

**Capitalism,
Government,
Money,
and the
Future of
the World**

*Finding
and Keeping
the Right Balance
in
Market-Capitalist
Democracies*

Capitalism, Government, Money, and the Future of the World



A Brief Look
at the Economic
History of the
United States

The Panic of 2008:
What Happened?

Backdrop of steadily rising housing values feeds confidence

'Global savings glut'

Backdrop of apparent macroeconomic stability feeds confidence

Innovations in mortgage origination



Innovations in mortgage securitization

People willing to buy houses on speculation, to flip

Loosening of standards / gaming of standards

Principle of diversification as providing safety

Assumption that mortgage securities are very safe

Complexity of overall ecosystem discourages attempts at deep understanding, in real time

Profits so wonderful, no one wants to question the overall dynamic, or its sustainability

Use of vast leverage, to make HUGE amounts of money

It's 2004

Kaplan & Yourek LLP

- **Mini-investment partnership**
- **We go in as equal partners, each putting in \$2,000,000 in capital**
- **We can borrow \$120,000,000 on a rolling daily basis, in the 'repo' markets, at 3% interest, so at a cost of \$10,000 a day**
- **We can buy these things called mortgage-backed securities, that pay 5% interest. If we buy \$124,000,000 of them, that will be \$17,222 a day in income**
- **Our profit will therefore be: $\$17,222 - \$10,000 - \$413 = \6809 a day**

\$1,225,620 apiece per year

What are the risks? What could go wrong?

Some of our lenders in the repo markets might reduce our line of credit with them someday, for whatever reason

Some of the mortgages in our securities might default

House prices might decline, causing defaults and making it hard to sell the houses for enough to cover losses; the market value of our mortgage securities would therefore decline

We would have to find new lenders, or sell some of our securities and reduce the size of our business

The securities are backed by the real estate, as collateral

There's a company called AIG that will sell you insurance against your mortgage securities going down in value, and this insurance is a good deal: 0.12% per year

It's summer, 2008

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The market value of our securities is starting to go down

House prices are in sharp decline all over, indicating the likelihood that there has been a huge asset-price bubble in housing

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There's a company called AIG that will sell you insurance against your mortgage securities going down in value, and this insurance is a good deal: 0.12% per year

It's Friday, September 12, 2008

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Our lenders in the repo markets are worried about our collateral, so they all demand their money back

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House prices are in sharp decline all over, indicating the likelihood that there has been a huge asset-price bubble in housing

We look for other lenders, but the repo markets have completely dried up

We try to start selling our mortgage securities, but the market for them has completely disappeared

Oops! AIG didn't plan for a huge housing bubble; they don't actually have the money to pay out on all those credit-default swaps

It's Friday, September 12, 2008

- Mini-investme
- We go in as e
- We can borrow
- We can buy th
- Our profit will

**We can't sell our
mortgage securities**

**We can't pay off our lenders,
who all want their money
back on Monday**

**Our lenders in the
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**The market
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★ It's Monday, September 15, 2008

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Monday, September 15, 2008

**We can't sell our
mortgage securities**

**We can't pay off our lenders,
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back on Monday**

We file for bankruptcy

**Our lenders in the
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It was great while it lasted!

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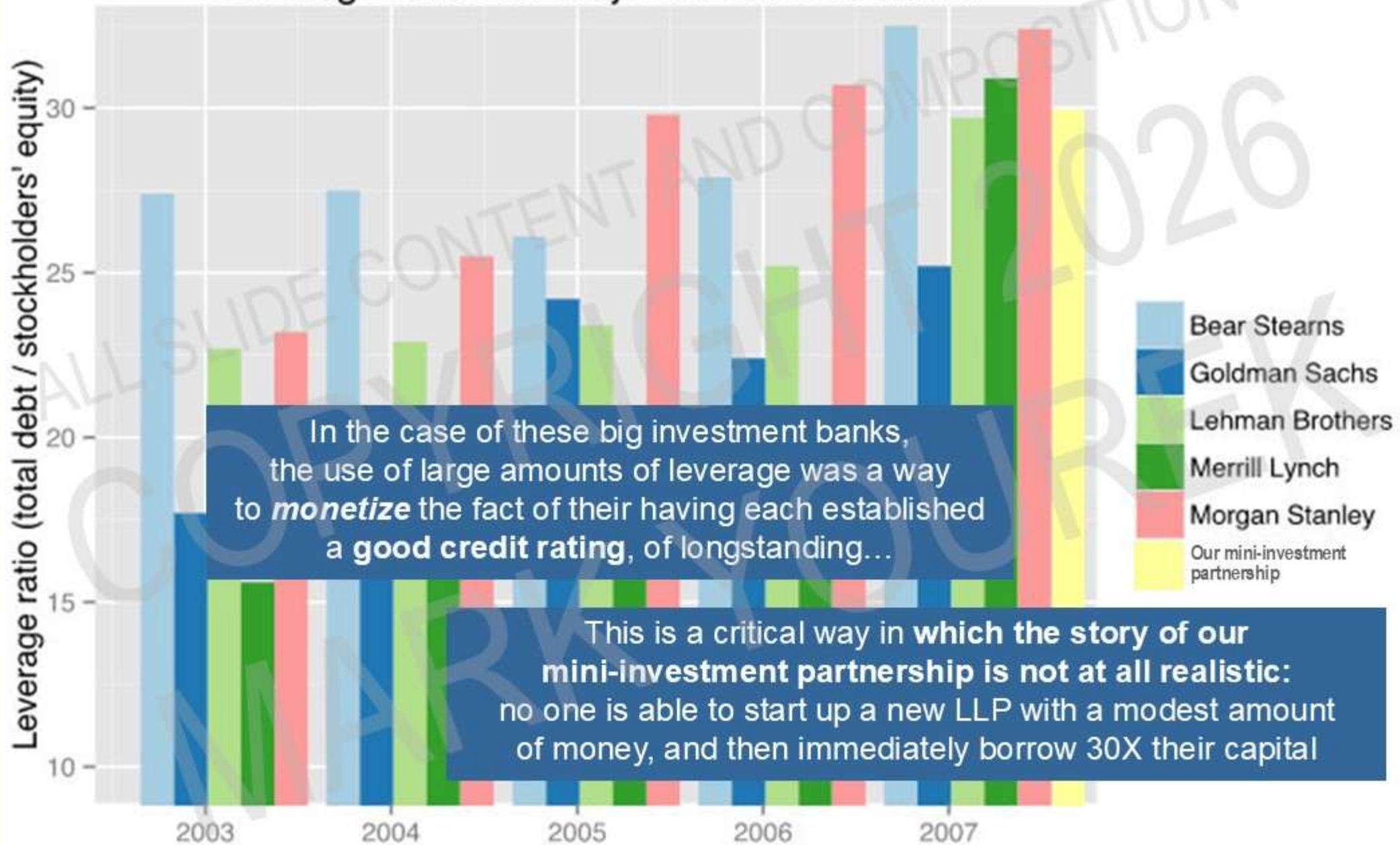
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- **Our investment partnership was in fact an informal bank – an uninsured lending institution, borrowing short-term to lend out long-term. As such, it was inherently unstable, as banks always are, and subject to bank runs**
- **This business model is characteristic of what became known as the shadow banking sector**
- **Our leverage ratio was about the same as the real-life Lehman Brothers: 30:1. Lehman was just 5,700 times bigger**
- **September 15, 2008 was the day Lehman was forced to declare bankruptcy, under circumstances very similar to this**
- **The electric excitement and determination to keep it going for as long as possible, because of the incredible profits, is pretty much exactly what motivated the real players during this period**
- **The willful unwillingness to consider the risks – both to our business and, more importantly, to the economy as a whole – is also highly characteristic of the mind frame of many of the real players of this period**

Leverage ratios for major investment banks



In the case of these big investment banks, the use of large amounts of leverage was a way to *monetize* the fact of their having each established a **good credit rating**, of longstanding...

