

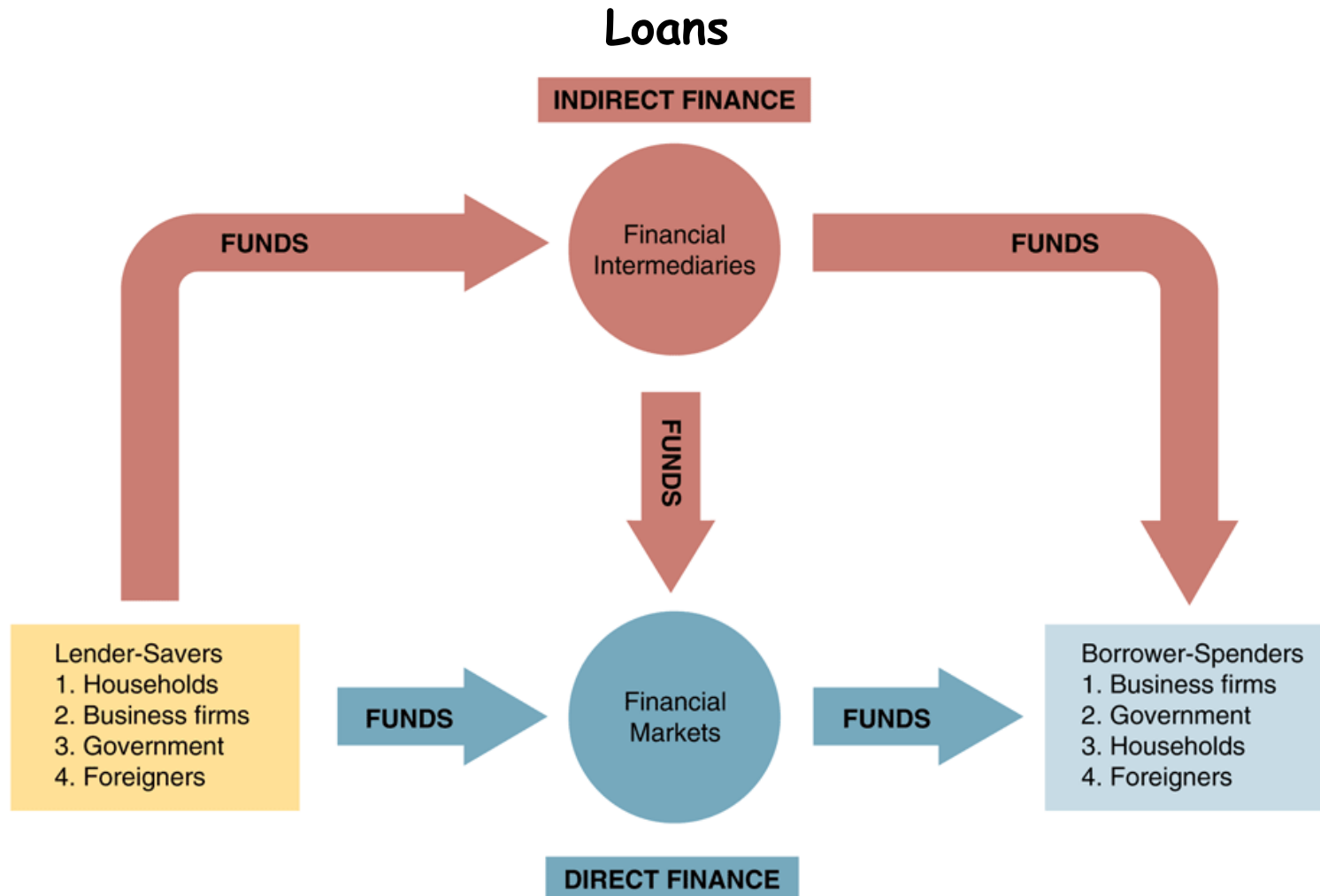


Empirical Data Packet No. 2 for Econ 353: Financial Crises

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



Purchases of stock/bond initial public offerings

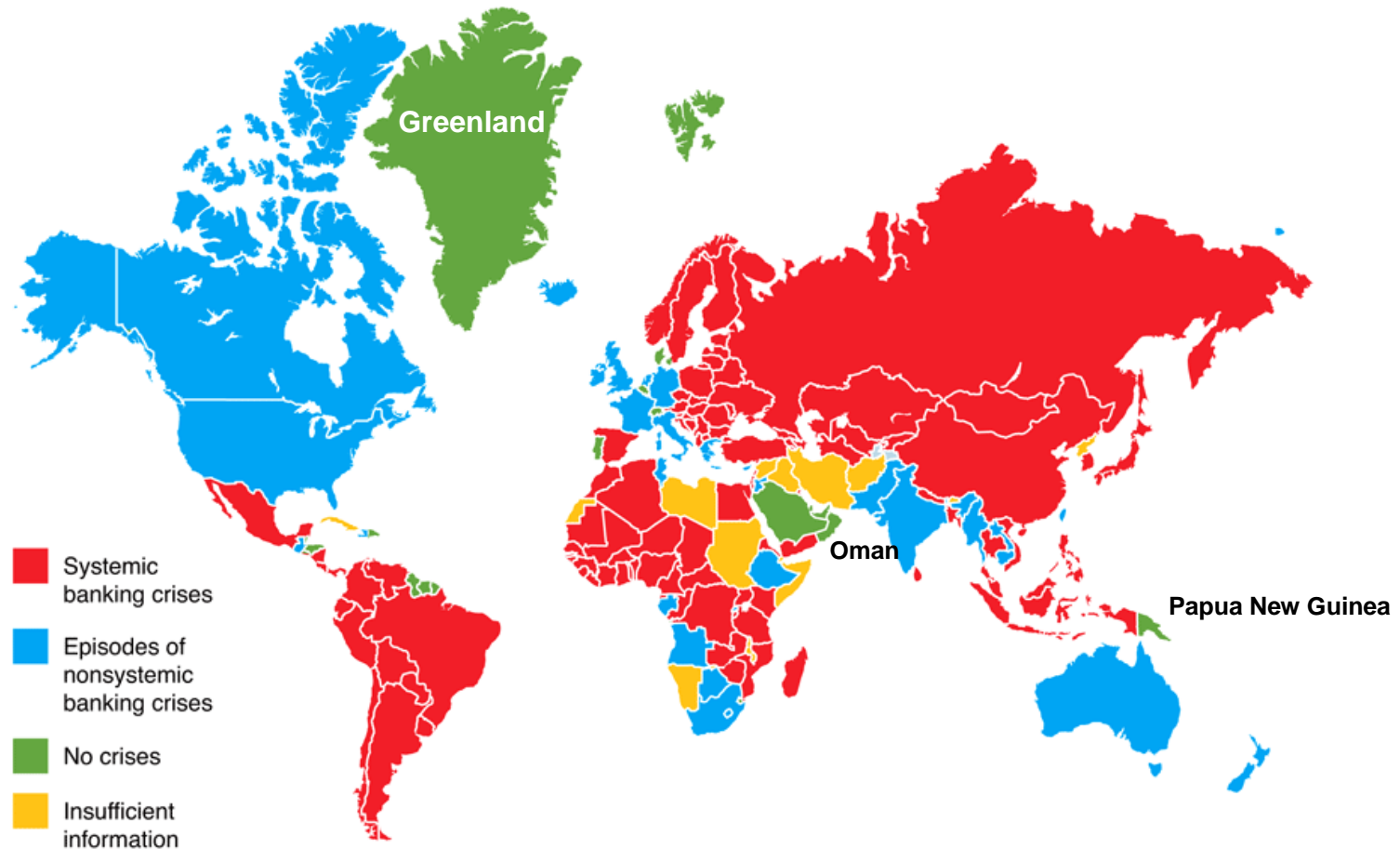


Financial Crisis ("Bank Crisis")

- 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)



Source: Gerard Caprio and Daniela Klingebiel, "Episodes of Systemic and Borderline Financial Crises" mimeo., World Bank, October 1999.

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

Date	Country	Cost as a Percentage of GDP
1980–1982	Argentina	55
1997–2002	Indonesia	55
1990s–ongoing	China	47
1996–2000	Jamaica	44
1981–1983	Chile	42
1997–2002	Thailand	35
1993–1994	Macedonia	32
2000–ongoing	Turkey	31
1977–1983	Israel	30
1997–2002	South Korea	28
1988–1991	Cote d'Ivoire	25
1991–ongoing	Japan	24
1994–1995	Venezuela	22
1998–2001	Ecuador	20
1994–2000	Mexico	19
1997–2001	Malaysia	16
1992–1994	Slovenia	15
1998–ongoing	Philippines	13
1994–1999	Brazil	13
1995–2000	Paraguay	13
1989–1991	Czech Republic	12
