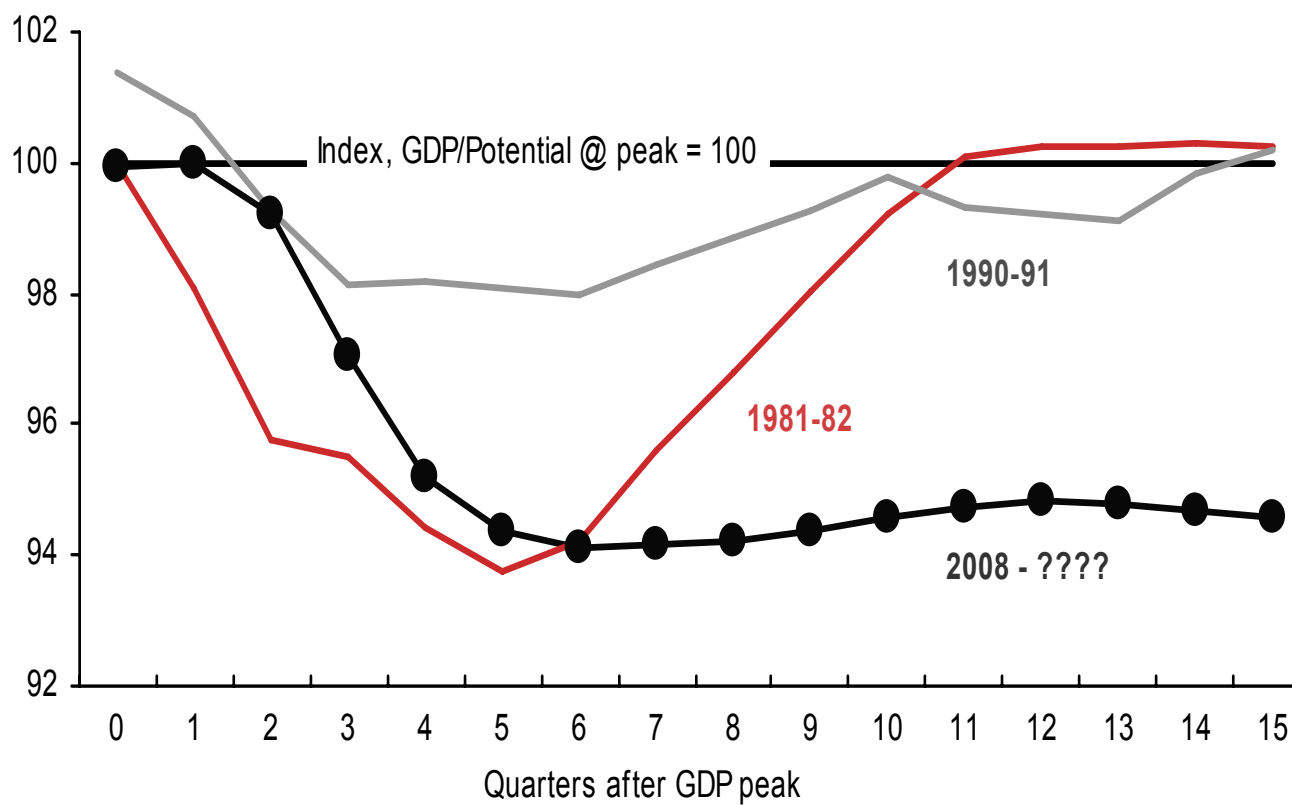
Is the end of decline near? Maybe!

| Low Point in: | Months from Cycle Trough | |
|--------------------------|--------------------------|------|
| | Least | Most |
| Home Sales | 2 | 7 |
| Housing Starts | 1 | 9 |
| Drop in Nonfarm Payrolls | 0 | 3 |

| Current Cycle Low: | Month |
|--------------------------|----------|
| Home Sales | Jan. '09 |
| Housing Starts | Jan. '09 |
| Drop in Nonfarm Payrolls | Jan. '09 |