This is a critical way in which the story of our **mini-investment partnership** is not at all realistic: no one is able to start up a new LLP with a modest amount of money, and then immediately borrow 30X their capital

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We each put in \$2 million, in 2004 –
so a total of \$4M in shareholder capital

For each dollar of our shareholder capital,
we borrowed \$30. So, our business
had a *leverage ratio* of 30:1

\$4M shareholder capital
\$120M borrowed funds

\$124M total funds under management

Whether we realized it or not, our business
was in fact an **informal lending institution**,
a *shadow bank*, not covered by government-
backed deposit insurance, nor regulated as such

For 4 years, we each got back roughly
\$100,000 a month in profits

So by the summer of 2008, we had each
received back around \$5 million in profits; and
we still had \$2M each, invested in the business

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The reason our business failed, in the end, is because the assets that we had invested in were beginning to look questionable, and were therefore starting to go down in value

Our lenders became worried because, at our leverage ratio of 30:1, our assets would only have to decline in value by about 3%, for our shareholder capital to be wiped out

(and if they declined in value more than 3%, we would no longer have enough assets to pay them all back)

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So, they decided to ask for their money back – and in doing so, they initiated a *bank run*, which forced us to declare bankruptcy

Notice that our assets were far from worthless – they were probably worth somewhere on the order of \$120M, at the time of the bank run

Presumably, when the bankruptcy was sorted out, we lost our entire \$4M stake, and our lenders may have gotten back less than 100 cents on the dollar

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“The Postwar Era can be viewed as a relative long-term success in the use of government to steady the economy as a whole, and the banking sector as a special focus...

... punctuated by occasions of lapse and misjudgment...

while capitalism’s resilient instability is always looking for new ways to manifest”

2000s

- By 2003-04, the economy is coming back, with a new set of innovations, most notably **financial instruments** and arrangements that enable previously-unqualified buyers to purchase homes
- There is a simultaneous **nationwide rise in house prices**, well out of proportion with any rise in income levels
- The financial industry is convinced that **incremental risks can be diversified away** through securitization, credit-default swaps, and other derivatives designed to hedge against risk
- The general public becomes enamored with the idea of **housing as a uniquely safe, highly-profitable form of investment**
- Fed Chair Greenspan views the markets as inherently self-correcting, meaning that the principles of market efficiency assure that **participants are motivated to properly price the cost of risks and potential defaults**, therefore **making government regulation of derivatives unnecessary, and unwise**. His final term ends in 2006, and he is succeeded by Ben Bernanke

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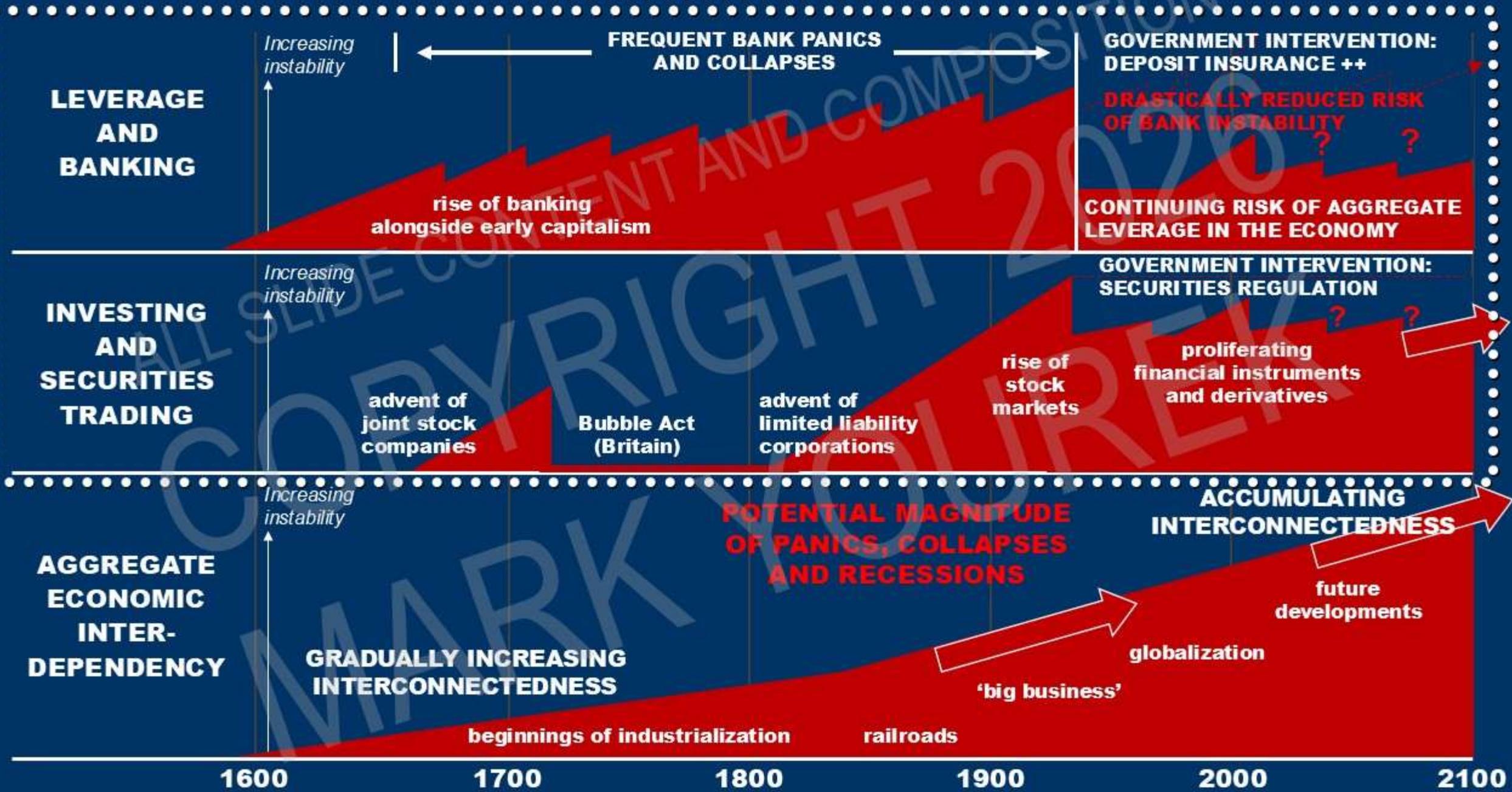
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2000s

- **In 2007-08, house prices fall**, revealing a huge bubble, and portending an avalanche of mortgage defaults. The **shadow banking sector**, heavily invested in mortgage-backed securities, suffers **massive bank runs**. Dozens of the largest American financial institutions are suddenly at the point of default, prompting vast **emergency government bailouts**. The economy collapses, with additional sectors near failure, including the **US auto industry**
- The ensuing recession is by far the worst since the Great Depression. Economists are in consensus that, **but for the massive government intervention that took place**, it would have been much worse, perhaps **rivaling or exceeding the depression of the 1930s**
- In reviewing the collapse, **Alan Greenspan says he has ‘found a flaw’ in the market theory he held while he was Fed chair**, and is in a state of **‘shocked disbelief’** at the apparent failure of market self-regulation

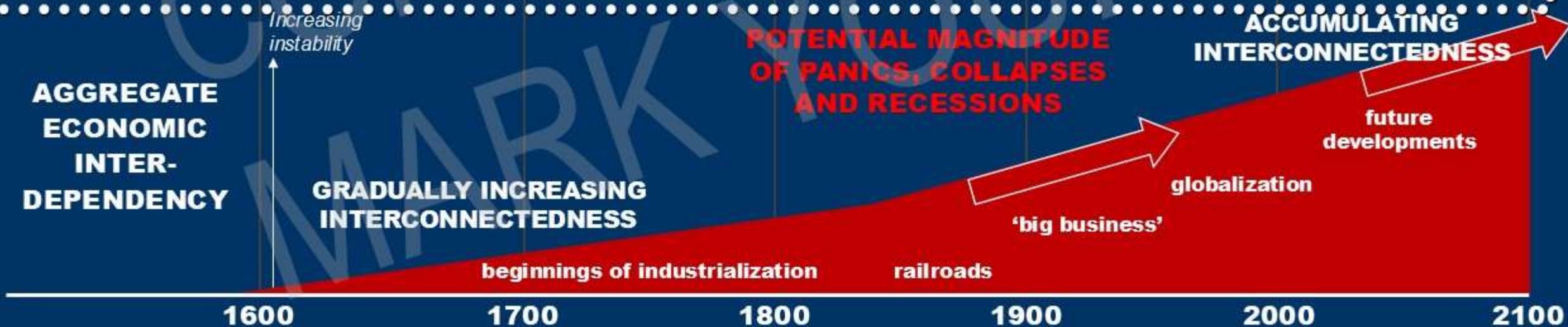
The Financial Sector



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People who work in the financial sector provide absolutely essential services to the rest of the economy, through the use of **LEVERAGE**, and through **SECURITIES ORIGINATION** and **TRADING**

They do absolutely none of this as a philanthropy



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They do absolutely none of this as a philanthropy

EVERYTHING they do – every single decision they make – is driven *entirely* out of their own self-interest, to the exclusion of every other consideration

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The evolution of the mortgage origination process

1950s - 1970s

1980

1990

2000

2010

Gradual growth of credit-info aggregation businesses: credit bureaus

With widespread credit card usage, credit bureau services become much more valuable to mortgage-originating institutions

Gradual mass adoption of bank-issued credit cards

1989
Advent of credit scoring: FICO

Borrower evaluation facilitated by credit scoring and credit reporting

Rise of predefined standards for loan qualification

- *Loan origination activities simplified; mainly now just document verification: VIVA (verified income, verified assets)*

Rise of differential risk-based interest rates

"Rate available to well-qualified borrowers"

Rise of mortgage securitization; originator no longer holds most loans

- *Packaging of geographically diversified groups of loans is seen as making these securities essentially as safe as Treasuries – but paying higher interest*

Rise of independent mortgage brokers

Rise of non-depository mortgage originators, substantially replacing banks and S&Ls

Era of manually-evaluated loan applications, originator-held mortgages

- *Loan originations performed in person by bank loan officers*
- *Range of borrower criteria considered, including employment history, assets and collateral, personal references, previous relationship with bank*
- *Resulting loans are generally held by the originating institution*

Legalization of adjustable-rate mortgages

- *Garn-St. Germain Act of 1982 legalizes adjustable-rate mortgages, mortgages offering interest-only periods, and mortgages ending in balloon payments*

Up to this point, we are still talking about 'prime' mortgages only ...