1997–1998	Taiwan	12
1991–1994	Finland	11
1989–1990	Jordan	10
1991–1995	Hungary	10
1990–1993	Norway	8
1991–1994	Sweden	4
1988–1991	United States	3

Source: Gerard Caprio, Daniela Klingebiel, Luc Laeven, and Guillermo Noguera, *Banking Crises Database* (updated October 2003), http://www1.worldbank.org/finance/html/database_sfd.html.



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)

Junk
(Below BBB) ↓

Rating			Definitions
Moody's	S&P	Fitch	
Aaa	AAA	AAA	Prime Maximum Safety
Aa1	AA-	AA-	High Grade High Quality
Aa2	AA	AA	
Aa3	AA-	AA-	
A1	A+	A+	Upper Medium Grade
A2	A	A	
A3	A-	A-	
Baa1	BBB+	BBB+	Lower Medium Grade
Baa2	BBB	BBB	
Baa3	BBB-	BBB-	Non Investment Grade
Ba1	BB+	BB+	
Ba2	BB	BB	
Ba3	BB-	BB-	Highly Speculative
B1	B-	B-	
B2	B	B	
B3	B-	B-	Substantial Risk
Caa1	CCC+	CCC	
Caa2	CCC	—	
Caa3	CCC-	—	In Poor Standing
Ca	—	—	
C	—	—	
—	—	DDD	Extremely Speculative
—	—	DD	May be in Default
—	D	D	Default

The Making of a Mortgage CDO

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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.