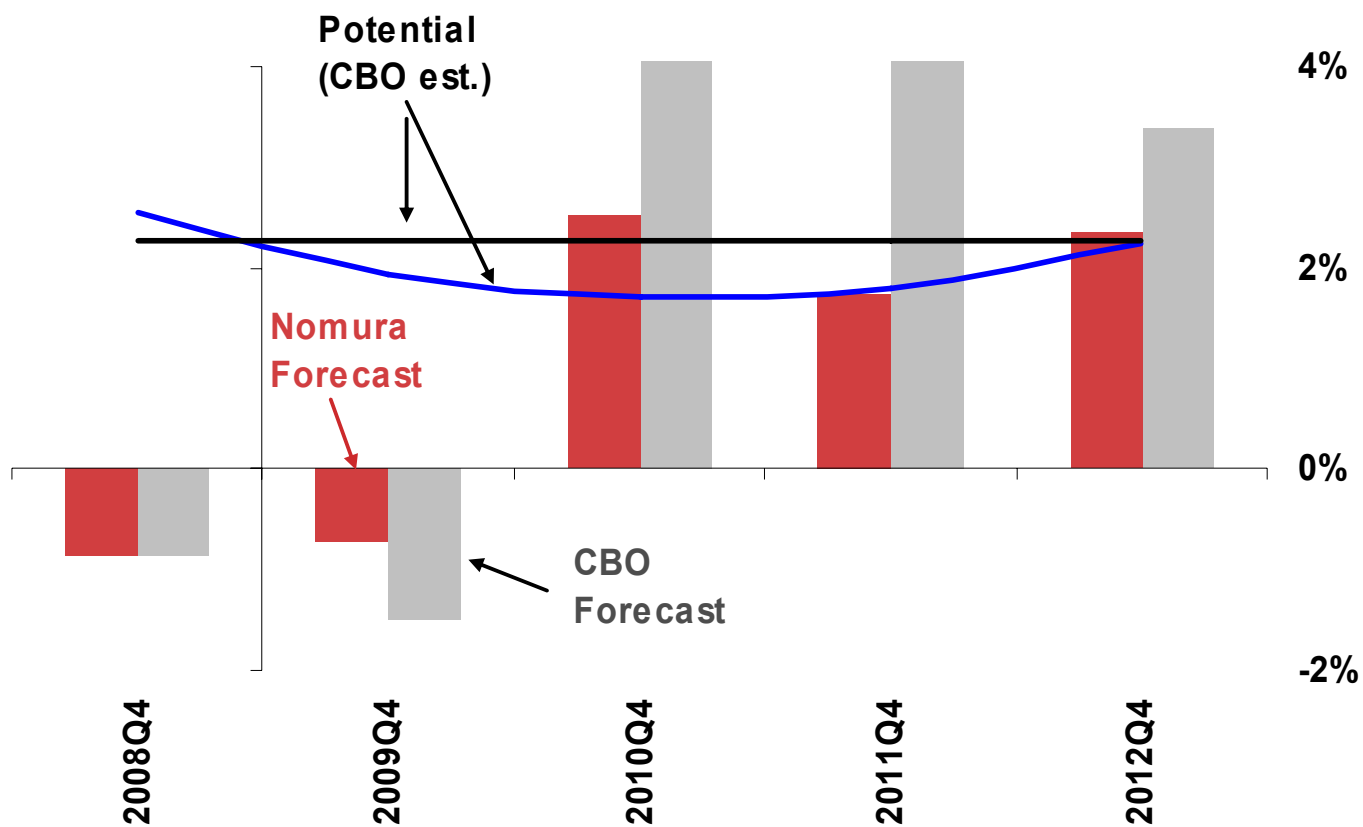
Recovery to relative strength

- 1981-82: deep recession, sharp rebound
- 1991-92: shallow recession; long span to recovery
- 2008-??: no convergence toward pre-recession strength



