Flows of Funds Thru Financial System (Mishkin fig. 2-1)

Loans

INDIRECT FINANCE

FUNDS

Financial Intermediaries

FUNDS

Lender-Savers
1. Households
2. Business firms
3. Government
4. Foreigners

FUNDS

Financial Markets

FUNDS

Borrower-Spenders
1. Business firms
2. Government
3. Households
4. Foreigners

DIRECT FINANCE

Purchases of stock/bond initial public offerings
Financial Crisis ("Bank Crisis")

- A major disruption in financial markets characterized by
  - A sharp decline in asset prices
  - Failures of many financial & nonfinancial firms
Financial Crises Throughout World Since 1970
(Mishkin Figure 11-2)

The Cost of Rescuing Banks in Several Countries (Mishkin Table 11-2)

<table>
<thead>
<tr>
<th>Date</th>
<th>Country</th>
<th>Cost as a Percentage of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980–1982</td>
<td>Argentina</td>
<td>55</td>
</tr>
<tr>
<td>1997–2002</td>
<td>Indonesia</td>
<td>55</td>
</tr>
<tr>
<td>1990s–ongoing</td>
<td>China</td>
<td>47</td>
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<tr>
<td>1996–2000</td>
<td>Jamaica</td>
<td>44</td>
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<tr>
<td>1981–1983</td>
<td>Chile</td>
<td>42</td>
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<td>1997–2002</td>
<td>Thailand</td>
<td>35</td>
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<tr>
<td>1993–1994</td>
<td>Macedonia</td>
<td>32</td>
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<tr>
<td>2000–ongoing</td>
<td>Turkey</td>
<td>31</td>
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<tr>
<td>1977–1983</td>
<td>Israel</td>
<td>30</td>
</tr>
<tr>
<td>1997–2002</td>
<td>South Korea</td>
<td>28</td>
</tr>
<tr>
<td>1988–1991</td>
<td>Cote d’Ivoire</td>
<td>25</td>
</tr>
<tr>
<td>1991–ongoing</td>
<td>Japan</td>
<td>24</td>
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<tr>
<td>1994–1995</td>
<td>Venezuela</td>
<td>22</td>
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<td>1998–2001</td>
<td>Ecuador</td>
<td>20</td>
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<td>Mexico</td>
<td>19</td>
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<td>1997–2001</td>
<td>Malaysia</td>
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<td>1992–1994</td>
<td>Slovenia</td>
<td>15</td>
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<tr>
<td>1998–ongoing</td>
<td>Philippines</td>
<td>13</td>
</tr>
<tr>
<td>1994–1999</td>
<td>Brazil</td>
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<tr>
<td>1995–2000</td>
<td>Paraguay</td>
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<tr>
<td>1989–1991</td>
<td>Czech Republic</td>
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<td>1997–1998</td>
<td>Taiwan</td>
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<td>1991–1994</td>
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<td>1989–1990</td>
<td>Jordan</td>
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<td>1991–1995</td>
<td>Hungary</td>
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<td>1990–1993</td>
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<td>1991–1994</td>
<td>Sweden</td>
<td>4</td>
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<tr>
<td>1988–1991</td>
<td>United States</td>
<td>3</td>
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</tbody>
</table>

Key Puzzle About Many Observed Financial Crises

- How can a country shift so dramatically from a path of reasonable growth before a financial crisis to a sharp decline in economic activity after a crisis occurs?

- **Possible Explanation:** Role of *positive feedback (reinforcement)* in which an initial shock (trigger event) leads to subsequent events that amplify the original shock.

  **Example:** Deflation reduces borrowing for new spending, which further deflates prices.
What Caused 1929-1939 U.S. Great Depression?

Three Different Theories Proposed:

- Breakdown in financial system was simply a response to (not a cause of) an initial decline in aggregate output. (*not consistent with the empirical evidence*)

- U.S. Great Depression caused by a rapid decline in money supply -- inappropriate monetary policy. (*Monetarists,* e.g., Milton Friedman)

- General disruption occurred in financial markets that adversely affected aggregate output and prolonged the depression. (*Frederic Mishkin’s view*)

What caused the current “Great Recession”? 
### Bond Ratings by Moody's, Standard & Poor's, and Fitch