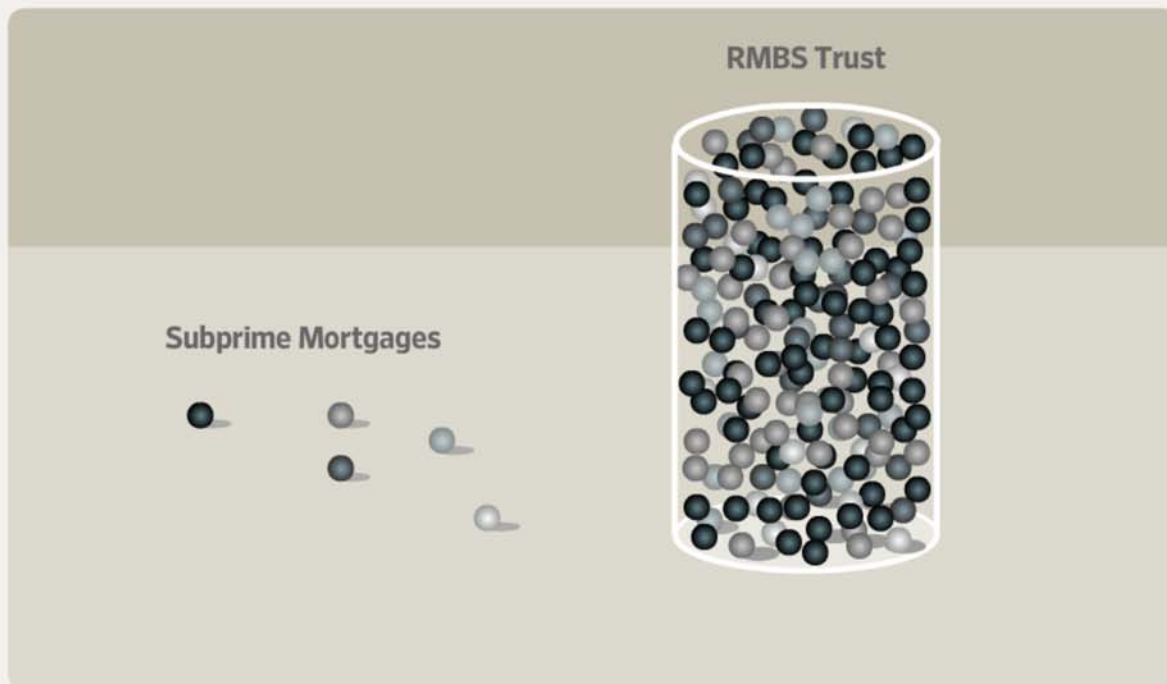
Fitch Ratings scale

AAA	BB+
AA+	BB
AA	BB-
AA-	B+
A+	B
A	B-
A-	CCC+
BBB+	CCC
BBB	CCC-
BBB-	CC

Mouse over the key elements for more info

Not rated

Step 1 Step 2 Step 3 Step 4 Step 5 Step 6



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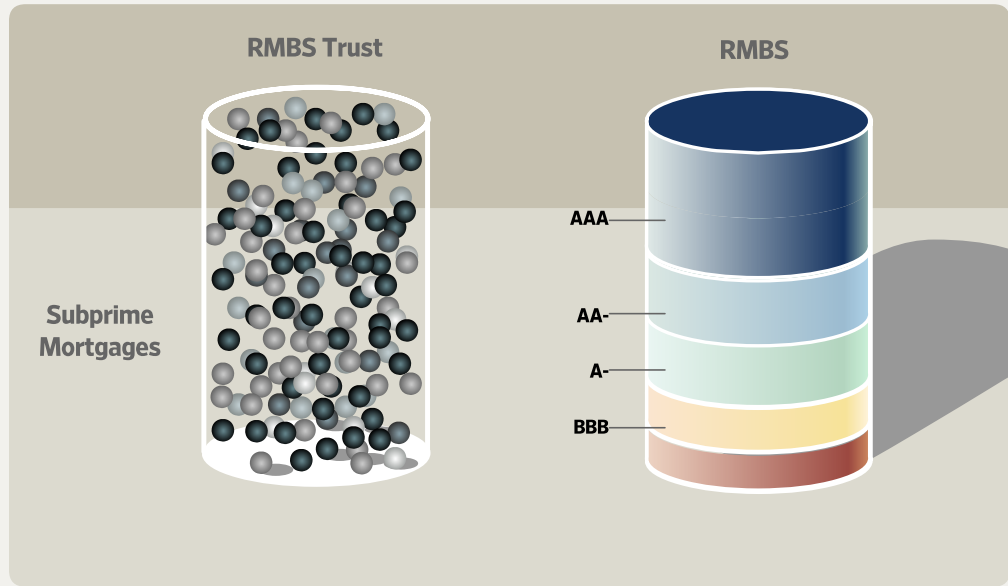
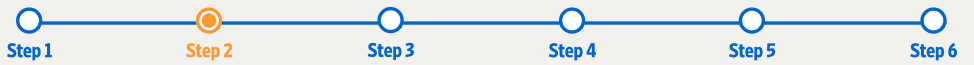


The Making of a Mortgage CDO

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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 renege on the loans in the pool.



Fitch Ratings scale

AAA	BB+
AA+	BB
AA	BB-
AA-	B+
A+	B
A	B-
A-	CCC+
BBB+	CCC
BBB	CCC-
BBB-	CC

Mouse over the key elements for more info

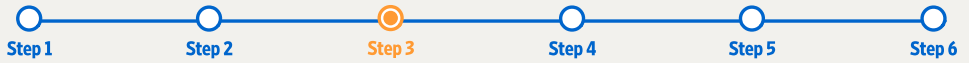
Not rated

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Step 3

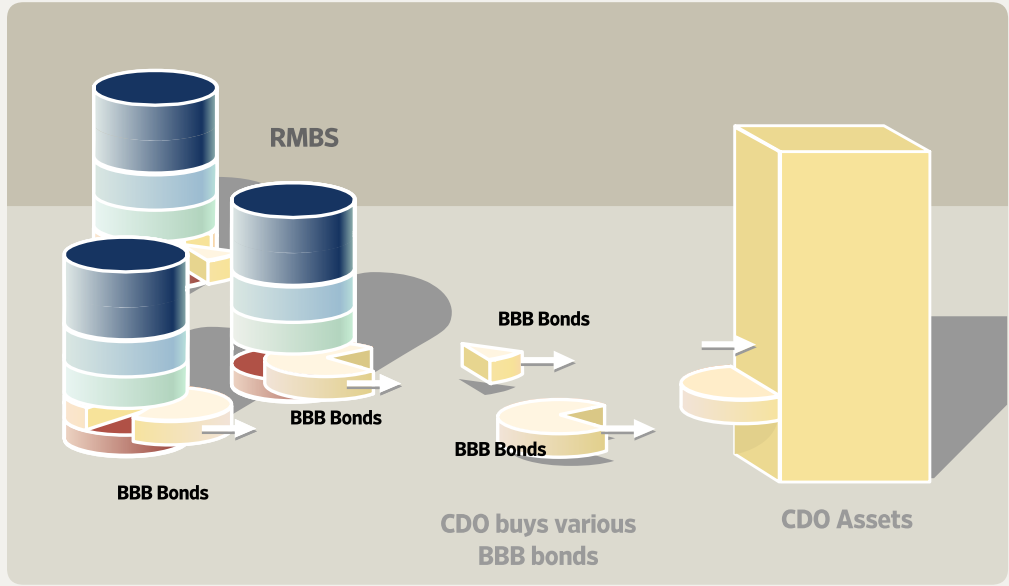
As many as 150 mortgage-backed bonds -- or other mortgage-linked investments -- are packaged into a single CDO. In the case of a mezzanine CDO, those investments are mostly linked to pieces of mortgage-backed securities that carry a rating of triple-B, just above junk. This boosts the yield the CDO can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



