Perspectives on the World’s Largest Financial Institution

and the new MIT Center for Finance and Policy

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Agenda

- The MIT Center for Finance and Policy
- Perspectives on the World’s Largest Financial Institution
- Discussion
Why is there a need for the MIT Center for Finance and Policy (CFP)?

- The recent crisis underscored the importance of the financial system to the global economic growth, and also revealed some of its weaknesses.
- Governments’ role in allocating capital and regulating financial markets is large and expanding.
- Yet, policymakers and employees in public-sector financial institutions often lack the financial savvy and training of their public sector counterparts.
- The research and education programs of the CFP will help fill this gap and provide much needed support for the policymakers and government officials.
What will be the CFP’s focus and structure?

• Broad mission is to produce and disseminate:
  
  – **Original and timely research** at intersection of finance and policy that will lead to improved decision-making by policy-makers and regulators

  – **Innovative educational materials** and curricula that will make financial education relevant and accessible to students of public policy, employees of public institutions, and policymakers
What will be the CFP’s focus and structure?

- Research will cover three main content areas
  - Evaluation and management of **government financial institutions**
    - e.g., government loans and guarantees, state pensions, sovereign wealth funds
  - **Regulation** of financial markets and institutions
    - e.g., evaluation of proposed rule changes, development of methods to identify emerging risks
  - Measurement and control of **systemic risk**
    - e.g., forensics on causes of crashes
    - Consortium for Systemic Risk Analytics
Academics have studied government as a regulator of financial institutions.
But relatively little work has been done on the government as major financial institution in its own right...
The government as a financial institution

- The U.S. government is the world’s largest financial institution

- It has a first-order effect on the distribution of risk and allocation of capital in the economy through its financial activities

- The same fundamental issues arise as for private financial institutions...
  - How should it assess its cost of capital?
  - How should its financial activities be accounted for?
  - What are the systemic/macroeconomic effects of its activities?
  - Are the institutions well-managed?
  - Are its financial products well-designed (e.g., conforming mortgages, student loans)?
    - Consumer protection and behavioral finance
    - Systemic risk
    - Pricing
Largest bank holding companies

Largest Bank Holding Companies by Assets (6/30/2011, $000s)

- BANK OF AMERICA
- JPMORGAN CHASE
- CITIGROUP
- WELLS FARGO
- GOLDMAN SACHS
Federal direct and guaranteed loans outstanding topped $2.3 trillion in 2010

Figure 1: Total Non-Emergency Federal Loans Outstanding (Direct and Guaranteed) by Category: 1998-2010

Source: Budget of the U.S. Government, Analytical Perspectives, FY2001-2012, as reported in Uncle Sam in Pinstripes, by Douglas Elliott.
Including the mortgages held or guaranteed by Fannie Mae and Freddie Mac brings the total to over $8 trillion in 2010.

Figure 2: Total Federal Loans and GSE Obligations Outstanding (Direct and Guarantees): 1998-2010

Largest federal credit activities

- Excludes the Federal Reserves emergency lending facilities
- Excludes federal health/life/P&C insurance
Largest financial institutions

Assets or Insured Obligations ($000s)

- Federal Government
- Bank of America
- JPMorgan Chase
- Citigroup
- Wells Fargo
- Goldman Sachs
Expanded federal balance sheet including direct loans and guarantees (2010)

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treasury debt held by public</td>
</tr>
<tr>
<td>Direct loans</td>
<td>828</td>
</tr>
<tr>
<td>Guaranrodeed loans</td>
<td>1,867</td>
</tr>
<tr>
<td>Mortgages guaranteed or held by Fannie Mae and Freddie Mac</td>
<td>5,321</td>
</tr>
<tr>
<td>Other federally backed credit (FDIC, FHLBs, FCS, PBGC, Federal Reserve loans and SIVs)*</td>
<td>10,140</td>
</tr>
<tr>
<td>Taxpayer/stakeholder equity</td>
<td>-8,232</td>
</tr>
</tbody>
</table>
Assessing costs and benefits

- The government’s tail risk exposure is enormous
- But most of the time the realized costs will turn out to be small
- How should the costs and benefits be assessed?