Prime mortgages

- **Prime ('conforming' and 'jumbo')** mortgages are ones that are written so as to comply with clearly-delineated standards, as defined by Fannie Mae and Freddie Mac: 'VIVA' – asset value, total loan value, income-to-payment ratio, minimum acceptable FICO score, and other constraints
- The GSEs are willing to buy mortgages from originating institutions, as long as they comply strictly with these underwriting standards
- The GSEs then package these into standardized AAA-rated **mortgage bonds** (untranching MBS), and sell them into the secondary markets
- The GSEs started doing this in the 1970s, and have essentially owned the securitization of **prime** mortgages ever since, to the exclusion of private-sector players

Subprime mortgages

- Defined as mortgages written to any standard **below the GSE-defined 'prime' standard**, and **carrying higher rates of interest**, proportionate to their profile of higher borrower risk
- The market for buying and packaging them into subprime mortgage-backed-securities was pioneered starting in the 1990s, by **private-sector financial firms**
- Subprime loans began to be produced in volume in the early 2000s, to be packaged into MBS, which would then be sliced into 'tranches' that would be assigned different credit ratings, from AAA downward
- The rise in house prices from the late 1990s into the 2000s bolstered the case for these riskier mortgages as being safe investments, when packaged appropriately into MBS, in credit-rating-agency-certified ways

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Boom in mortgage securitization driven by massive demand for these products, fed by a global capital surplus looking for higher returns on fixed income

Multiple factors drive the degradation of underwriting standards, with rise of subprime

- Continuous rise in housing prices lends a false sense of security, as securitization drives a massive rise in subprime lending, and expands to CDOs and CDOs-squared

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- Mortgage originators and securities packagers learn how to game the unsophisticated risk-evaluation models used by ratings agencies, to keep producing new loans and securities

SIVA ALT-A → SUBPRIME
NIVA NINA NINJA

'All you need is a FICO score'

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From earlier in this course:

Capitalism drives continuous improvement in methods of production, to **increase productivity, drive down costs, reduce prices to the consumer, and increase profit potential for the producer**

In so doing, capitalism often replaces small-scale cottage industry with much larger-scale, more efficient production methods

Capitalism therefore often replaces many producer-consumer interactions that in the past happened on a personal, face-to-face basis, with industrial-scale production that takes place at a significant remove from the end-consumer

And, capitalism greatly magnifies the incentives for producers to find ways to cut costs, and to ignore hidden quality irregularities

– *scale production creates opportunities to get rich* –

while weakening or eliminating personal face-to-face responsibility for product quality and safety

2010

Reporting

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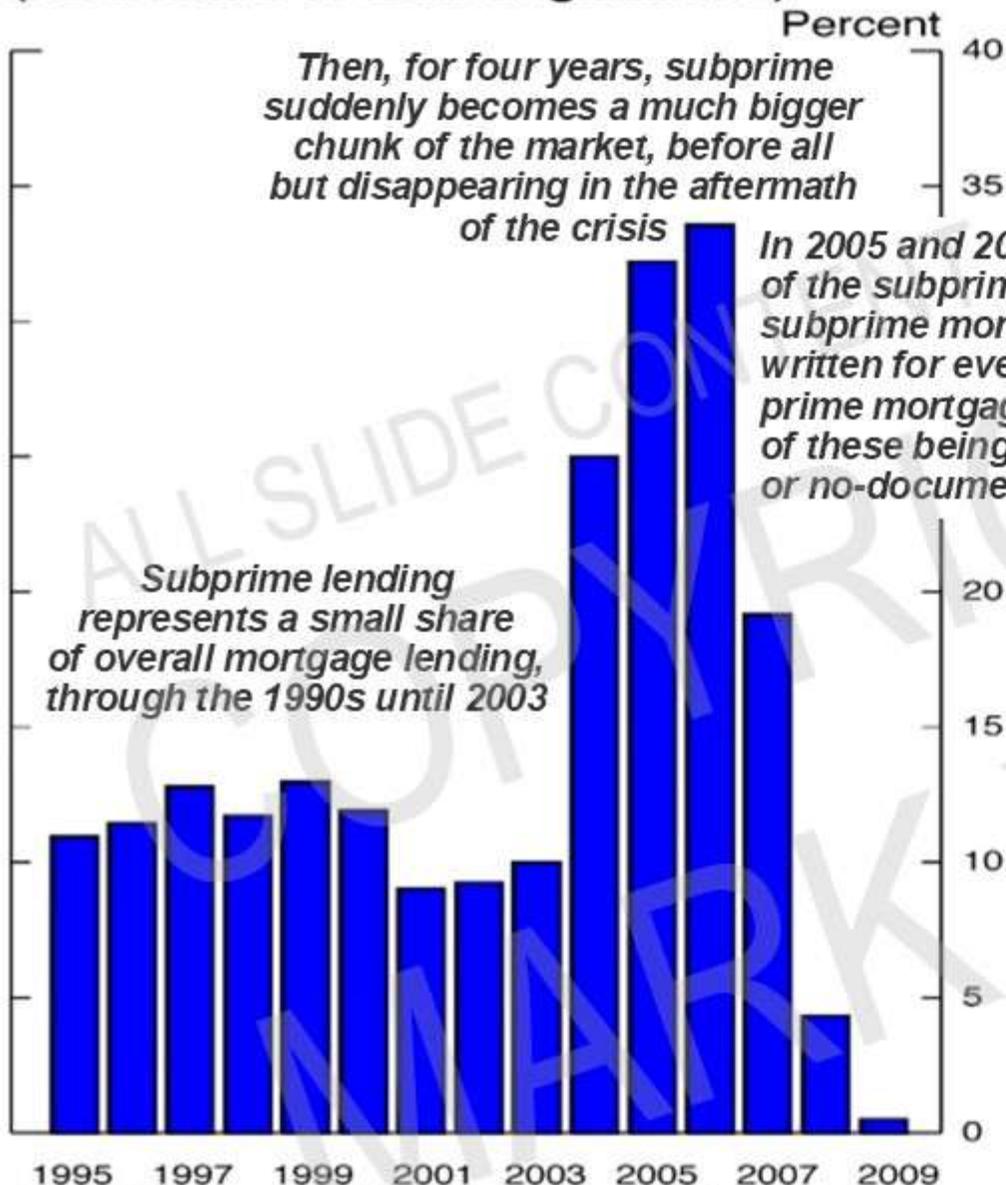
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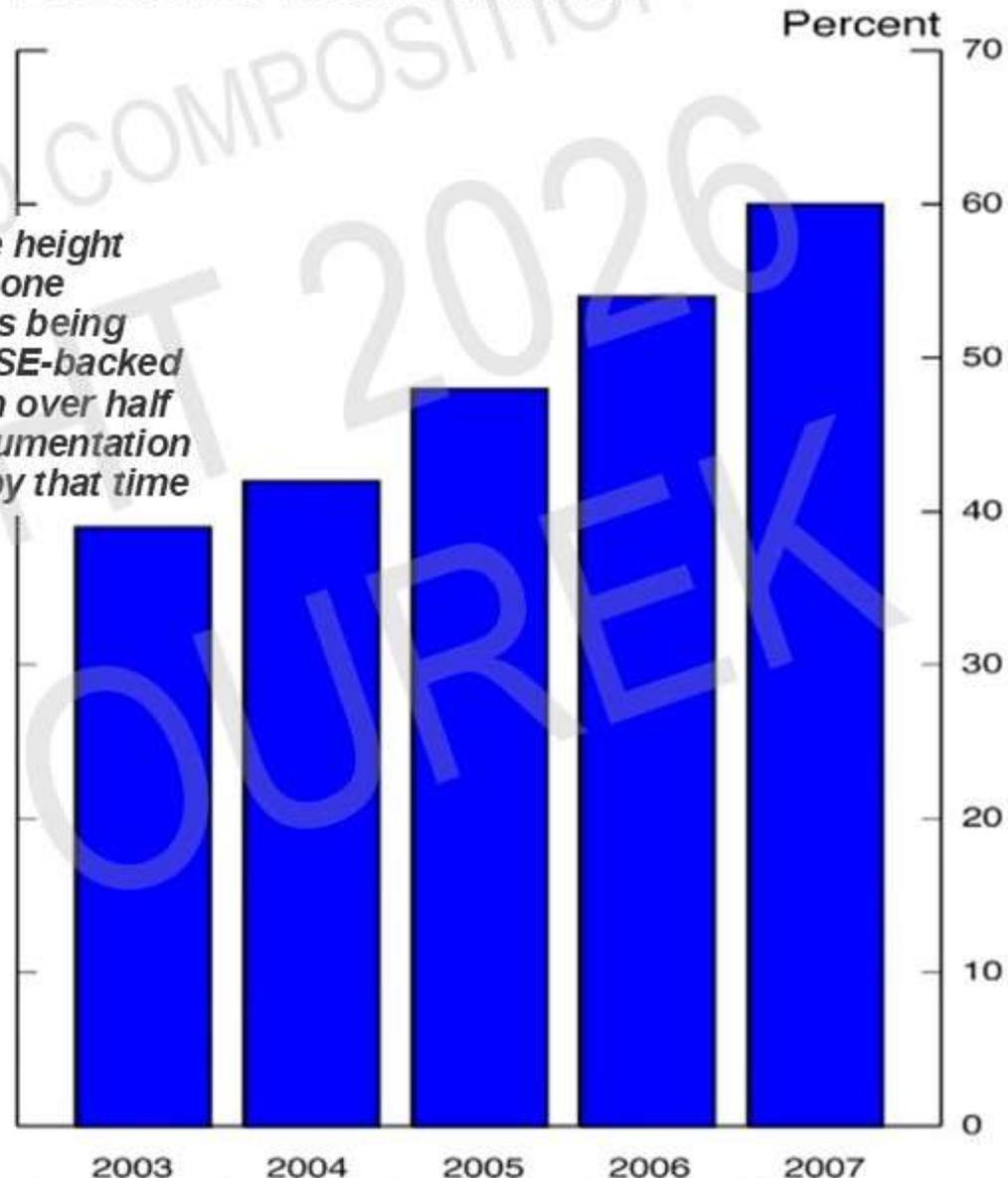
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Nonprime Mortgage Originations (As a share of total originations)