Fitch Ratings scale

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

Mouse over the key elements for more info

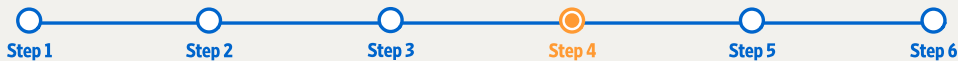


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Step 4

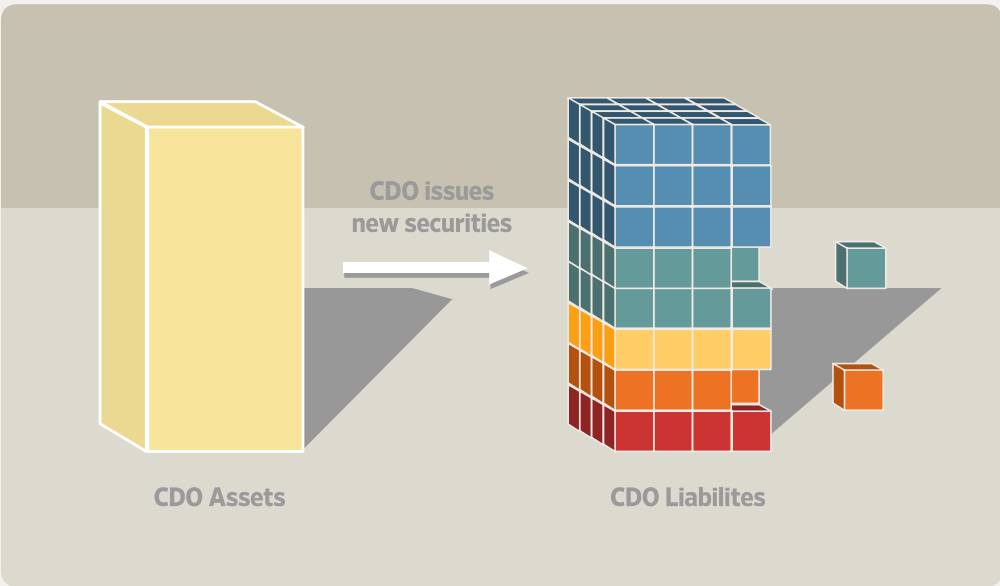
Much like an RMBS, the CDO issues new bonds, each with its own level of risk and return. The pieces of the CDO with middling ratings like A or triple-B are often sold off to other CDOs.



Fitch Ratings scale

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

Mouse over the key elements for more info

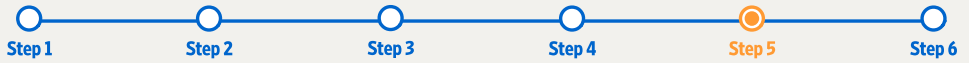


The Making of a Mortgage CDO

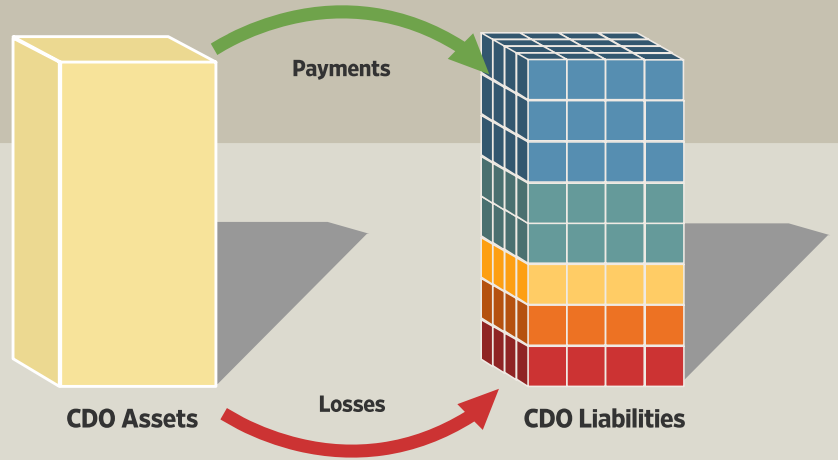
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Step 5

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.



Collateralized Debt Obligation (CDO) Structure



Fitch Ratings scale

AAA	BB+
AA+	BB
AA	BB-
AA-	B+
A+	B
A	B-
A-	CCC+
BBB+	CCC
BBB	CCC-
BBB-	CC

Mouse over the key elements for more info

Not rated

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Step 6

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.

Fitch Ratings scale

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

Mouse over the key elements for more info

NORMA Collateralized Debt Obligation (CDO) Structure

Tranche
(in millions of dollars)

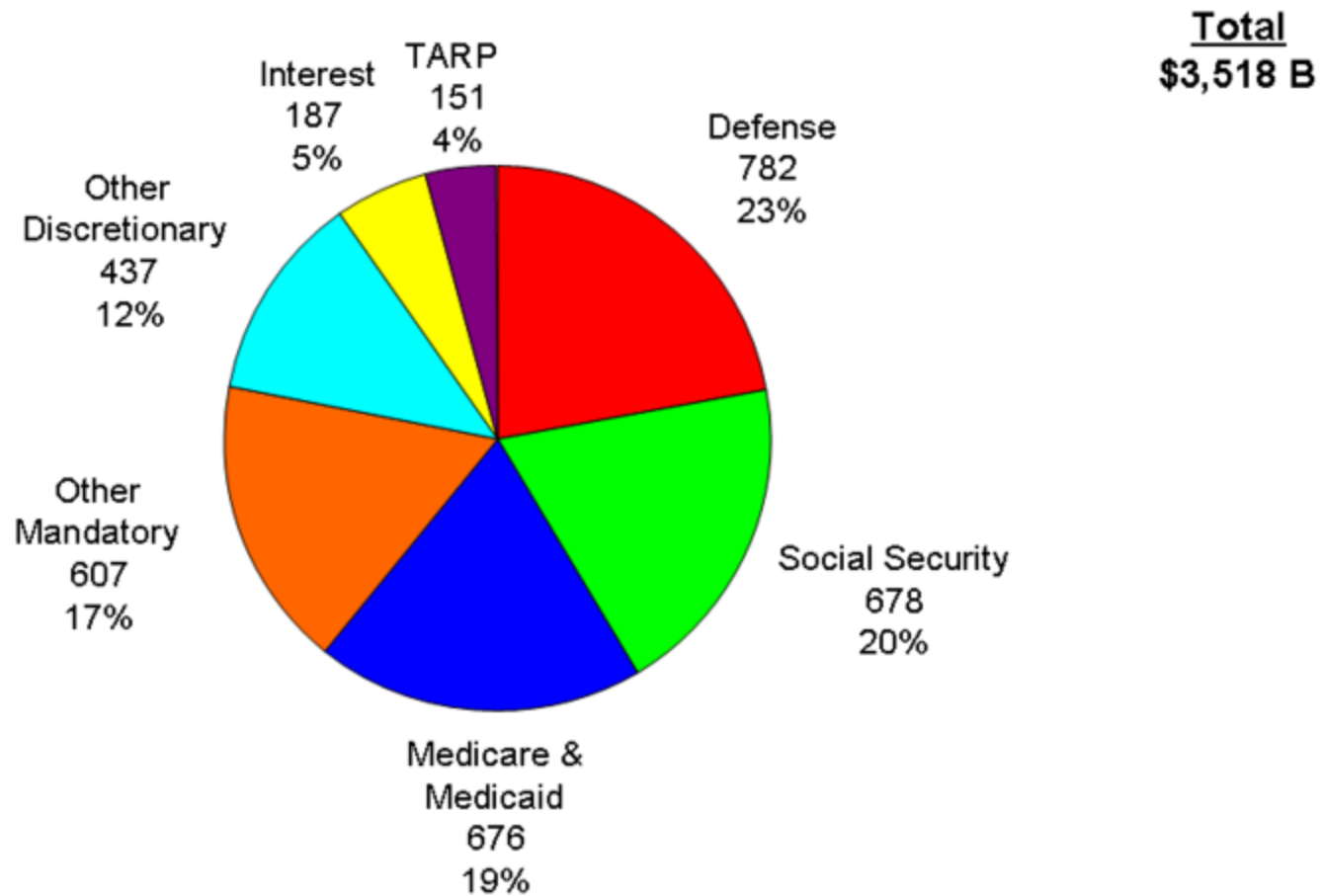
Initial Ratings
(March 2007)