Distribution of credit losses

Government (Gov't), Debt, Equity
Assessing costs and benefits

- **Potential benefits**
  - Superior ability to spread catastrophic risks
  - Provide credit to entities facing “credit rationing”

- **Potential costs**
  - Direct costs from bearing losses
  - Indirect costs
    - Misallocation of capital, crowding out of private capital
    - Incentives for greater risk-taking
    - Subsidies and risks that are not transparent to policymakers and the public

- **Benefits are evaluated in the political process, direct costs in the budgetary process.**
Accounting for costs

“… I found myself awkwardly defending the federal fisc from both on- and off-balance sheet attacks … With each new topic I confronted, I tried to engage my counterparts in the language of finance, risk and exposure but found myself treated as if I were speaking a foreign language completely unrecognizable to the indigenous population…”

“I compared the federal government to “a gigantic insurance company (with a side line business in national defense and homeland security) which does its accounting on a cash basis – only counting premiums and payouts as they go in and out the door.” For good measure, I noted: ‘An insurance company with cash accounting is not really an insurance company at all. It is an accident waiting to happen.’ ”

Peter Fisher, former Under Secretary of Treasury for Domestic Finance and Managing Director, Fixed Income, BlackRock
Accounting for costs

• Similar programs are accounted for in a variety of ways:
  – Some on a cash basis
  – Others on a naïve accrual basis
    • Federal Credit Reform Act of 1990 or FCRA
  – And a few at fair value

• Most governments, including the U.S., use their borrowing rate as their cost of capital.
  – This accounting practice is special to the public sector.
  – It systematically understates costs to taxpayers of those programs.

• Fair value estimates of cost (that use a risk-adjusted cost of capital) provide a more comprehensive metric.
Why the government’s cost of capital exceeds Treasury rates

- The government makes a direct loan for $100 million, due in one year, notionally funded with Treasury debt.
- Loan interest rate = Treasury rate = 3%

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risky loan $100m</td>
<td>Treasury Debt $100m</td>
</tr>
</tbody>
</table>
Why the government’s cost of capital exceeds Treasury rates

- Notional balance sheet at end of the year if the loan pays off in full:

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash $103m</td>
<td>Treasury Debt $103m</td>
</tr>
</tbody>
</table>
Why the government’s cost of capital exceeds Treasury rates

- Notional balance sheet at end of the year if the loan defaults and recovery is only $73:

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash $73m</td>
<td>Treasury Debt $103m</td>
</tr>
<tr>
<td></td>
<td>Taxpayers -$30m</td>
</tr>
</tbody>
</table>

- Treasury borrowing costs are low because of taxpayer backstop.
- Taxpayers are equity partners in federal credit obligations.
- The government’s cost of capital is a weighted average of the cost of debt and equity (as for a private sector firm).
- “Fair value” estimates calculated using risk-adjusted discount rates provide a more accurate picture of costs.
Projected costs under three different budgetary treatments tell very different stories:

Example:
Fannie Mae and Freddie Mac

Table 1.

<table>
<thead>
<tr>
<th>Projections of Mandatory Outlays for Fannie Mae and Freddie Mac Under Alternative Budgetary Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(By fiscal year, in billions of dollars)</td>
</tr>
<tr>
<td>FCRA      -6  -5  -5  -5  -4  -4  -4  -4  -4  -4</td>
</tr>
<tr>
<td>Fair Value 14  9  5  4  4  4  4  4  4  4</td>
</tr>
<tr>
<td>Cash       20  10  0  -2  -5  -4  -5  -7  -7  -8</td>
</tr>
</tbody>
</table>

Source: Congressional Budget Office.
Note: Numbers do not add up to totals because of rounding.
Example:
Fannie Mae and Freddie Mac

