Discussion of
“Evaluating the Cost of Government Credit Support: The OECD Context”
by Deborah Lucas

Javier Bianchi
University of Wisconsin & NBER

MFM Meeting on Soevereign Risk and Financial Stability,
NYU 2014
Cost of Government Credit Support

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Tim Geithner, 2014 in a WSJ article
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- How do we Measure the Cost of Government Credit Support?
- Important implications:
  - Efficient allocation of capital
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  - Enhance transparency, accountability, limits moral hazard
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- How do we Measure the Cost of Government Credit Support?
- Important implications:
  - Efficient allocation of capital
  - Enhance transparency, accountability, limits moral hazard
  - Fiscal sustainability, financial risk and sovereign risk
What does the Paper do?

- Document current OECD practices in reporting costs of credit-related activities

- Compare official estimates with fair/market value approach:
  - Tennessee Valley Authority, European Bank for Reconstruction Development, European Financial Stability Facility, European Financial Stability Mechanism

Bottom line: official measures largely underestimate costs

- Complements other studies focused on:
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Cost of Government Credit Support

How to measure it?

● ‘Fair Value’ versus Accounting Value

Accounting value looks at accounting profits, which are positive if returns exceed cost of debt financing. Fair value looks at economic profits, which are positive if returns exceed weighted average cost of capital (WACC). Gov. debt financing cost is lower than WACC ⇒ Accounting Value is higher than Fair Value. Official estimates underestimate costs.
Cost of Government Credit Support

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    $\Rightarrow$ Accounting Value is higher than Fair Value
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‘Fair Value’ vs Accounting Value

- Accounting value ignores the ”real” cost of capital
‘Fair Value’ vs Accounting Value

- Accounting value **ignores** the ”real” cost of capital
- Key Challenge: Cost of capital for the government?
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- Accounting value **ignores** the ”real” cost of capital
- Key Challenge: Cost of capital for the government?
- Deborah Lucas approach:
  - Taxpayer ultimately bears the risk
    - Discount flows at ⇒ market-based return
  - Relies on complete markets, Modigliani Miller
Methodology

- Estimate probability distribution of future cash flows
- Compute present discounted value using market-based return
- Applicable to debt guarantees, callable capital, etc
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Abstracts from:

- Differences between private and social risk diversification
- Market failures, externalities, general equilibrium effects, etc.
A Simple Model

Illustrate:

- ‘Right’ discount rate to evaluate government support
- Cost, bailouts, and optimality
A Simple Model

- Illustrate:
  - ‘Right’ discount rate to evaluate government support
  - Cost, bailouts, and optimality
- Bottom line: cost of government support may be the wrong welfare measure during financial crisis
Households problem:

\[
\begin{align*}
\max_{c_1, c_2, b, g} & \quad c_1 + c_2 \\
\text{s.t.} & \quad c_1 = Y - b \\
& \quad c_2 = b + \pi
\end{align*}
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Firms (t = 2)

\[
\pi = \max_k A k^\alpha - r^k k
\]
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Banks \((\bar{z} \text{ mean return on risky assets in unit fixed supply})\):

\[ \max_{k, b, a_2} r^k k - b + a_2 \bar{z} \]

\[ \text{s.t.} \quad k + qa_2 \leq a_1 q + b \]

\[ b \leq \bar{B} \]
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\quad b \leq \bar{B}
\]
Introduce Government

- At $t = 1$, issues debt and buys risky asset $a^g_2$ at arbitrary price $\tilde{q}$

$$\text{Gov. IBC} :: \tilde{q}a^g_2 + b^g \leq a^g_2 z + b^g + T$$
Introduce Government

- At $t = 1$, issues debt and buys risky asset $a^g_2$ at arbitrary price $\tilde{q}$
- At $t = 2$, repays debt, collects return of assets and return proceeds to households

Gov. $IBC :: \tilde{q}a^g_2 + b^g \leq a^g_2z + b^g + T$
- **Households** problem (using $R = 1$):

  $$\max_{c_1,c_2,b,bg} c_1 + c_2$$

  $$c_1 = Y - b$$

  $$c_2 = b + \pi +$$

- **Firms** ($t = 2$)

  $$\max Ak^\alpha - r^k k$$

- **Banks** ($\bar{z}$ mean return on risky assets in unit fixed supply):

  $$\max_{\{k,b,a_2\}} r^k k - b + a_2 \bar{z}$$

  s.t.  $$k + qa_2 \leq a_1 q + + b$$

  $$b \leq \bar{B}$$
- **Households** problem (using $R = 1$):

\[
\max_{c_1, c_2, b, b^g} c_1 + c_2 \\
\]

\[
c_1 = Y - b - b^g \\
\]

\[
c_2 = b + b^g - T/2 \\
\]