Current Ratings

***“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”***

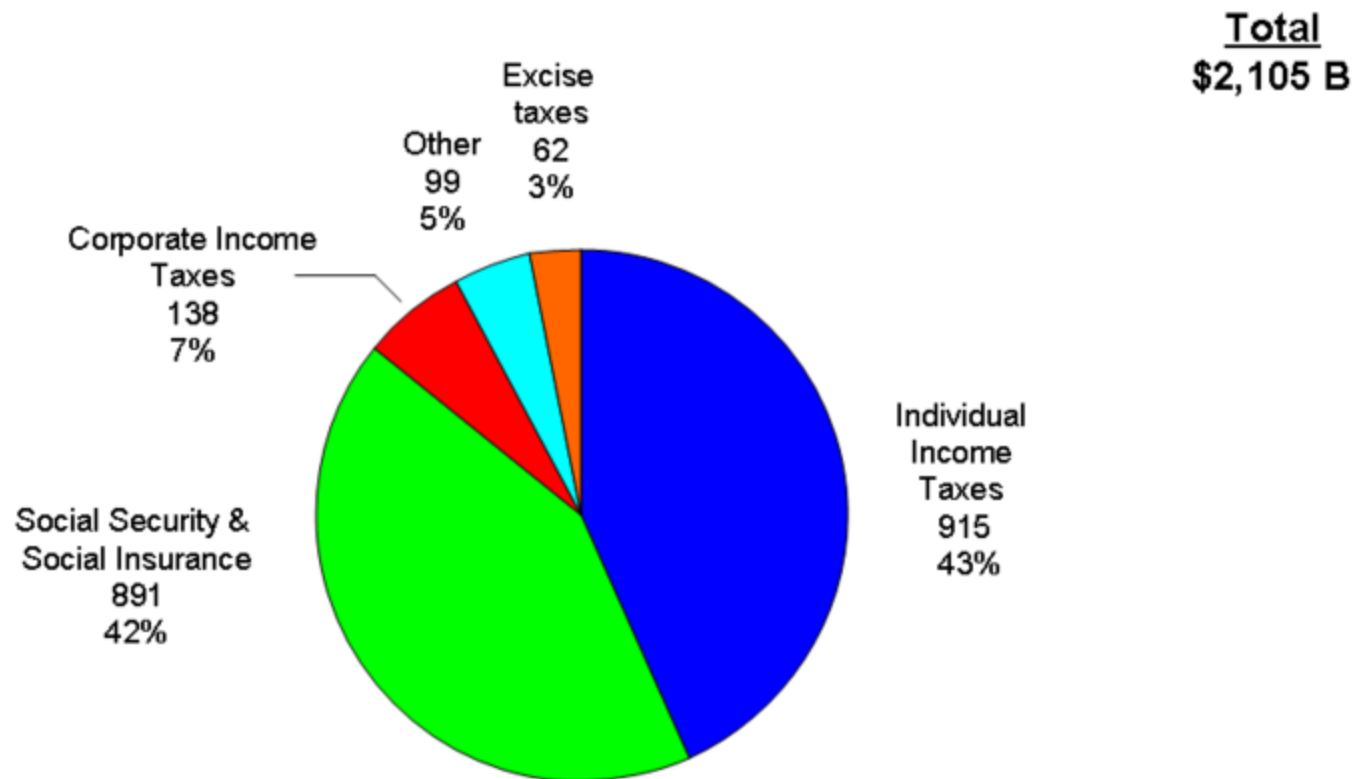
J. M. Keynes *Tract on Monetary Reform* 1924

U.S. Federal Spending – Fiscal Year 2009 (\$ Billion)



