Understanding Policy in the Great Recession: Some Unpleasant Fiscal Arithmetic

by John H. Cochrane

Discussant: Todd B. Walker, Indiana University

AEA Meetings
January 9, 2011
MAIN POINTS

Paper answers the following questions.
Main Points

Paper answers the following questions.

- Why did a financial crisis lead to such a big recession?
- Will “fiscal stimulus” stimulate?
- Can the Fed undo the massive money expansion with open market purchases, or will it be hard to sell trillions of additional Treasury bills?
- What will a fiscal inflation look like?
- What are effects of government purchases of short-term government debt, long-term government debt, and private debt?
- What are effects of credit guarantees and nominal commitments to government employees?
- What is relationship between dynamic Laffer curve, growth inflation?
- How might debt and deficits translate into inflation?
- How might such an “open-market debt operation”; a switch of private for government debt without changing M, “stimulate” the economy?
- Will spending come too late?
- What is relationship between multiplier and expectation effects?
- Now that the financial crisis has passed, will we face inflation or deflation?
- Can the Federal Reserve fight deflation? Or will all its tools eventually run out?
- What about a “helicopter drop?” Surely causing inflation isn’t that hard, and dropping money from helicopters would do the trick?
- Quantitative easing and huge fiscal deficits were all tried, and did not lead to inflation or much stimulus. Why not?
- Why is the Fed so powerless?
- When the time comes to reverse course, will the Fed be willing to do so?
- Will the Fed be able to do so, or will we discover the fiscal limits to monetary policy?
- Will mounting fiscal deficits instead force the Fed to monetize even more debt?
- Will we see a fiscal inflation without current monetization, but based on a flight from the dollar, a fear of future monetization, as (3) describes? If so, what will such an event look like?
- If investors and the Treasury are also trying to sell, can the Fed sell additional trillions as well?
- Will the Feds “potential GDP” estimates, as in the 1970s, suggest large and illusory “gaps” remaining to be filled?
- Will the Fed interpret house and stock prices below their peaks as asset price deflation that counteracts goods and services inflation?
- Will the Fed continue to believe that expectations are anchored until they no longer are, when it is too late?
Does all this with 1 equation!!
Does all this with 1 equation!!

\[
\frac{M_t + B_t}{P_t} = E_t \int_{\tau=0}^{\infty} \frac{\Lambda_{t+\tau}}{\Lambda_t} (T_{t+\tau} - G_{t+\tau}) d\tau
\]  \hspace{1cm} (1)
Main Points

Does all this with 1 equation!!

\[
\frac{M_t + B_t}{P_t} = E_t \int_{\tau=0}^{\infty} \frac{\Lambda_{t+\tau}}{\Lambda_t} (T_{t+\tau} - G_{t+\tau}) d\tau
\]  

(1)

Ok, 1 1/2 equations
Main Points

Does all this with 1 equation!!

\[
\frac{M_t + B_t}{P_t} = E_t \int_0^\infty \frac{\Lambda_{t+\tau}}{\Lambda_t} (T_{t+\tau} - G_{t+\tau}) d\tau
\]  

(1)

Ok, 1 1/2 equations

\[
\frac{M_t + B_t}{P_t} = E_t \int_0^\infty \frac{\Lambda_{t+\tau}}{\Lambda_t} (T_{t+\tau} - G_{t+\tau}) d\tau
\]  

(2)

\[M_t V(i_t, \cdot) = P_t Y_t\]  

(3)
Main Points

Offers bleak outlook for CB.
Main Points

Offers bleak outlook for CB.

- central bank may be almost powerless to avoid deflation/inflation
Main Points

Offers bleak outlook for CB.

- central bank may be almost powerless to avoid deflation/inflation

- fiscal inflation can come well before large deficits or monetization are realized
Offers bleak outlook for CB.

- Central bank may be almost powerless to avoid deflation/inflation

- Fiscal inflation can come well before large deficits or monetization are realized

- Fiscal inflation is likely to come with stagnation
My Comments

1. Time-varying risk premia treated asymmetrically?
2. A Perpetual Youth Model
3. Can anything be done?
4. Political Uncertainty
TIME-VARYING RISK PREMIA

Interpretation of Great Recession: Surge in demand for *all* US government debt and money

\[
\frac{M_t + B_t}{P_t} = E_t \int_{\tau=0}^{\infty} \frac{1}{R_{t,t+\tau}} s_{t+\tau} d\tau
\]  

(4)
Time-Varying Risk Premia

Interpretation of Great Recession: Surge in demand for all US government debt and money

\[
\frac{M_t + B_t}{P_t} = E_t \int_{\tau=0}^{\infty} \frac{1}{R_{t,t+\tau}} s_{t+\tau} d\tau
\]  

\[ (4) \]

- Decline in discount rate decreases aggregate demand with same force as shock to surpluses
**Time-Varying Risk Premia**

Interpretation of Great Recession: Surge in demand for *all* US government debt and money

\[
\frac{M_t + B_t}{P_t} = E_t \int_{\tau=0}^{\infty} \frac{1}{R_{t,t+\tau}} s_{t+\tau} d\tau
\]

(4)

- Decline in discount rate decreases aggregate demand with same force as shock to surpluses

- Asset pricing literature has concluded time-varying discount rates account for essentially all stock market fluctuations
Interpretation of Great Recession: Surge in demand for all US government debt and money

\[
\frac{M_t + B_t}{P_t} = E_t \int_{\tau=0}^{\infty} \frac{1}{R_{t,t+\tau}} s_{t+\tau} d\tau
\]

(4)

- Decline in discount rate decreases aggregate demand with same force as shock to surpluses

- Asset pricing literature has concluded time-varying discount rates account for essentially all stock market fluctuations

- Explains Fed’s “open-market debt operations”
TIME-VARYING RISK PREMIA

Shouldn’t this mechanism work in reverse?
Shouldn’t this mechanism work in reverse?