• Fair value treatment reduces budgetary impediments to privatization
  – Under naïve accrual or cash accounting turning F&F into a government agency would show continuing profits for government; under fair value it would show costs
  – Under naïve accrual accounting liquidating GSE portfolio at market prices would show losses; under fair value it would be largely neutral

• The inconsistent treatment across different federal programs causes additional problems
  – Budgetary gains from steering borrowers to FHA instead of to F&F
Accounting for costs, some conclusions

• Improving how costs of loans and guarantees are accounted for is important
• Nevertheless, the costs are small relative to the size of the guaranteed obligations
• Estimated **total subsidy cost** of new direct and guaranteed loans in traditional credit programs in 2013:
  – Under naïve accrual the programs **lower the deficit by $45 billion**
  – On a fair value basis they **increase the deficit by $11 billion**

• **How should the broader impact of the programs be measured?**
Assessing the macroeconomic impact

• The impact of federal credit support on the macro economy is
  – much larger than its subsidy cost
  – much smaller than the volume of federally-backed credit
  – conceptually, the volume of incremental expenditures
  – tricky to estimate

• Credit policy can have a large indirect fiscal effect because it increases aggregate borrowing and spending
  • Particularly important during periods of financial distress
How much did federal credit increase aggregate borrowing and spending during the great recession?

• The aggregate change in borrowing has three components:

\[ dB = dA + S(dB/dS) - C \]

• \( dA \) = amount not available w/o programs
• \( S(dB/dS) \) = demand response to subsidy \( S \)
• \( C \) = crowding out of other borrowing

• Conclude that \( dB = $559 \) billion in 2010.
How much did federal credit increase aggregate borrowing and spending during the great recession?

- A portion of new borrowing went to paying down existing debt
  - refinancing mortgages

- I estimate the **increase in aggregate spending and investment** due to federal credit programs to be **$342 billion**
  - An approximation of the stimulus effect of federal credit policy
  - Economy was well below full employment
  - Effects would be much smaller in a normal year

- Similar in size to the stimulus under ARRA of $392 billion, but much less expensive.
  - Credit programs as automatic stabilizers?

- See “Credit Policy as Fiscal Policy,” D. Lucas, manuscript, MIT
Coming full circle

• This illustrates the critical need for education and knowledge related to financial policy.

• A goal is for MIT’s new Center for Finance and Policy (CFP) to start filling some of those gaps…
Pioneers of Finance For Over 40 Years

- Black-Scholes-Merton derivative pricing model
- Modigliani-Miller theorems on corporate financing and valuation
- Cox-Ingersoll-Ross model of the term structure of interest rates
Why is MIT the right place for the CFP?

- MIT Sloan’s Finance Group has long been regarded as a leader in tackling difficult challenges with fresh ideas and innovative research strategies.

- MIT has the necessary gravitas in economics, political science, and engineering to address the many complex and cross-cutting issues relating to financial policies.

- Drawing on the expertise, experiences, and relationships of MIT’s faculty, the CFP will be an excellent partner for key policy institutions in the public sector (e.g., Office of Financial Research, SEC, Treasury, Federal Reserve).
What will be the CFP’s focus and structure?

- Interdisciplinary approach
  - Managed by finance group, but key players will include faculty and students across MIT
    - computer science, economics, political science, engineering
  - International as well as domestic focus
What will be the CFP’s focus and structure?

• Governance
  – Advisory board of MIT faculty, industry and public sector leaders

• Fellows
  – A group of affiliated Fellows will contribute to the CFP’s work and serve as ambassadors to their respective communities

• Management
  – Key finance faculty: Deborah Lucas (director), Andrei Kirilenko, Andrew Lo, Robert Merton
Some recent and planned CFP activities

• **Outreach**
  – Finance Day in London and Shanghai
  – Alumni events

• **Visiting speakers**
  – Tim Geithner (Treasury secretary)
  – Mary Miller (Treasury under secretary domestic finance)

• **Education**
  – SIP class “The Future of Housing Finance: Policies, Prospects, and Opportunities”

• **Conferences and research**
  – Planning inaugural conference for autumn 2013
  – Several research projects with students under way
Thank you!