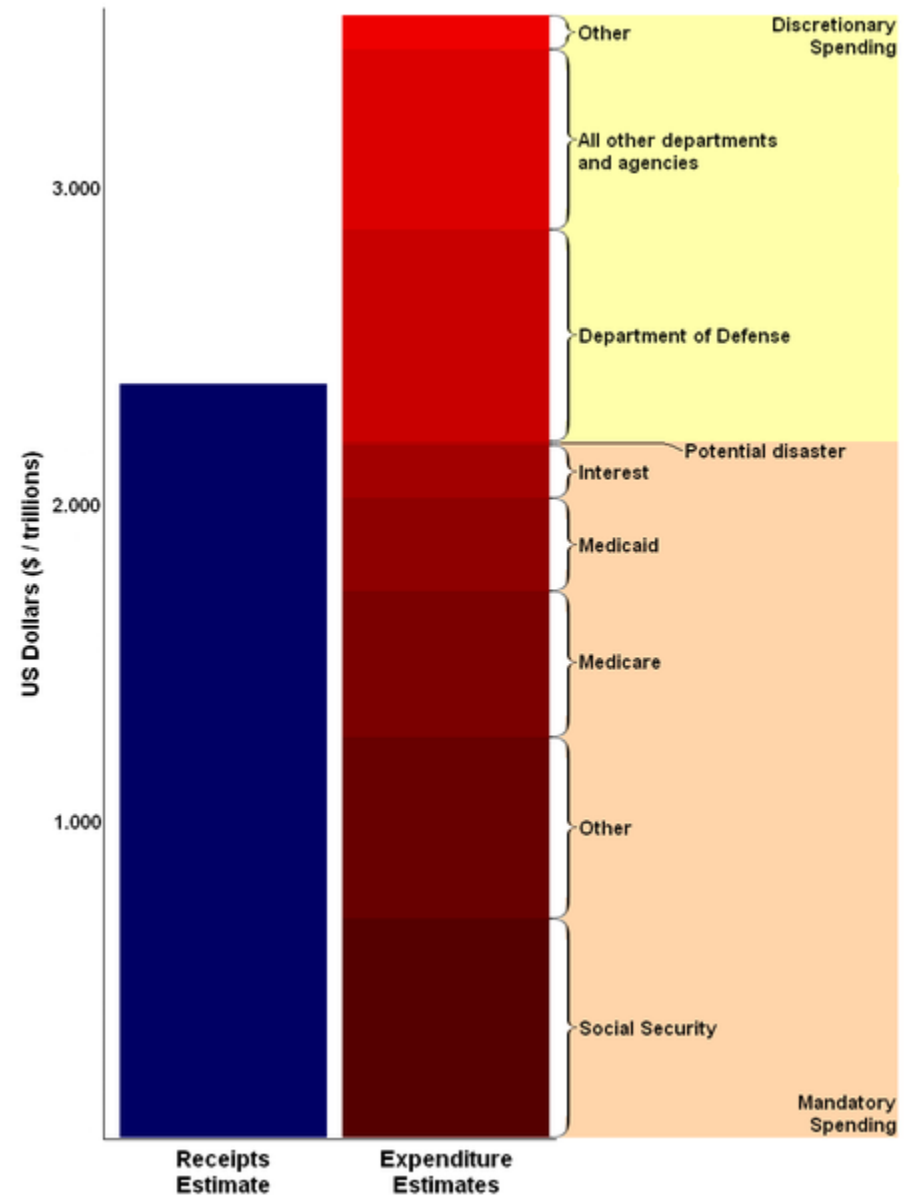
Source: OMB - 2011 Budget - Summary Table S-3

U.S. Federal Receipts – Fiscal Year 2009 (\$ Billions)



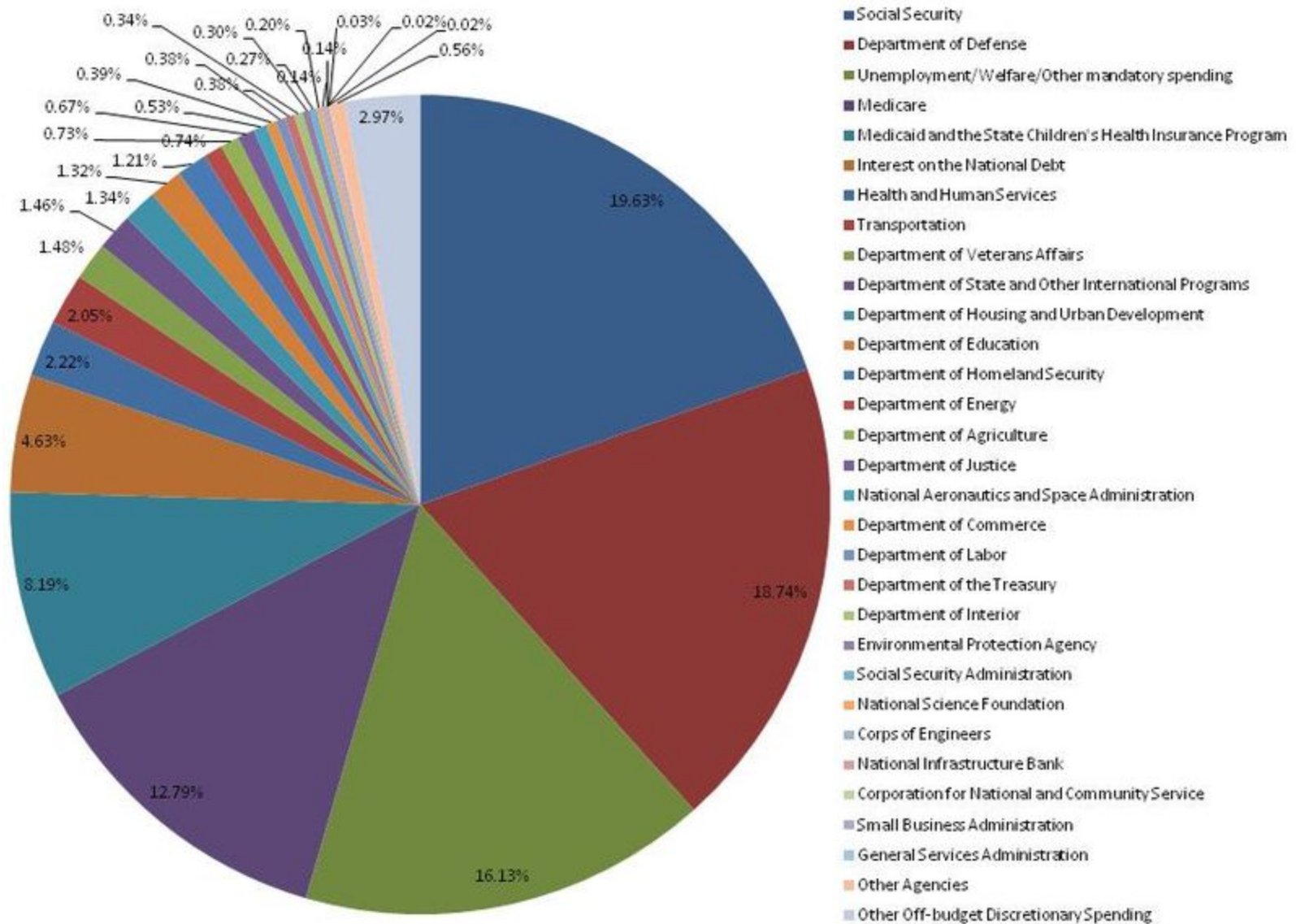
Source Data: OMB – 2011 Budget – Summary Table S-3