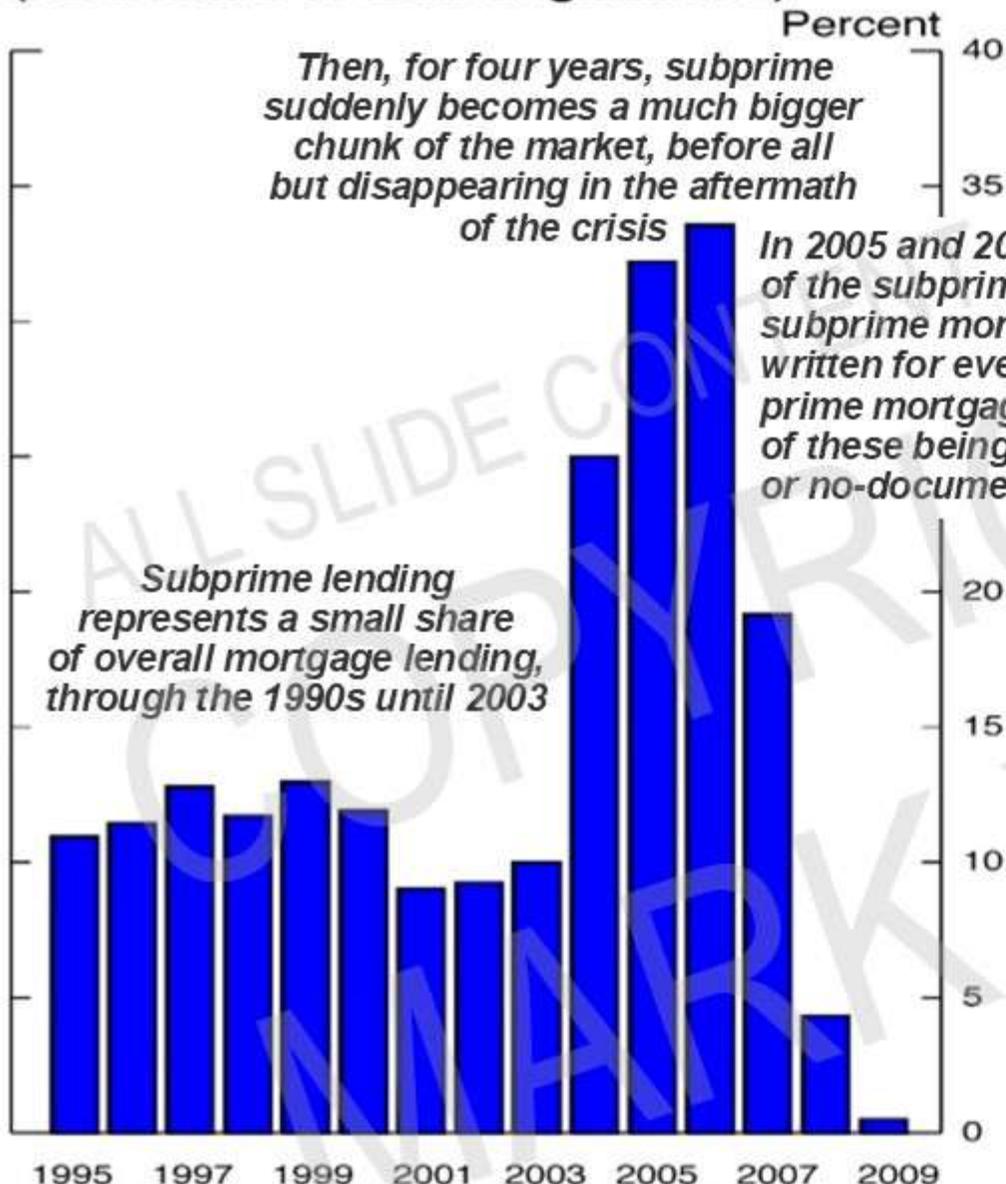
Source: Federal Reserve staff estimates, based on data from Inside Mortgage Finance.

Percent of Nonprime Loans with Low or No Documentation



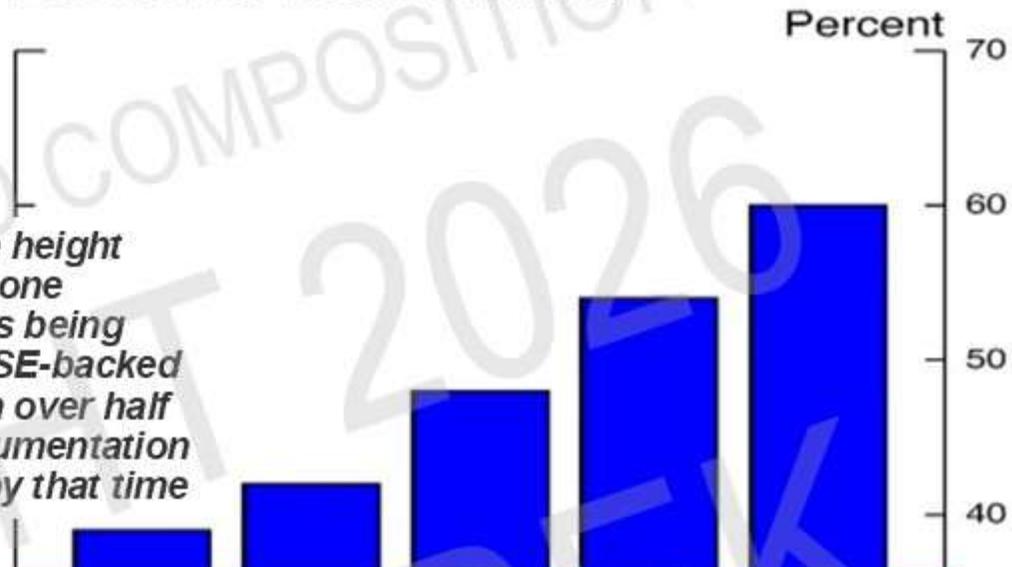
Source: Derived from data in Mayer, Pence, and Sherlund, "The Rise in Mortgage Defaults," Journal of Economic Perspectives, Winter 2009, Table 1 and Table 2, panel C.

