Why Is the Recovery from the Financial Crisis So Sluggish?

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Pittsburgh
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U.S. Employment Rate for Workers Aged 25 through 54
PAYROLL EMPLOYMENT RELATIVE TO LOWEST VALUE IN THE CYCLE

![Graph showing the ratio of payroll employment to the lowest value in the cycle from 1980 to 1985. The graph plots the ratio against the months from the lowest value, with two lines representing current and 1980 to 1985 data.](image-url)
The basic story, phase I

Real-estate binge in the 2000s
Buildup of housing and consumer durables
Buildup of mortgage, car, and credit-card debt
Financial institutions thinly capitalized
The basic story, phase II

Real-estate prices began to fall in 2007 and have fallen ever since

Financial institutions failed because of declining asset values; others severely stressed

Credit to households dramatically tightened

Homebuilding and consumer spending declined sharply and remains low today
RATIOS OF CAPITAL AND DURABLES TO GDP

Housing and consumer durables

Business capital

Burden of Debt Service

The graph shows the burden of debt service as a percent of total consumption from 2000 to 2010. The burden fluctuates over time, with periods of increase and decrease.
Spread, in Percentage Points, between Business Loan Rates and Banks’ Borrowing Rate
Spread, in Percentage Points, between Credit-Card Rates and Banks’ Borrowing Rate
Spread, in Percentage Points, between Mortgage Rates and 10-year Treasurys
Indexes of Lending Standards Inferred from the FRB Senior Loan Officer Survey

![Graph showing indexes of lending standards over time for different types of loans: Mortgages, Credit cards, and Business loans. The graph illustrates the trends from 2003 to 2009.]
Index of Google Search Queries for the Term “withdrawal penalty”
Index of Google Search Queries for the Term “beer”
The near-exogeneity of inflation in today’s economy

Unemployment rate

One-year-ahead inflation forecast

1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009
ANNUAL PERCENT CHANGES IN OUTPUT AND PRICES, 2007 Q4 TO 2009 Q4

CD: Consumer durables
CN: Consumer nondurables
CS: Consumer services
IS: Business structures
IE: Equipment
IR: Homebuilding
XG: Goods exports
XS: Services exports
MG: Goods imports
MS: Goods services
FD: Federal defense
FN: Federal non-defense
SL: State and local
Real rate of interest

The real rate is the nominal rate minus the rate of inflation. Thus, if the nominal rate zero, the real rate is minus the rate of inflation. If the rate of inflation is exogenous, the real rate is pinned at minus the rate of inflation.
THE PROBLEM

Normal demand function

Supply function

Normal employment and normal interest rate
The problem

Normal demand function

Supply function

Normal employment and normal interest rate

Crisis demand function

Normal employment and low crisis interest rate

Employment
THE PROBLEM

The problem involves understanding the interaction between demand and supply functions under normal and crisis conditions. The graph illustrates the employment and interest rate dynamics:

- **Normal demand function**
  - Normal employment and normal interest rate

- **Crisis demand function**
  - Normal employment and low crisis interest rate

- **Supply function**

The graph shows how changes in interest rates affect employment levels under normal and crisis conditions.
The interest rate fails to do its job

Diagram showing the relationship between interest rate and employment, with the interest rate pinned at zero during a crisis.
A Long Period with the Nominal Short Rate Pinned at Zero
Monetary policy

Normal: Fed can stimulate by issuing more reserves, which causes banks to expand lending and lower interest rates.

Since October 2008: Fed has driven the safe nominal short rate to zero but pays a bit of interest on reserves, so banks just keep added reserves and the Fed cannot expand lending and push the interest rate below zero.

The Fed has some limited ability to lower longer-maturity interest rates by issuing reserves and using the proceeds to buy longer-maturity bonds—quantitative easing (QE).
## Effect of QE2 on Bond Interest Rates

<table>
<thead>
<tr>
<th>Security</th>
<th>Decline in interest rate, basis points</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-year Treasury bond</td>
<td>21</td>
</tr>
<tr>
<td>10-year Treasury note</td>
<td>30</td>
</tr>
<tr>
<td>5-year Treasury note</td>
<td>20</td>
</tr>
<tr>
<td>1-year Treasury bill</td>
<td>1</td>
</tr>
<tr>
<td>Long investment-grade corporate</td>
<td>19</td>
</tr>
<tr>
<td>Intermediate investment-grade corporate</td>
<td>16</td>
</tr>
<tr>
<td>Long junk corporate</td>
<td>13</td>
</tr>
<tr>
<td>Intermediate junk corporate</td>
<td>-17</td>
</tr>
</tbody>
</table>

A basis point is 1/100 of a percentage point
### Effect of QE2 on Expected Inflation

<table>
<thead>
<tr>
<th>Inflation swap, years into future</th>
<th>Increase in expected future inflation, basis points</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

A basis point is 1/100 of a percentage point
The Fed’s Exit Strategy and the Likelihood of Inflation

The Fed has bought more than $2 trillion in assets since the crisis.