Estimated US Federal Government receipts and expenditures for 2010



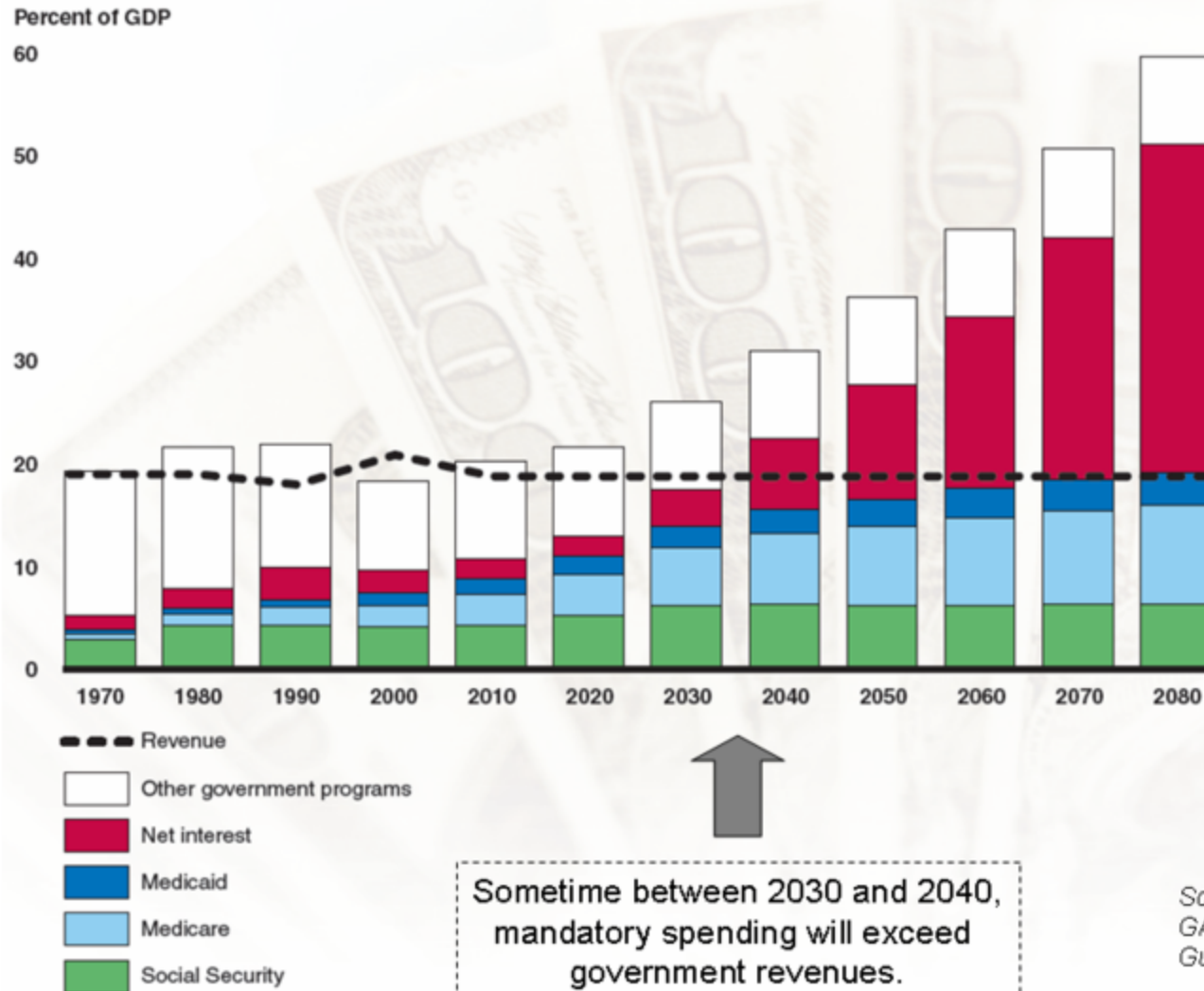
Source: Kelvin Case, en.wikipedia

U.S. Federal Budget By Category %: Fiscal Year 2010



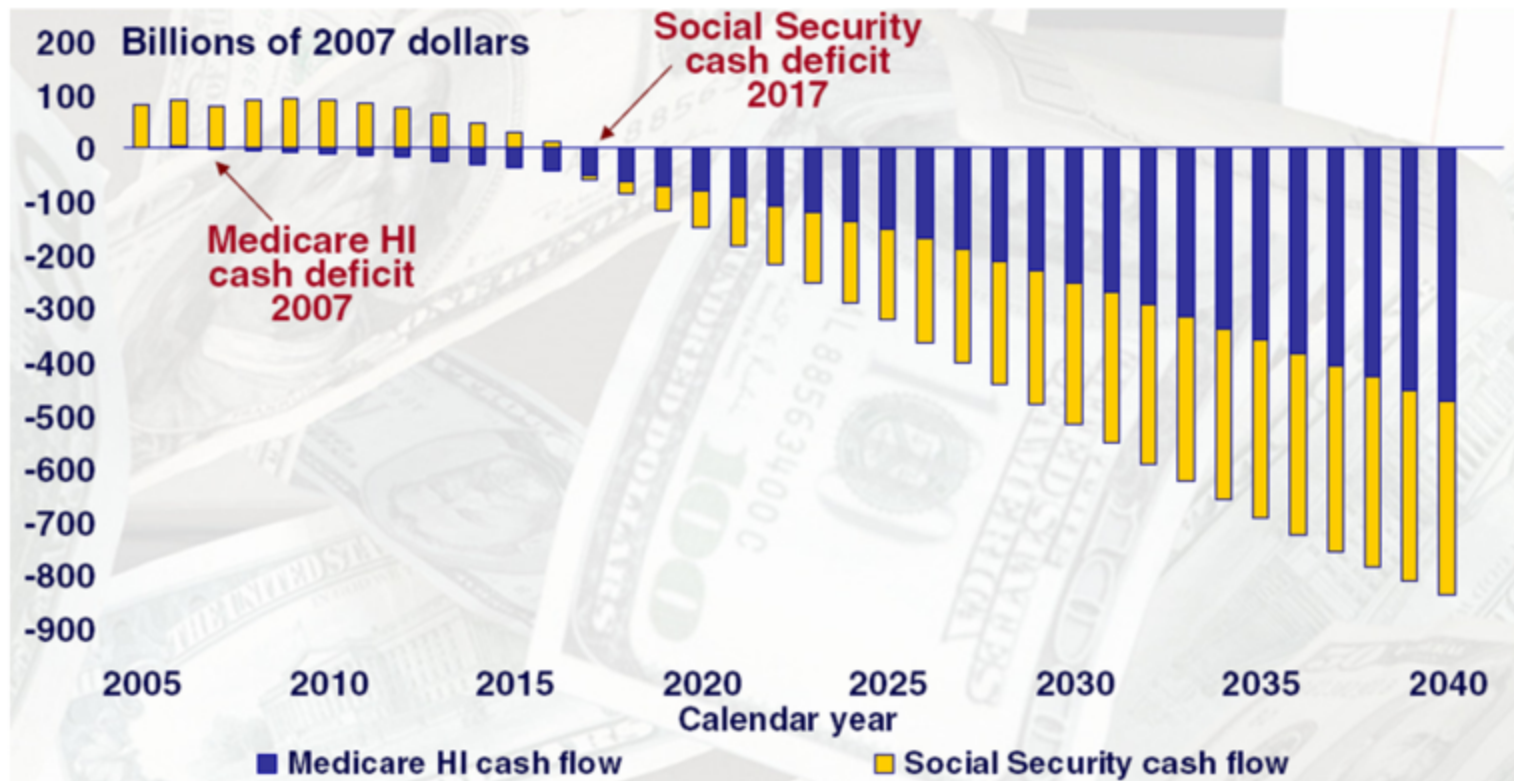
Source: Kelvin Case, en.wikipedia, 8/1/2010

The Risks of Growing Entitlement Spending



Source:
GAO Citizen's
Guide 2007