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All of these changes were driven by an underlying belief that *houses never go down in value – they only ever go up*

And if houses only ever go up, there's lots of money to be made, and minimal / zero risk entailed, even in lending to people who don't have the demonstrated income to pay back the money they are being loaned

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2007-2008: The housing bubble and credit bubble collapse, forcing a drastic re-assessment of risk evaluation approaches, and the end of the whole subprime mortgage business

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Starting in the late 1960s, the GSEs pioneered mortgage securitization: the issuance of marketable mortgage-backed securities, comprised of prime mortgages ('conforming' and 'jumbo')

The GSEs have a unique legacy / quasi-parasitic relationship with the federal government, which gives them a decisive competitive advantage over private-sector financial institutions in the business of packaging and securitizing prime mortgages

Prime mortgages

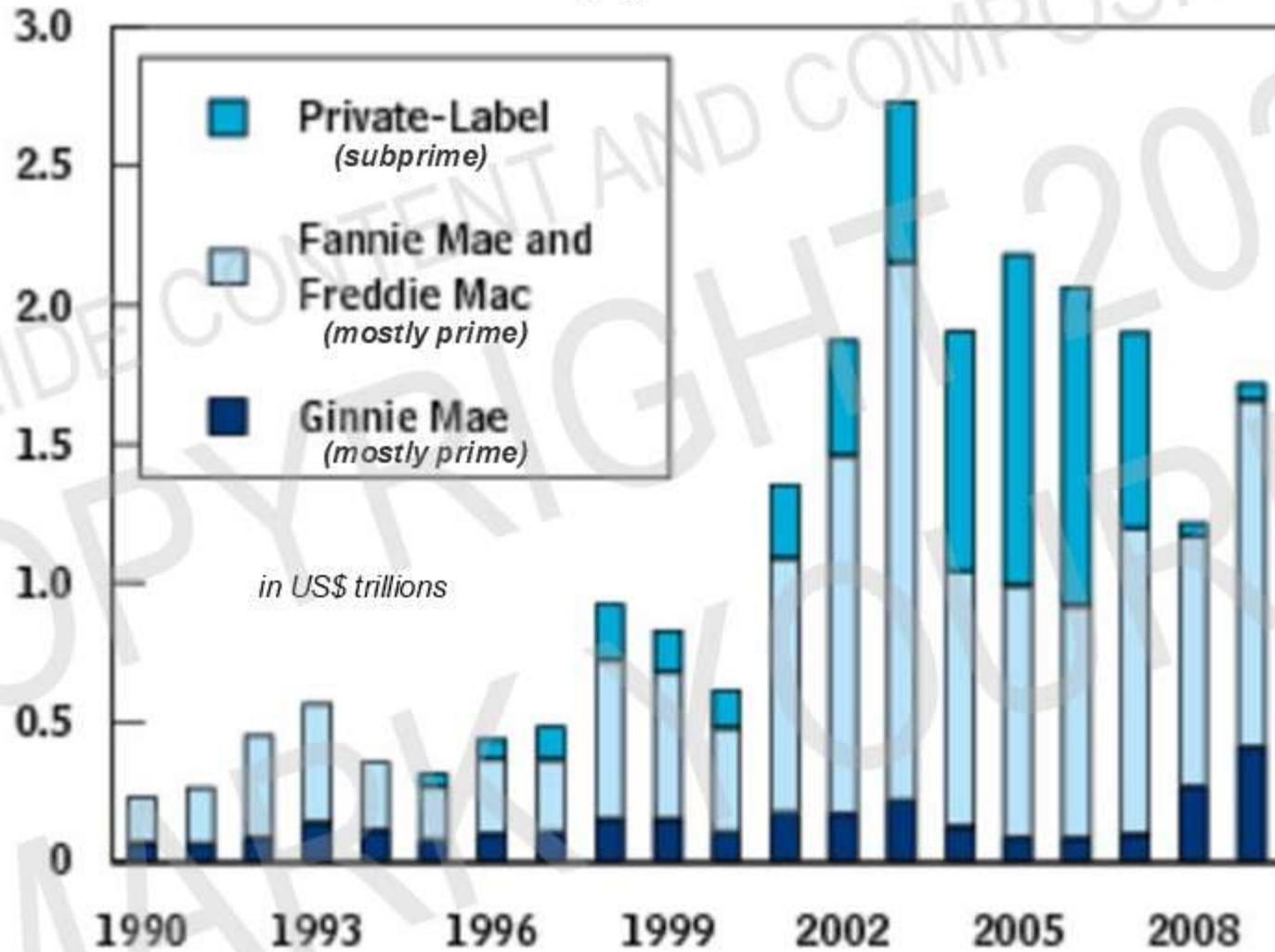
- Prime ('conforming' and 'jumbo') mortgages are ones that are written so as to comply with clearly-defined standards and carry lower rates of interest than subprime mortgages. They are typically written to conform to the standards set by the GSEs and have essentially owned the securitization of prime mortgages ever since, to the exclusion of private-sector players
- The originators of prime mortgages are typically large financial institutions with strong credit ratings (e.g. AAA and AA), and they have typically used the GSEs as their primary market for these mortgages
- The GSEs have typically used the prime mortgages as collateral for their mortgage-backed securities (MBS) and have typically used the prime mortgages as collateral for their mortgage-backed securities (MBS) and have typically used the prime mortgages as collateral for their mortgage-backed securities (MBS)

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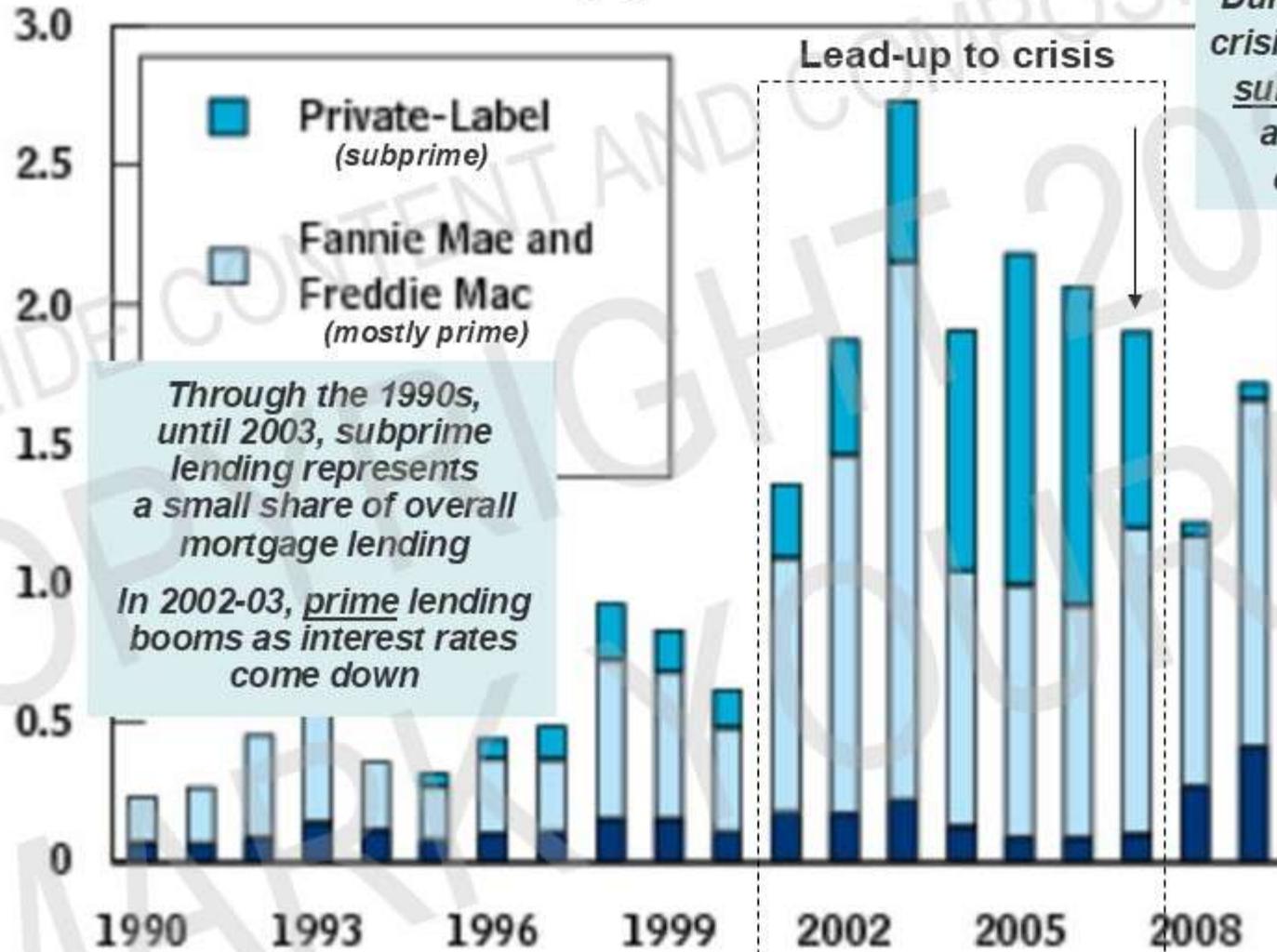
Subprime mortgages