Source: Nomura

Intermediate Term Outlook



Source: Nomura

“Obamanomics” Potential Growth

■ Helping :

- Infrastructure investment
- Human capital
 - Aid to education
- Tech investment
 - Health & medicine
 - “Green” technologies

■ Hurting:

- “Crowding out”
- Resource shift
 - From efficient private sector
 - To less efficient public sector
- “Ricardian equivalence”
 - Discounting future tax hits

Role of credit

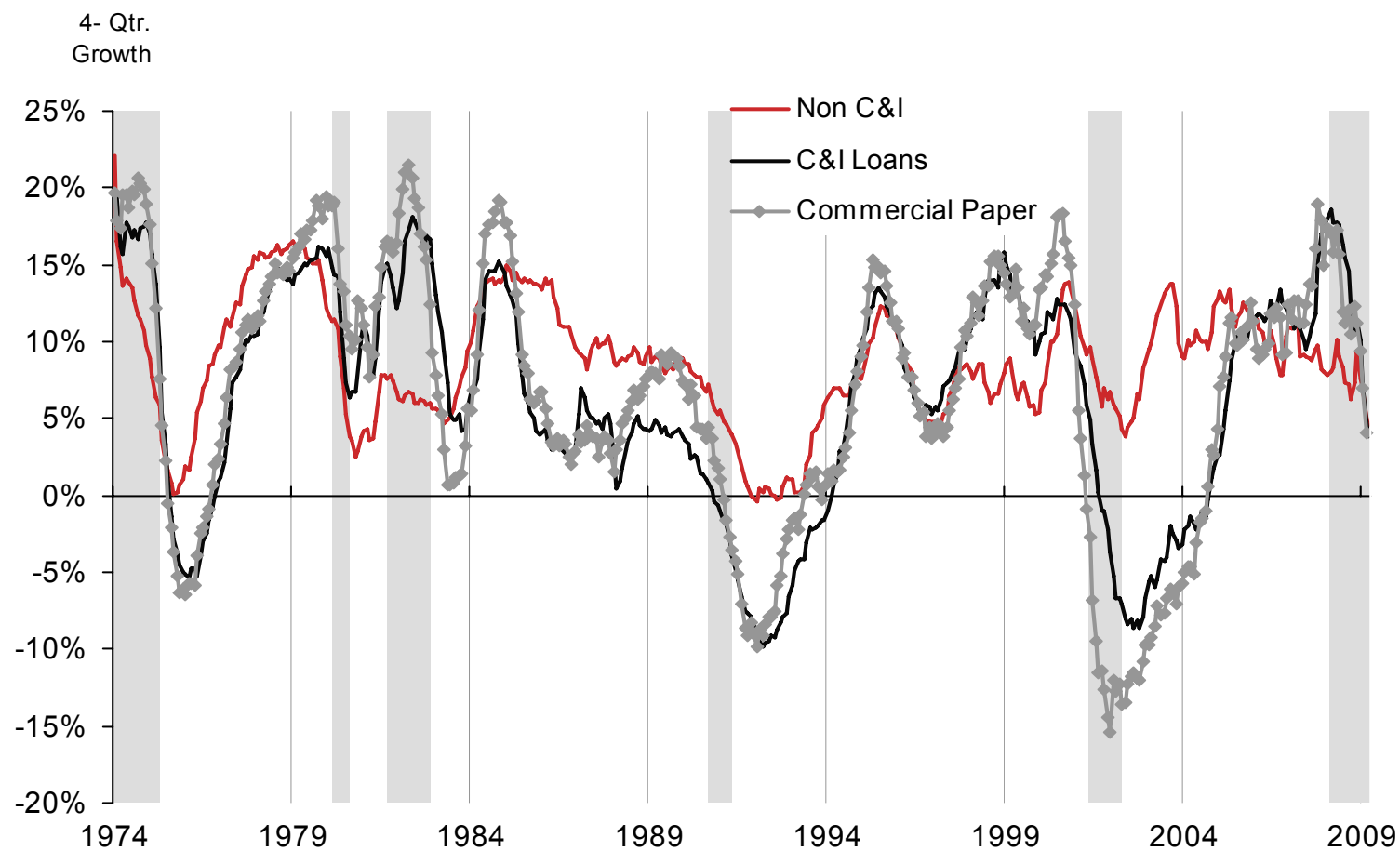
- “The scale of lending needed to support a normal cyclical recovery will not materialize.”