*(Mishkin, Table 6-1)*

<table>
<thead>
<tr>
<th>Rating</th>
<th>Moody's</th>
<th>S&amp;P</th>
<th>Fitch</th>
<th>Definitions</th>
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<tbody>
<tr>
<td>Aaa</td>
<td>AAA</td>
<td>AAA</td>
<td>AAA</td>
<td>Prime Maximum Safety</td>
</tr>
<tr>
<td>Aa1</td>
<td>AA-</td>
<td>AA-</td>
<td>AA-</td>
<td>High Grade High Quality</td>
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<td>Aa2</td>
<td>AA</td>
<td>AA</td>
<td>AA</td>
<td></td>
</tr>
<tr>
<td>Aa3</td>
<td>AA-</td>
<td>AA-</td>
<td>AA-</td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>A+</td>
<td>A+</td>
<td>A+</td>
<td>Upper Medium Grade</td>
</tr>
<tr>
<td>A2</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>A3</td>
<td>A-</td>
<td>A-</td>
<td>A-</td>
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</tr>
<tr>
<td>Baa1</td>
<td>BBB+</td>
<td>BBB+</td>
<td>BBB+</td>
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<tr>
<td>Baa2</td>
<td>BBB</td>
<td>BBB</td>
<td>BBB</td>
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<tr>
<td>Baa3</td>
<td>BBB-</td>
<td>BBB-</td>
<td>BBB-</td>
<td></td>
</tr>
<tr>
<td>Ba1</td>
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<td>BB+</td>
<td>BB+</td>
<td>Non Investment Grade</td>
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<tr>
<td>Ba3</td>
<td>BB-</td>
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</tr>
<tr>
<td>B1</td>
<td>B-</td>
<td>B-</td>
<td>B-</td>
<td>Highly Speculative</td>
</tr>
<tr>
<td>B2</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td></td>
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<td>B3</td>
<td>B-</td>
<td>B-</td>
<td>B-</td>
<td></td>
</tr>
<tr>
<td>Caa1</td>
<td>CCC+</td>
<td>CCC</td>
<td>CCC</td>
<td>Substantial Risk</td>
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<td>Caa2</td>
<td>CCC</td>
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<td>—</td>
<td>In Poor Standing</td>
</tr>
<tr>
<td>Caa3</td>
<td>CCC-</td>
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<td>—</td>
<td>Extremely Speculative</td>
</tr>
<tr>
<td>Ca</td>
<td>—</td>
<td>—</td>
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<td>Extremely Speculative</td>
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<tr>
<td>C</td>
<td>—</td>
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<td>May be in Default</td>
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</table>
The Making of a Mortgage CDO

The technology behind the collateralized debt obligation, or CDO, has been around since the 1980s, but only more recently has it been applied to mortgage-backed securities. It was designed to provide investors with greater diversification and disperse the risk of mortgage lending. But so-called mezzanine CDOs such as Norma actually served to magnify and concentrate the risk. Here is how they were made. Click on each step button below to learn more.

Step 1
The creator of a subprime residential mortgage-backed security — or RMBS — buys loans from all over the country, often from several different lenders. Several thousand loans go into one mortgage-backed security. Because the security combines the specific risks of all the individual loans into a single pool, its investors as a whole are less exposed to the potential problems of any one borrower.

Fitch Ratings scale

AAA       BB+       Not rated
AA+       BB       AA-       BBB+       Not rated
AA        BB-      A+        BBB       Not rated
AA-       BB-      A-        BBB-      Not rated
A         CCC+     B+        CCC       Not rated
A+        CCC-     B       CCC-       Not rated
A-        CCC+     B-        CCC-      Not rated
BBB+      Not rated BB       Not rated
BBB       Not rated BB-      Not rated
BBB-      Not rated BBB      Not rated

Subprime Mortgages

RMBS Trust
The technology behind the collateralized debt obligation, or CDO, has been around since the 1980s, but only more recently has it been applied to mortgage-backed securities. It was designed to provide investors with greater diversification and disperse the risk of mortgage lending. But so-called mezzanine CDOs such as Norma actually served to magnify and concentrate the risk. Here is how they were made. Click on each step button below to learn more.

Step 2
The residential mortgage-backed security repackages and redistributes the income from the loans among different classes of bonds. Highly rated bonds are the first to receive income and the last to suffer any losses, but they also offer the lowest return. Low-rated bonds pay a better return, but are also among the first to take any losses if borrowers renegade on the loans in the pool.