- Defined as mortgages written to any standard below the GSE-defined 'prime' standard, and carrying higher rates of interest, proportionate to their profile of higher borrower risk
- The market for buying and packaging them into subprime mortgage-backed-securities was pioneered starting in the 1990s, by private-sector financial firms
- Subprime loans began to be produced in volume in the early 2000s, to be packaged into MBS, which would then be sliced into 'tranches' that would be assigned different credit ratings, from AAA downward
- The rise in house prices from the late 1990s into the 2000s bolstered the case for these riskier mortgages as being 'safe' investments, when packaged appropriately into MBS, in credit-rating-agency-certified ways

Issuance of new mortgage-backed securities in the US



Issuance of new mortgage-backed securities in the US



During the lead-up to the crisis, privately-originated subprime MBS become a much larger share of the MBS market

Through the 1990s, until 2003, subprime lending represents a small share of overall mortgage lending
 In 2002-03, prime lending booms as interest rates come down

Partway through 2007, subprime MBS origination cuts off completely
 The mortgage securitization business immediately reverts to domination by the GSEs, issuing only MBS backed by prime mortgages

Subprime mortgages

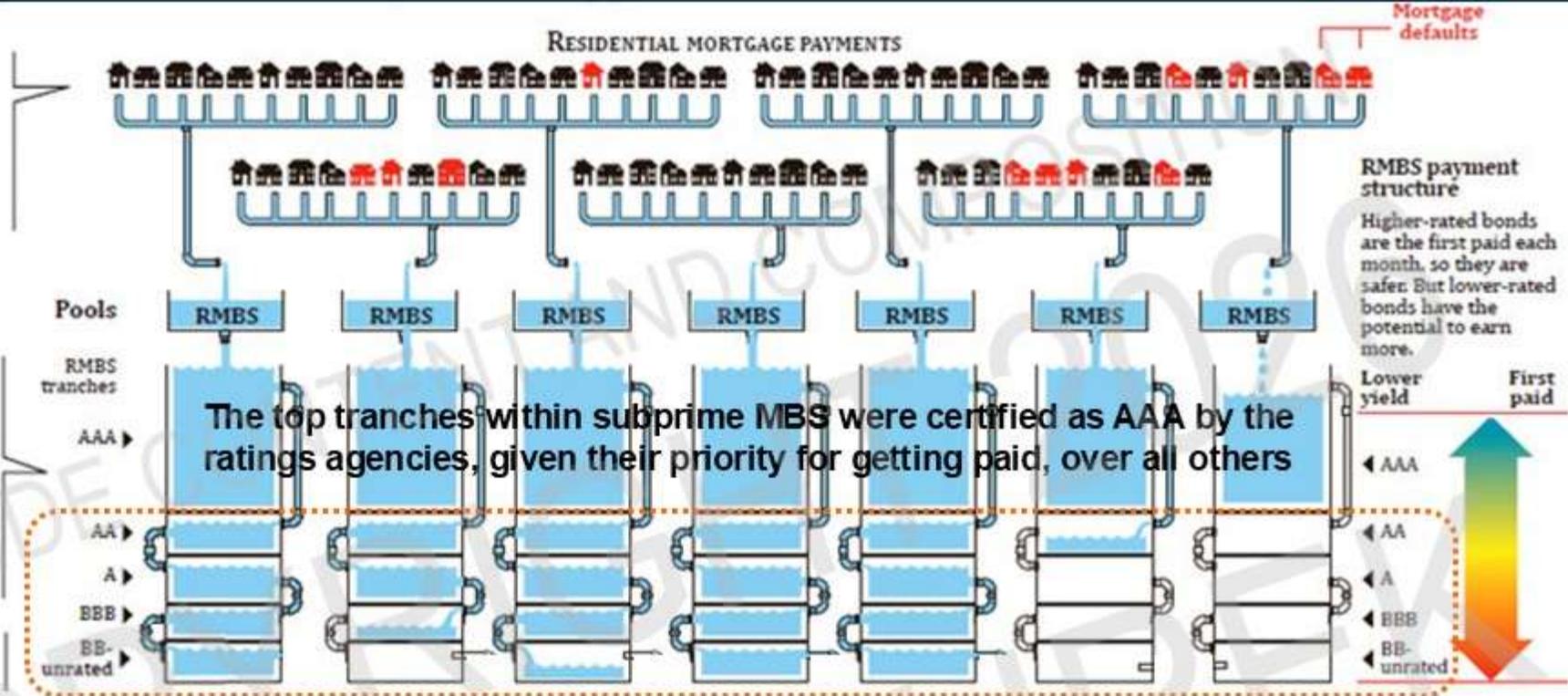
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The key to making these new subprime-backed mortgage-backed securities as marketable to the investing community as GSE-issued MBS, was to slice them up into ‘tranches’, so as to create layers that would be as safe an investment as GSE-issued mortgage securities

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1 People all over the country take out mortgages. Financial institutions group hundreds of subprime mortgages into Mortgage Backed Securities (MBSs).

2 The securities are grouped into tranches by levels of risk and earnings potential for bond holders. When everybody can pay their mortgage in full each month, each group of bond holders gets paid.



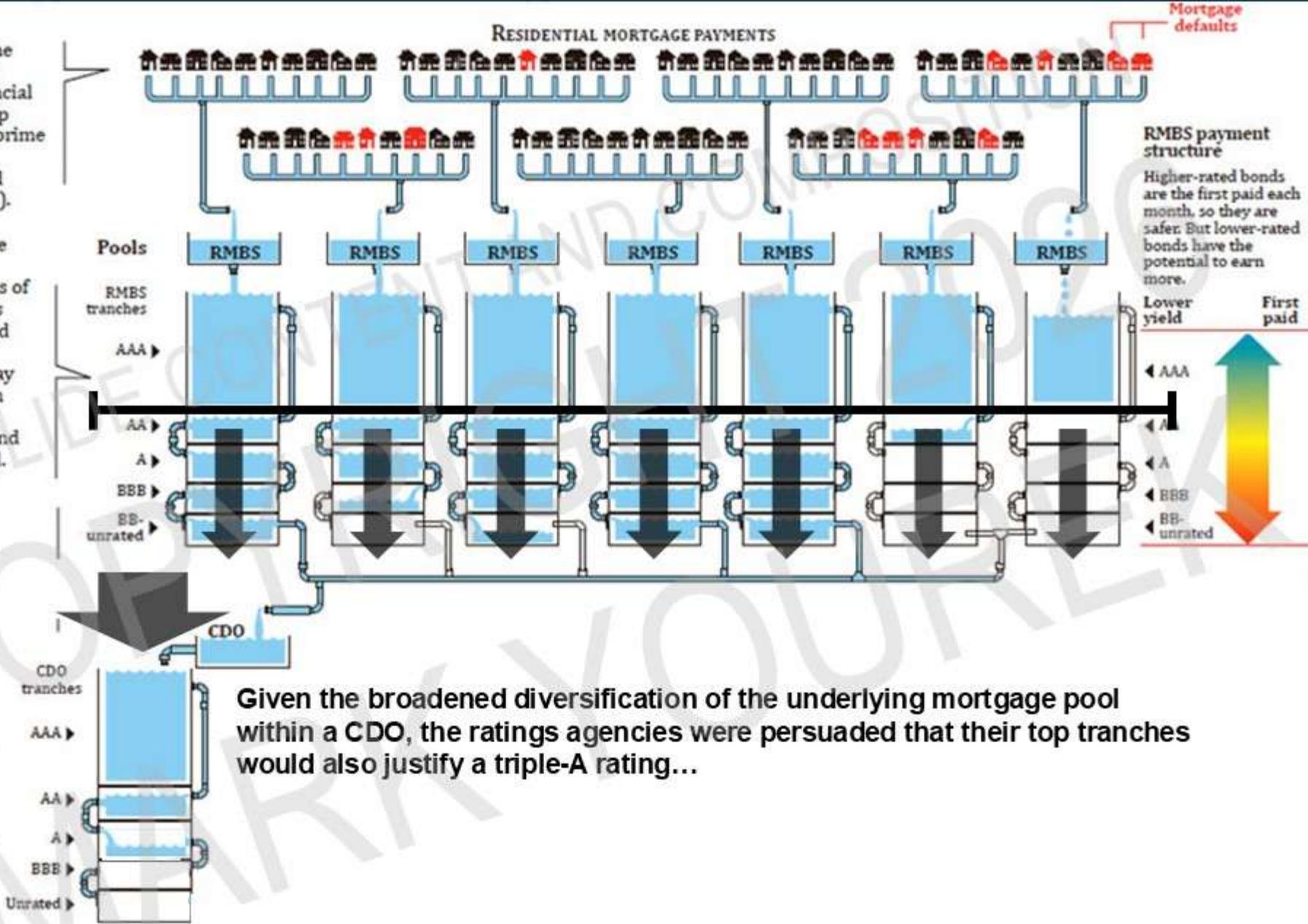
For the investment banks who were in this business, these lower-rated tranches became a problem, because despite the fact that they paid higher yields, they were still hard to sell