– Roger Altman, *Financial Times*, 6 April 2009

- Do the facts bear this out?

Role of credit

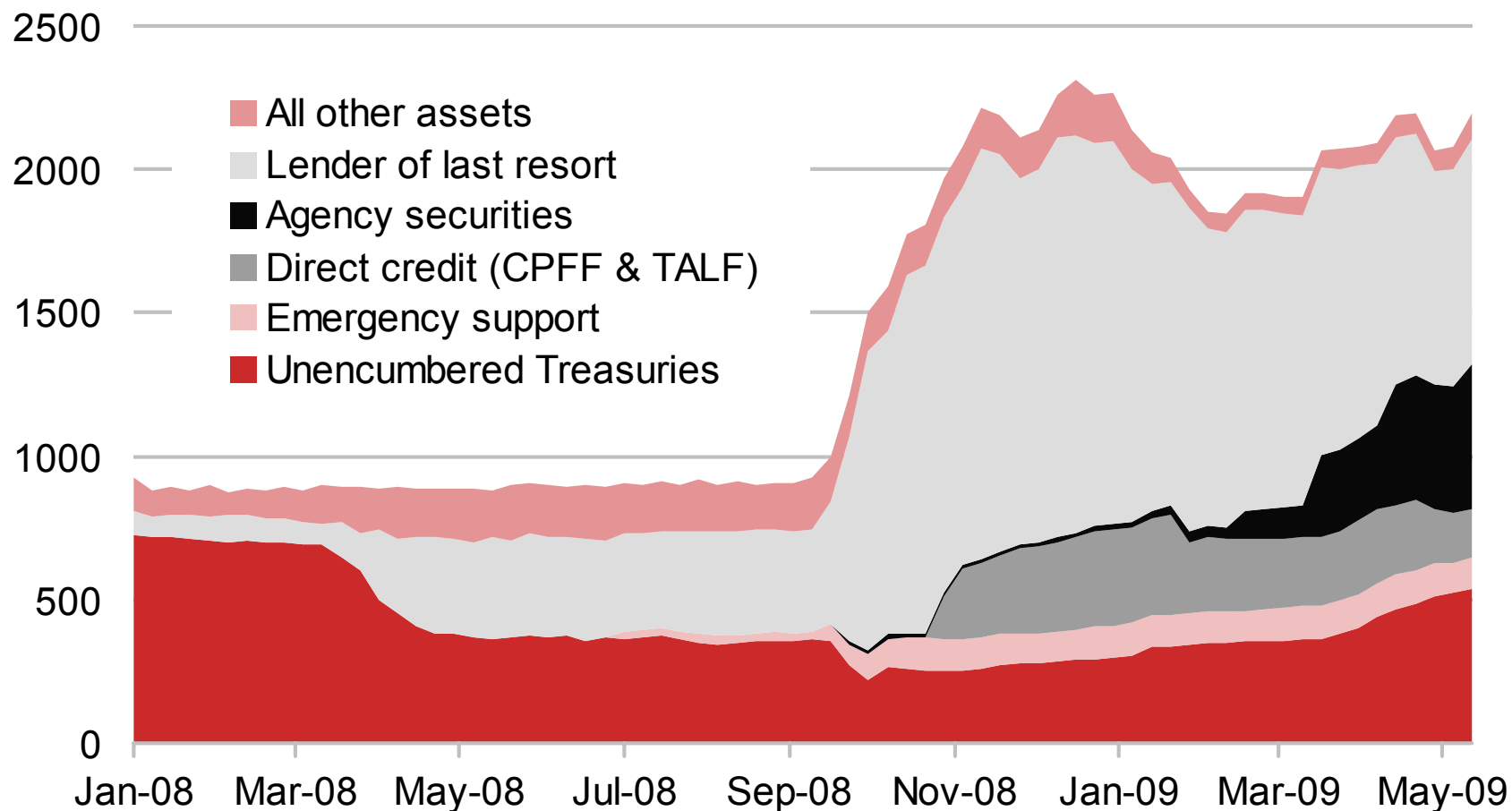
■ Growth of Non-financial corporate debt