Contrary to what you read in the financial press, this was not funded by printing money, but rather by borrowing from banks and paying interest on the loans (reserves).

When good times finally return, the Fed can use a combination of assets sales to retire reserves and raising the interest rate it pays on reserves—both would raise interest rates.

Because the Fed is adaptive—it looks at inflation and adjusts to offset it—there should be no concern about inflation resulting from its huge asset holdings.
Inflation outlook

Professional forecasters, 10 year: 2.2 percent
Consumer expectations, 5 to 10 year: 3.0 percent
Treasury inflation-protected breakeven, 5 year: 2.9 percent
The inflation hawks have failed to convince the professionals, consumers, or investors...
Fiscal policy: Government purchases

- Beginning of recession
- Stimulus bill passed

Billions of 2007 dollars

- Federal
- Sum of Federal, State, Local

Fiscal policy: Transfers

**Graph:**
- **X-axis:** Years (2007-IV, 2008-IV, 2009-IV)
- **Y-axis:** Billions of 2007 dollars

- **Event Labels:**
  - Beginning of recession
  - Stimulus bill passed
  - Extra Government Benefits to Individuals

- **Notes:**
  - Payments in 2007 dollars
  - Payments begin with the recession and rise after the stimulus bill passed.
### Effects of Fiscal Policy

<table>
<thead>
<tr>
<th></th>
<th>Purchases</th>
<th>Transfers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average federal stimulus, 2009Q2-2010Q1</td>
<td>58</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>Multiplier</td>
<td>2</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>Effect</td>
<td>115</td>
<td>176</td>
<td>291</td>
</tr>
<tr>
<td>GDP</td>
<td></td>
<td>14,338</td>
<td></td>
</tr>
<tr>
<td>Percent of GDP</td>
<td>0.8</td>
<td>1.2</td>
<td>2.0</td>
</tr>
<tr>
<td>Average GDP shortfall</td>
<td></td>
<td></td>
<td>8.2</td>
</tr>
<tr>
<td>Counterfactual GDP shortfall</td>
<td></td>
<td></td>
<td>10.2</td>
</tr>
</tbody>
</table>
A gradual switch to a consumption tax that is added to product prices rather than subtracted from factor incomes would make current consumption cheaper in nominal terms and eliminate the zero bound.
Explaining the excruciatingly slow recovery

Households are still constrained by debt incurred during the boom and by credit tightening from the financial crisis.

The Fed has done almost all that it can—another QE would have close to zero benefit.

No chance of conventional fiscal expansion; rather, possible cutbacks motivated by excessive federal debt

Even less chance of exotic, revenue-neutral expansion.
The main lesson is to avoid the regulatory lapses that caused the accumulation of housing, its associated debt load, and resulting frictions.

Dodd-Frank has given the federal government a lot of new tools to improve financial oversight, but it remains to see if they will be used effectively.
Material on rising structural unemployment if time permits
Total Factor Productivity
Ratio of UI Benefits to Median Earnings
Detrended Index of the Labor Force
Components of Decomposition of Movements of the Labor Force
Total of Components of Movements of the Labor Force, except Random Component

Estimation period through December 2007
Number of Job Openings
Efficiency of Matching Job-Seekers to Jobs
The Beveridge Curve

- December 2000 through July 2009
- August 2009 through August 2010

Job openings per member of labor force vs. Unemployment rate
COUNTERFACTUAL BEVERIDGE CURVE WITH NORMAL BEHAVIOR OF MATCHING EFFICIENCY
TWO MEASURES OF NUMBERS OF NEW HIRES PER QUARTER
Numbers of Workers Hired and Numbers of Quits, JOLTS
Ratio of JOLTS Hiring Rate and BED Job-Creation Rate together with Matching Efficiency

![Chart showing the ratio of JOLTS separations to BED separations and matching efficiency over the years 2001 to 2009.](image-url)
Fraction of Unemployed Who Quit Previous Jobs
Measuring Mismatch in the U.S. Labor Market

Ayşegül Şahin, Federal Reserve Bank of New York
Joseph Song, Federal Reserve Bank of New York
Giorgio Topa, Federal Reserve Bank of New York and IZA
Giovanni L. Violante, New York University, CEPR and NBER
Figure 8: Counterfactual Unemployment Rates: Industry

Unemployment without mismatch

U.S. Data

Counterfactual $M^h$