How subprime mortgage-backed securities worked

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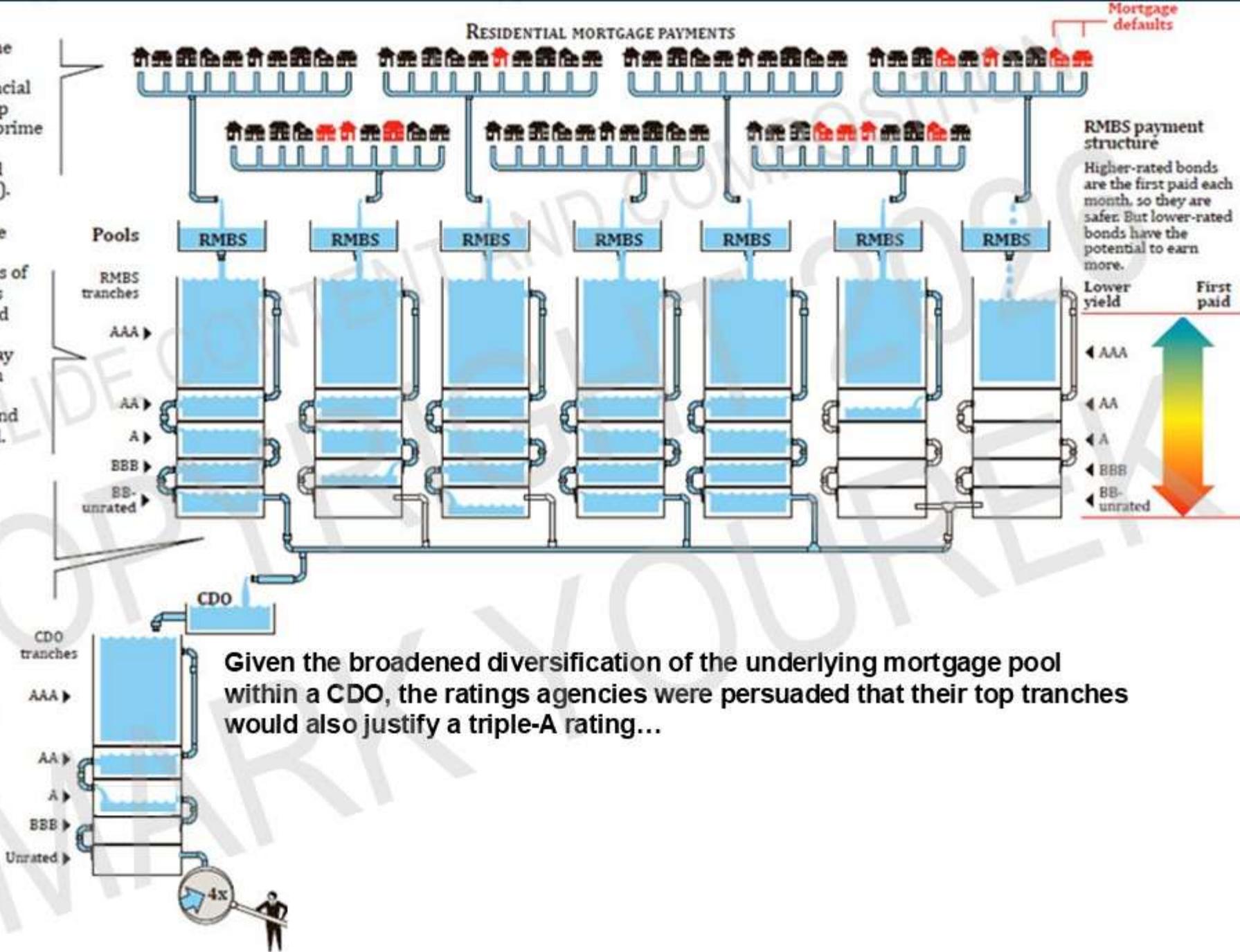