Fitch Ratings scale

- AAA
- AA+
- AA
- AA-
- A+
- A
- A-
- BBB+
- BBB
- BBB-
- Not rated

RMBS Trust

Subprime Mortgages

RMBS

AAA
AA
A
BBB

Mouse over the key elements for more info.
The Making of a Mortgage CDO

The technology behind the collateralized debt obligation, or CDO, has been around since the 1980s, but only more recently has it been applied to mortgage-backed securities. It was designed to provide investors with greater diversification and disperse the risk of mortgage lending. But so-called mezzanine CDOs such as Norma actually served to magnify and concentrate the risk. Here is how they were made. Click on each step button below to learn more.

Step 3

As many as 150 mortgage-backed bonds -- or other mortgage-linked investments -- are packaged into a single CDO. In the case of a mezzanine CDO, those investments are mostly linked to pieces of mortgage-backed securities that carry a rating of triple-B, just above junk. This boosts the yield the CDO can offer, but also makes its investors more vulnerable to losses.
The Making of a Mortgage CDO

The technology behind the collateralized debt obligation, or CDO, has been around since the 1980s, but only more recently has it been applied to mortgage-backed securities. It was designed to provide investors with greater diversification and disperse the risk of mortgage lending. But so-called mezzanine CDOs such as Norma actually served to magnify and concentrate the risk. Here is how they were made. Click on each step button below to learn more.

**Step 4**

Much like an RMBS, the CDO issues new bonds, each with its own level of risk and return. The pieces of the CDO with middling ratings like A or triple-B are often sold off to other CDOs.
The technology behind the collateralized debt obligation, or CDO, has been around since the 1980s, but only more recently has it been applied to mortgage-backed securities. It was designed to provide investors with greater diversification and disperse the risk of mortgage lending. But so-called mezzanine CDOs such as Norma actually served to magnify and concentrate the risk. Here is how they were made. Click on each step button below to learn more.

**Step 5**
Investors in the lower-rated pieces of a CDO are the last to get paid and the first to take losses. This protects investors in the higher-rated pieces, as long as all the CDO’s investments don’t go bad together. The similarity of the triple-B-rated investments in a mezzanine CDO, though, increases the likelihood that they will all suffer at once.
Credit rating firms initially gave their highest triple-A ratings to three-quarters of the securities Norma issued. But as house prices plummeted and defaults rose across the country, investors and analysts expectations of losses rose well into the range that would hit the triple-B investments that Norma contained. As a result, the value of investments in Norma plummeted, and rating companies downgraded bonds issued by Norma to junk.
“In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is long past the ocean is flat again”

J. M. Keynes *Tract on Monetary Reform* 1924
U.S. Federal Spending – Fiscal Year 2009 ($ Billion)

- Social Security: 678 (20%)
- Medicare & Medicaid: 676 (19%)
- Other Mandatory: 607 (17%)
- Other Discretionary: 437 (12%)
- Interest: 187 (5%)
- TARP: 151 (4%)
- Defense: 782 (23%)

Total: $3,518 B

Source: OMB - 2011 Budget - Summary Table S-3
U.S. Federal Receipts – Fiscal Year 2009 ($ Billions)

Total
$2,105 B

Individual Income Taxes
915
43%

Social Security & Social Insurance
891
42%

Corporate Income Taxes
138
7%

Other
62
3%

Excise taxes
99
5%

Source Data: OMB – 2011 Budget – Summary Table S-3
Estimated US Federal Government receipts and expenditures for 2010

Source: Kelvin Case, en.wikipedia
U.S. Federal Budget By Category %: Fiscal Year 2010

Source: Kelvin Case, en.wikipedia, 8/1/2010
The Risks of Growing Entitlement Spending

Sometime between 2030 and 2040, mandatory spending will exceed government revenues.

Source: GAO Citizen’s Guide 2007
Medicare and Social Security Face Large Deficits


Note: Projections based on the intermediate assumptions of the 2007 Trustees’ Reports. The CPI is used to adjust from current to constant dollars.
Education pays

Unemployment rate in 2009
- Doctoral degree: 2.5%
- Professional degree: 2.3%
- Master's degree: 3.9%
- Bachelor's degree: 5.2%
- Associate degree: 6.8%
- Some college, no degree: 8.6%
- High school graduate: 9.7%
- Less than a high school diploma: 14.6%
- Average, all workers: 7.9%

Median weekly earnings in 2009
- Doctoral degree: $1,532
- Professional degree: $1,529
- Master's degree: $1,257
- Bachelor's degree: $1,025
- Associate degree: $761
- Some college, no degree: $699
- High school graduate: $626
- Less than a high school diploma: $454
- Average, all workers: $774