Source: Nomura

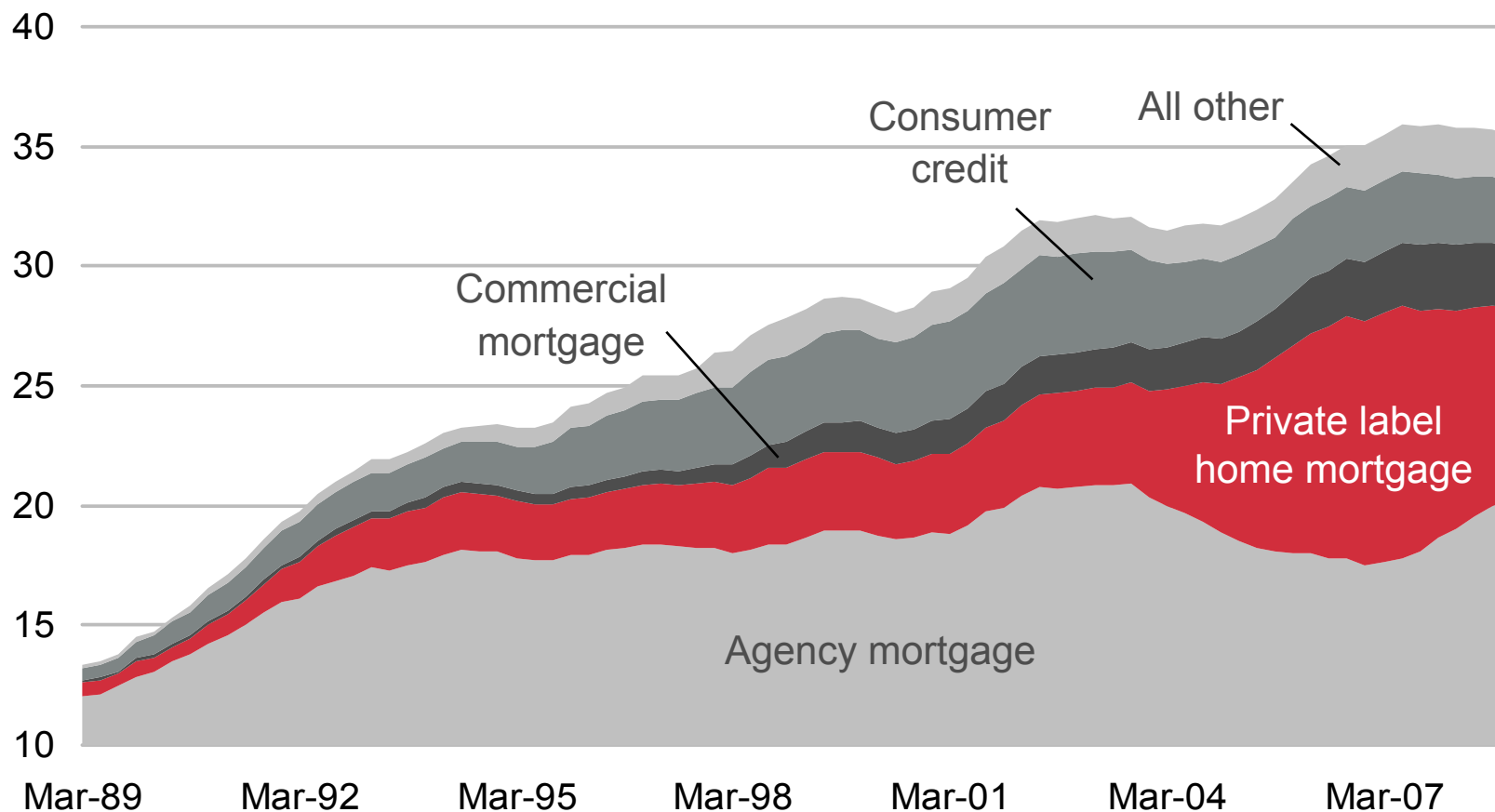
Unconventional Monetary Policy

Federal Reserve's assets (\$bn)



Source: Federal Reserve and Nomura Global Economics.

Securitized debt as share of total non-financial credit (%)



Source: Federal Reserve Flow of Funds Accounts, Nomura Global Economics.

| | Announced | Summary | Latest |
|---|------------|--|---|
| Term Auction Facility (TAF) | 12/12/2007 | <ul style="list-style-type: none"> ■ Auctions term (1- and 3-month) discount window loans to banks; avoids stigma issue of traditional discount window | <ul style="list-style-type: none"> ■ \$493bn loans outstanding, most since program's inception, may increase further on FDIC deposit fees |
| Term Security Lending Facility (TSLF) | 3/11/2008 | <ul style="list-style-type: none"> ■ Lends Treasury securities from Fed's portfolio for term of 28-days (rather than overnight) | <ul style="list-style-type: none"> ■ \$112n of Treasury portfolio lent (of \$200bn available); recently declining; \$6bn lent through overnight facility |
| Primary Dealer Credit Facility (PDCF) | 3/16/2008 | <ul style="list-style-type: none"> ■ Opens discount window to primary dealers; overnight loans against tri-party repo collateral | <ul style="list-style-type: none"> ■ \$24bn loans outstanding, down from peak of \$147bn in last week of Sep; no ceiling on program |
| TSLF Options Program (TOP) | 6/30/2008 | <ul style="list-style-type: none"> ■ Auctions options on TSLF loans around points of seasonal stress in short-term funding markets | <ul style="list-style-type: none"> ■ \$50bn TSLF options issued for year-end; auction fully subscribed; no announcement yet on next auction |