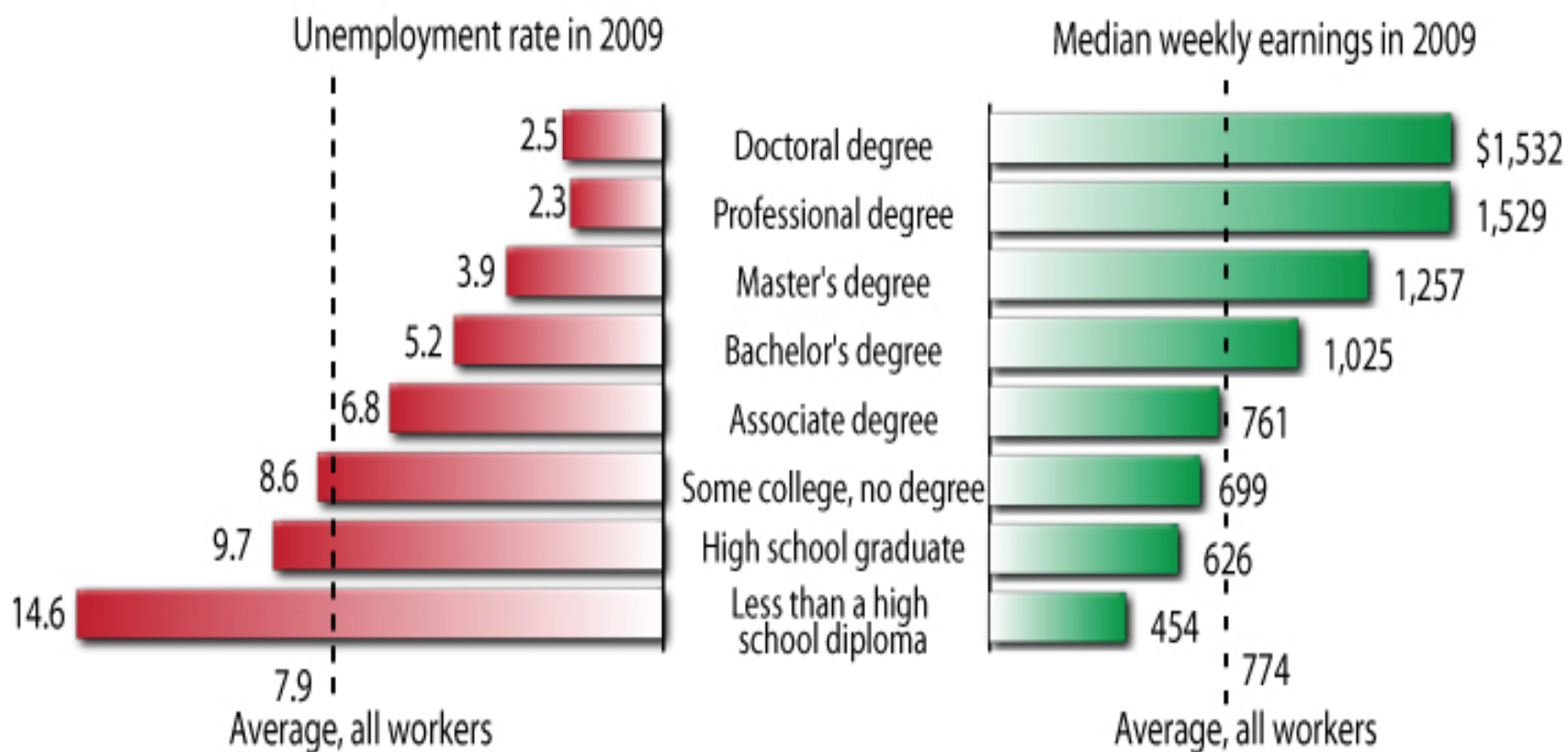
Medicare and Social Security Face Large Deficits



Source: GAO analysis of data from the Office of the Chief Actuary, Social Security Administration and Office of the Actuary, Centers for Medicare and Medicaid Services.

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



Source: Bureau of Labor Statistics, Current Population Survey