- **Firms** $(t = 2)$

\[
\max A k^\alpha - r^k k \\
\]

- **Banks** ($\bar{z}$ mean return on risky assets in unit fixed supply):

\[
\max_{\{k, b, a_2\}} r^k k - b + a_2 \bar{z} - T/2 \\
\]

\[
s.t. \quad k + qa_2 \leq (a_1 - a_2^g)q + \tilde{q}a_2^g + b \\\n\]

\[
b \leq \bar{B} \]
• **Households** problem (using $R = 1$):

\[
\begin{align*}
\max_{c_1, c_2, b, b^g} & \quad c_1 + c_2 \\
\text{subject to} & \quad c_1 = Y - b - b^g \\
& \quad c_2 = b + b^g - T/2
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• **Firms** ($t = 2$)

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\text{s.t.} & \quad k + qa_2 \leq (a_1 - a_2^g)q + \tilde{q}a_2^g + b \quad (\lambda) \\
& \quad b \leq \bar{B} \quad (\mu)
\end{align*}
\]
Optimality conditions:

\[ k :: \alpha Ar^k = \lambda \]
\[ a_2 :: \bar{z} = \lambda q \]
\[ b :: 1 + \mu = \lambda \]
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  b &:: 1 + \mu = \lambda \\
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\[
\frac{\bar{z}}{q} = 1 + \mu \Rightarrow \text{Liquidity Premium}
\]
- **Non-binding** borrowing constraint (Large \( \hat{B} \) case)

- All returns are equalized

\[
\frac{\bar{z}}{q} = r^k = 1
\]

Asset price is given by

\[
q = \frac{1}{\bar{z}}
\]
- **Non-binding** borrowing constraint (Large $\hat{B}$ case)
- All returns are equalized

$$\frac{\bar{z}}{q} = r^k = 1$$

Asset price is given by

$$q = \frac{1}{\bar{z}}$$

**Remarks:**
- No effects from gov. purchases on asset prices (Ric. eq)
• Non-binding borrowing constraint (Large $\hat{B}$ case)

• All returns are equalized

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\frac{\overline{z}}{q} = r^k = 1
\]

Asset price is given by

\[
q = 1/\overline{z}
\]

Remarks:

• No effects from gov. purchases on asset prices (Ric. eq)

• NPV for gov. credit support is negative iff $\tilde{q} > q$
• **Binding** borrowing constraint (low \( \hat{B} \) case)

• Recall \( q = \frac{\bar{z}}{(1+\mu)} \)

**Remarks:**

• Gov. credit support relaxes borrowing constraint (\( \downarrow \mu, \uparrow q \))
  
• Binding borrowing constraint (low \( \hat{B} \) case)

• Recall \( q = \frac{\bar{z}}{(1+\mu)} \)

Remarks:

• Gov. credit support relaxes borrowing constraint (\( \downarrow \mu, \uparrow q \))

• Effects on asset prices and investment are increasing on \( \tilde{q} \) and decreasing on government return

• Bottom line: government losing money is good for the economy (but taxpayers here are still hurt)
Cost of Government Credit Support

Net Present Value

- NPV for private sector

\[ \tilde{z} \left( \frac{1}{1 + \mu} - q \right) = 0 \]
Cost of Government Credit Support

Net Present Value

- NPV for private sector

\[ \frac{z}{1 + \mu} - q = 0 \]

- NPV for government

\[ z - \tilde{q} = ? \]

- Government discounts at lower rate...

- ... but buys at inflated prices

⇒ Fair value could be lower or higher than accounting value
Cost vs. Optimality

- If fiscal cost of government support is not always the “right” measure, how do we measure optimal credit support?
Cost vs. Optimality

- If fiscal cost of government support is not always the “right” measure, how do we measure optimal credit support?
- Need to focus on distortions
- Quantitative model that trades-off benefits of credit support with costs:
  - Households unwilling to do unilateral transfer to businesses
  - Distortionary costs from taxation
  - Moral hazard effects
- Bianchi (2012): Optimal bailout about 1 percent
Cost vs. Optimality

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- Quantitative model that trades-off benefits of credit support with costs:
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- Bianchi (2012): Optimal bailout about 1 percent
- Also role for international bailouts: Fornaro (2014), Farhi Werning (2013), Brunnermeier and Sannikov (2014)
Final Remarks

- Important paper, sheds light on pressing policy issues!
- Adjust methodology to reflect different liquidity premium by the government?
- Would be interesting to find ways to measure empirically social value of government support including GE effects