| ABCP Money Market Fund Liquidity Facility (AMLF) | 9/19/2008 | <ul style="list-style-type: none"> ■ Extends loans at discount rate to banks to finance purchase of ABCP from money market mutual funds (MMMFs); helps MMMFs meet redemptions | <ul style="list-style-type: none"> ■ Only \$8bn now outstanding, steadily declining from peak of \$152bn |
| Commercial Paper Funding Facility (CPFF) | 10/7/2008 | <ul style="list-style-type: none"> ■ Allows Fed to purchase new 90-day commercial paper directly from issuers | <ul style="list-style-type: none"> ■ Operational since Oct 27; \$241bn of CP in portfolio; effective in stopping decline in private sector demand but not in stimulating new purchases |
| Money Market Investor Funding Facility (MIFF) | 10/21/2008 | <ul style="list-style-type: none"> ■ SPVs, primarily funded by Fed loans, that purchase money market instruments in secondary market; compliments CPFF and AMLF | <ul style="list-style-type: none"> ■ Operational Nov 24; no activity to date; Fed adjusted terms and conditions on Jan 7 to encourage usage |
| Term ABS Loan Facility (TALF) | 11/25/2008 | <ul style="list-style-type: none"> ■ Non-recourse loans to investors who purchase new consumer ABS; partly capitalized by TARP | <ul style="list-style-type: none"> ■ First loans to be dispersed on March 25 |
| Primary Credit Facility | n/a | <ul style="list-style-type: none"> ■ Traditional discount window; makes overnight and term loans (90 day max) against broad range of collateral | <ul style="list-style-type: none"> ■ \$67bn outstanding |