- Paper argues stagflation most likely outcome
Shouldn’t this mechanism work in reverse?

- Paper argues stagflation most likely outcome
- Increase in discount rate increases aggregate demand with same force as shock to surpluses
TIME-VARYING RISK PREMIA

Shouldn’t this mechanism work in reverse?

- Paper argues stagflation most likely outcome
- Increase in discount rate increases aggregate demand with same force as shock to surpluses
- Perhaps credit channel (supply side) responsible for anemic recovery?
**FLIGHT-TO-QUALITY**

![Graph showing flight-to-quality with time-varying risk premia](image-url)
FLIGHT-TO-QUALITY

- 3 Mo Fin CP
- 3 Mo Govt
- 30 Yr Govt
Shouldn’t this mechanism work in reverse?

- Increase in discount rate increases aggregate demand with same force as negative shock to surpluses

- Perhaps credit channel (supply side) responsible for anemic recovery?

- Buffett: “I think short-term and long-term bonds are a very poor investment at the present time.” (November 17, 2010)
Replacing one stylized model with another [Alex Richter’s Dissertation]

- Perpetual Youth Model [Yaari (1965), Blanchard (1985)]
- Agents have some positive probability of death each period \( \vartheta \)
- Serves to break Ricardian equivalence
- Each member \( j \) of generation \( s \leq 0 \) maximizes

\[
E_0 \sum_{t=0}^{\infty} [\beta (1 - \vartheta)]^t \log \left[ c_{s,t}(j)^{1-\kappa} \left( \frac{m_{s,t}(j)}{P_t} \right)^{\kappa} - V(n_{s,t}(j)) \right]
\]
INNOVATION IN TRANSFERS

Lump Sum Financing, Breakdown of Ricardian Equivalence

Output (%)
Innovation in Transfers

Lump Sum Financing, Breakdown of Ricardian Equivalence

\[ \vartheta = 0.015 \]
INNOVATION IN TRANSFERS

Lump Sum Financing, Breakdown of Ricardian Equivalence

Output (%)

\( \vartheta = 0.045 \)
INNOVATION IN TRANSFERS

Lump Sum Financing, Breakdown of Ricardian Equivalence

\[ \vartheta = 0.075 \]
Term Structure: Output
TERM STRUCTURE: OUTPUT

Output (%)

One-Period Debt

Avg. U.S. Maturity

Output (%)

-0.25
-0.2
-0.15
-0.1
-0.05
0

Avg. U.S. Maturity
**TERM STRUCTURE: INFLATION**

![Graph showing the term structure of inflation](image)

- **Inflation (% point)**
- **One-Period Debt**

The graph illustrates the term structure of inflation over different periods, highlighting how one-period debt is influenced by varying risk premia and indexation uncertainty.
TERM STRUCTURE: INFLATION

Inflation (% point)

Avg. U.S. Maturity

One-Period Debt

0

0.02

0.04

0.06

0.08

0.1

0

10

20

30

40

50

0.02

0.04

0.06

0.08

0.1

0

10

20

30

40

50

0.02

0.04

0.06

0.08

0.1

0

10

20

30

40

50

0.02

0.04

0.06

0.08

0.1

0

10

20

30

40

50
Perpetual Youth Model

- Model results in stagflation (though not identical mechanism as discussed in paper)

- Term structure amplifies wealth effects and pushes more inflation into future

- Results are amplified with “fiscal limit”
Can anything be done?

- Some [Bohn (2010)] argue that fiscal pressures could be alleviated by issuing long-term inflation-indexed securities.
Can anything be done?

- Some [Bohn (2010)] argue that fiscal pressures could be alleviated by issuing long-term inflation-indexed securities.

- Would this negate the gloomy scenario / general theory of this paper?
Can anything be done?

- Some [Bohn (2010)] argue that fiscal pressures could be alleviated by issuing long-term inflation-indexed securities.

- Would this negate the gloomy scenario / general theory of this paper?

  Probably not entirely...perfect indexation very hard to achieve in practice

  1. Problems with CPI (Are TIPs the true risk-free asset?)
  2. Timing lags and expected inflation
WHAT WILL BE DONE?

- Fiscal policy is the central part of the theory
WHAT WILL BE DONE?

- Fiscal policy is the central part of the theory

- Political uncertainty is of the Knightian kind: Sargent (2006) replaces the probability triple with (?,?,?,?)
What will be done?

- Fiscal policy is the central part of the theory

- Political uncertainty is of the Knightian kind: Sargent (2006) replaces the probability triple with (?,?,?)

- E.g., within a week of the passage of the ARRA in February 2009, President Obama pledged to cut the federal deficit in half by 2013 (Calmes, 2009).
**WHAT WILL BE DONE?**

- Fiscal policy is the central part of the theory

- Political uncertainty is of the Knightian kind: Sargent (2006) replaces the probability triple with (? , ?, ?)

- E.g., within a week of the passage of the ARRA in February 2009, President Obama pledged to cut the federal deficit in half by 2013 (Calmes, 2009).

- Given importance of expectational effects highlighted in this paper, must think carefully about modeling stochastic processes.