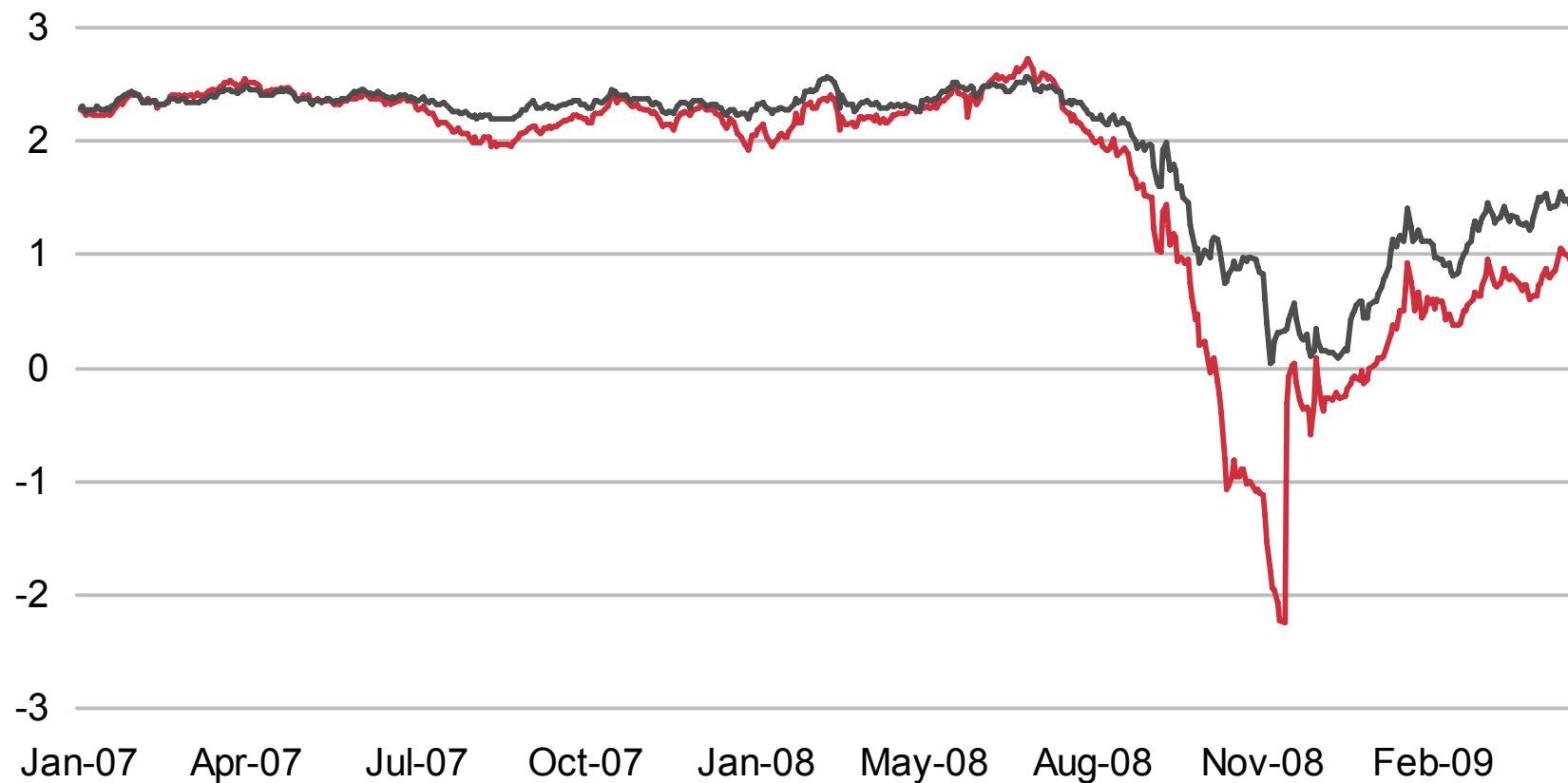
Source: Nomura

| | Announced | Summary | Latest |
|---|------------|---|---|
| Foreign Currency Swap Lines | 12/12/2007 | <ul style="list-style-type: none"> Dollar swaps with foreign central banks to facilitate dollar loans to non-US banks | <ul style="list-style-type: none"> Authorized with central banks of Euro area, Canada, Japan, Switzerland, the UK, Australia, Denmark, Norway, Sweden, New Zealand, Brazil, Mexico, Korea, Singapore; more than \$755bn authorized with \$315bn currently drawn upon |
| Maiden Lane Portfolios I, II and III | 3/24/2007 | <ul style="list-style-type: none"> Portfolios holding distressed assets of Bear Stearns (Maiden Lane I) and AIG (II and III); assets held at market value, quarterly marks | <ul style="list-style-type: none"> Maiden Lane I (BSC assets) holds \$26bn; ML II (AIG RMBS) holds \$19bn; ML III (AIG CDOs) holds \$28bn |
| Supplementary Financing Program | 9/17/2008 | <ul style="list-style-type: none"> Auctions Cash Management-like bills and deposits proceeds at Fed in order to drain excess reserves; accommodates balance sheet expansion | <ul style="list-style-type: none"> \$200bn outstanding; New administration had not made clear their plans for this program, |
| Interest rates on bank reserves | 10/6/2008 | <ul style="list-style-type: none"> Allows Fed to pay interest on required and excess bank reserves; accommodates balance sheet expansion; rate on required reserves is average target rate; rate on excess reserves is minimum target rate | <ul style="list-style-type: none"> Excess reserves ~\$675bn; program more successful lately keeping funds rate near target |
| Open market purchases of agency debt and MBS | n/a | <ul style="list-style-type: none"> Fed always had statutory right for outright agency purchases but rarely exercised (except through daily repo operations); began buying agency discount notes again in September, MBS on Jan 5 | <ul style="list-style-type: none"> \$38bn agency debt purchased (of \$100bn); \$190bn of MBS purchases (of \$500bn) but only \$69bn appears on balance sheet as not yet settled |
| Troubled Asset Relief Program (TARP) | ~9/20/2008 | <ul style="list-style-type: none"> Treasury program; originally intended to purchase distressed mortgages, program instead focused on injecting equity into banks & automakers | <ul style="list-style-type: none"> Future plans now incorporated into Financial Stability Program; funding plans for new bank recapitalization effort still not clear |

Source: Nomura

Winning the War Against Deflation

Market-implied inflation expectations (%)



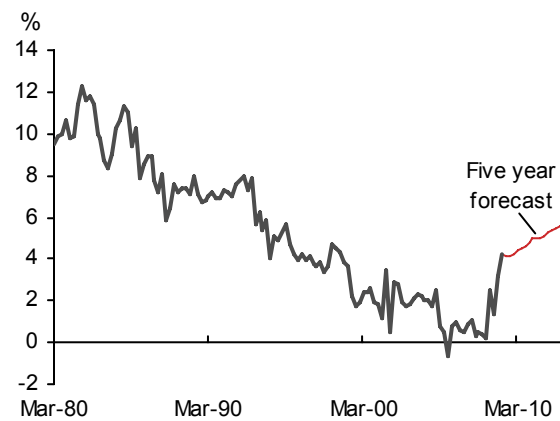
— Five-year average

— Ten-year average

Note: Nominal US Treasury yield less TIPS/inflation-indexed yield

Source: Nomura Global Economics.

Savings rate



Source: BEA: Nomura

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