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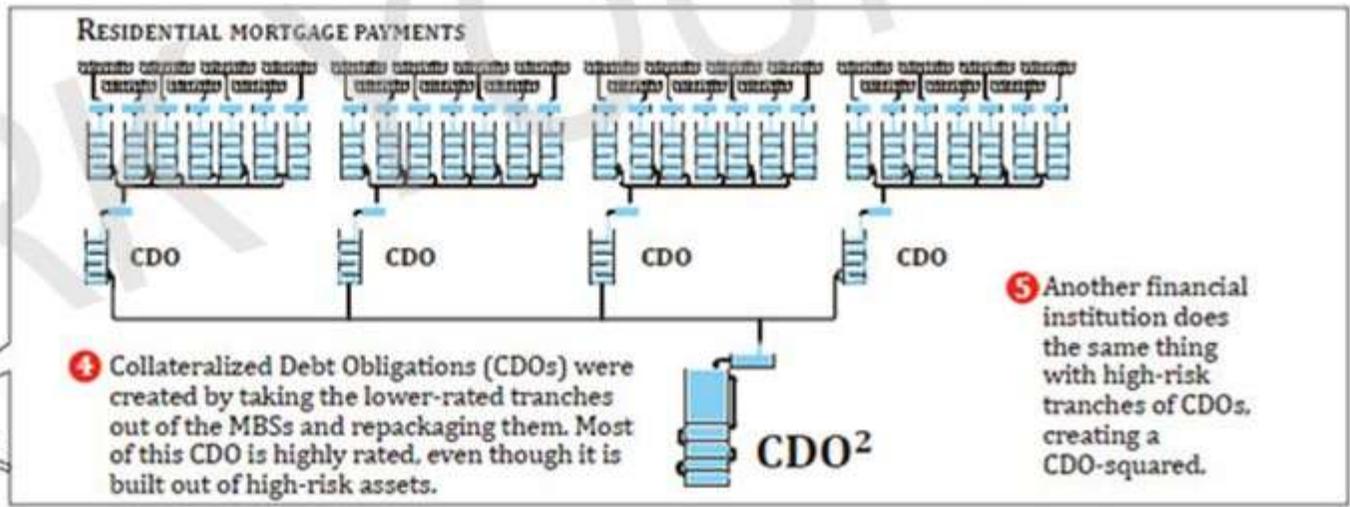
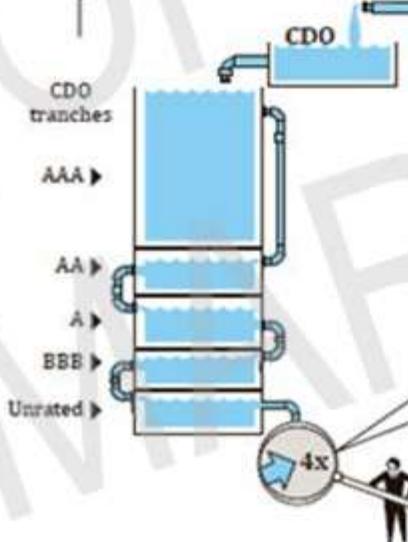
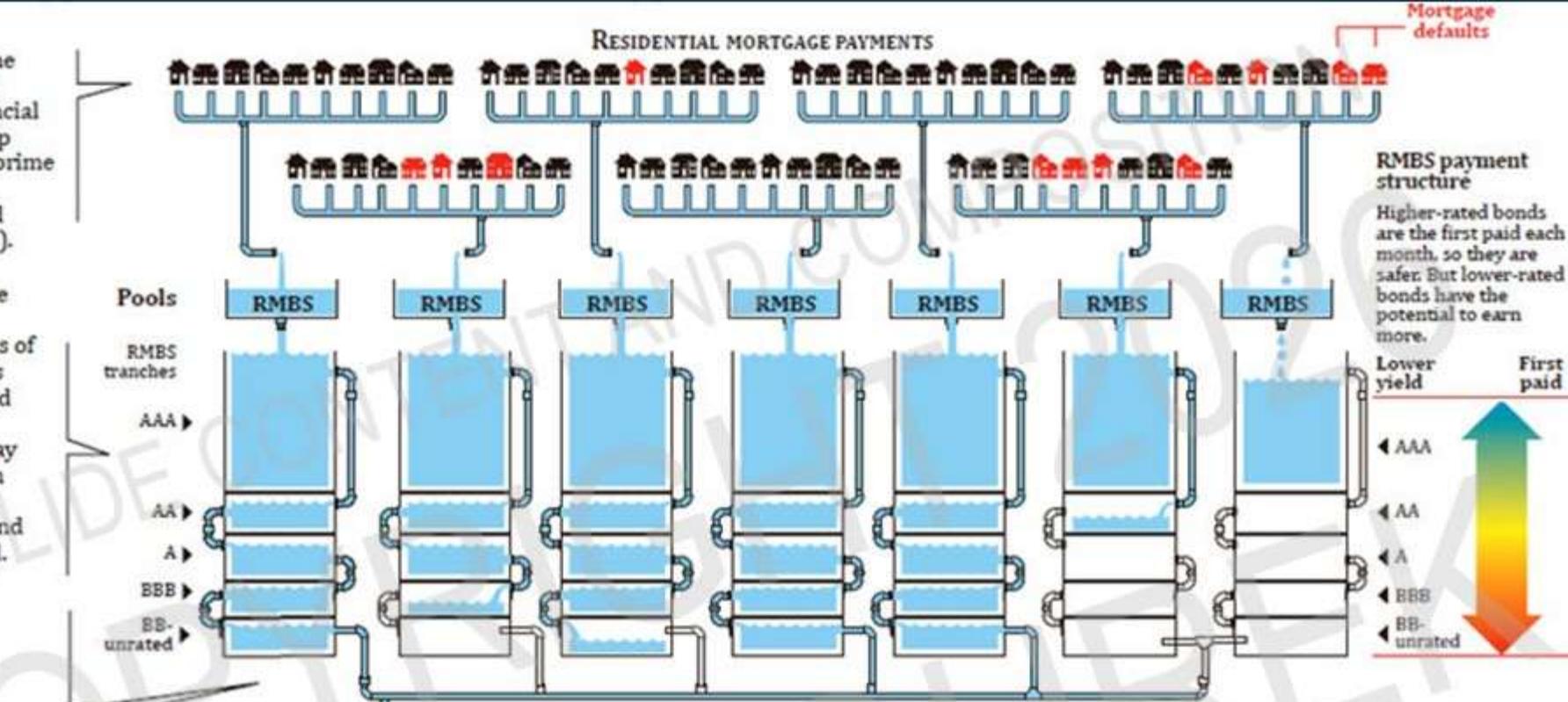


Given the broadened diversification of the underlying mortgage pool within a CDO, the ratings agencies were persuaded that their top tranches would also justify a triple-A rating...

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4 Collateralized Debt Obligations (CDOs) were created by taking the lower-rated tranches out of the MBSs and repackaging them. Most of this CDO is highly rated, even though it is built out of high-risk assets.

5 Another financial institution does the same thing with high-risk tranches of CDOs, creating a CDO-squared.

Mortgage defaults

RMBS payment structure
Higher-rated bonds are the first paid each month, so they are safer. But lower-rated bonds have the potential to earn more.

Lower yield First paid
AAA
AA
A
BBB
BB-unrated

Backdrop of steadily rising housing values feeds confidence

'Global savings glut'

Backdrop of apparent macroeconomic stability feeds confidence

Innovations in mortgage origination

Innovations in mortgage securitization



Loosening of standards / gaming of standards

People willing to buy houses on speculation, to flip

Principle of diversification as providing safety

Assumption that mortgage securities are very safe

Complexity of overall ecosystem discourages attempts at deep understanding, in real time

Profits so wonderful, no one wants to question the overall dynamic, or its sustainability

Use of vast leverage, to make HUGE amounts of money

On the invention of mortgage-backed CDOs and credit default swaps

Michael Lewis

CDOs were originally invented back in the 1970s to redistribute the risk of corporate bond and government bond defaults.

But now in the 2000s they were being rejiggered to redistribute – and to disguise – the risk of subprime mortgage loans.

There were huge sums of money to be made, if you could somehow get triple-B-rated bond tranches re-rated as triple-A, thereby lowering their perceived risk, however dishonestly or artificially.

This is what Goldman Sachs cleverly did.

Their nifty solution to the problem of selling the lower tranches – soon to be everyone's nifty solution – appears, in retrospect, almost magical.

Having gathered 100 low-rated tranches from 100 different subprime mortgage securities, they persuaded the ratings agencies that these weren't, as they might appear, all the same crap. They were another diversified portfolio of assets!

The ratings agencies, who were paid fat fees by Goldman Sachs and other Wall Street firms for each deal they rated, pronounced 80% of the new CDO to be triple-A.

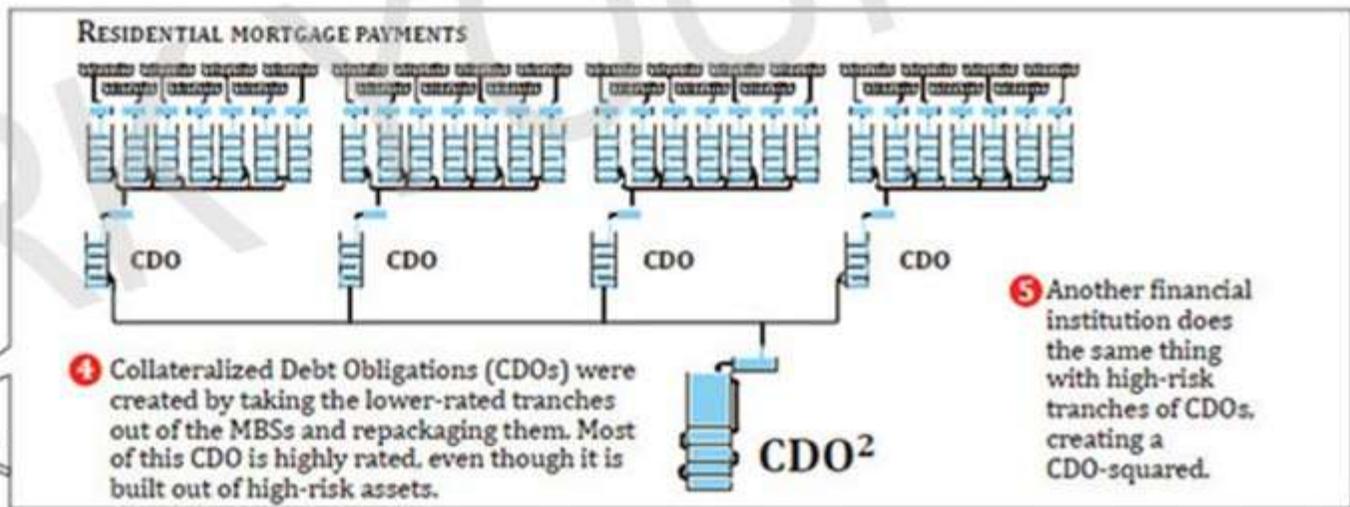
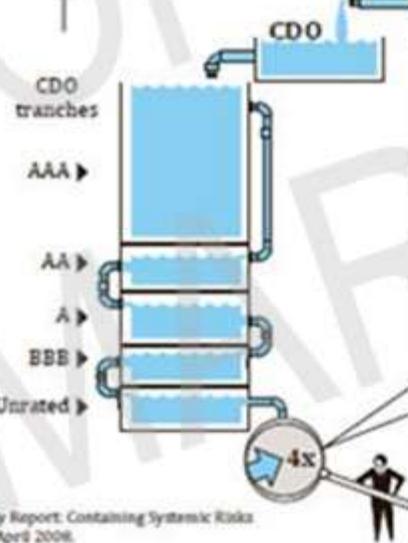
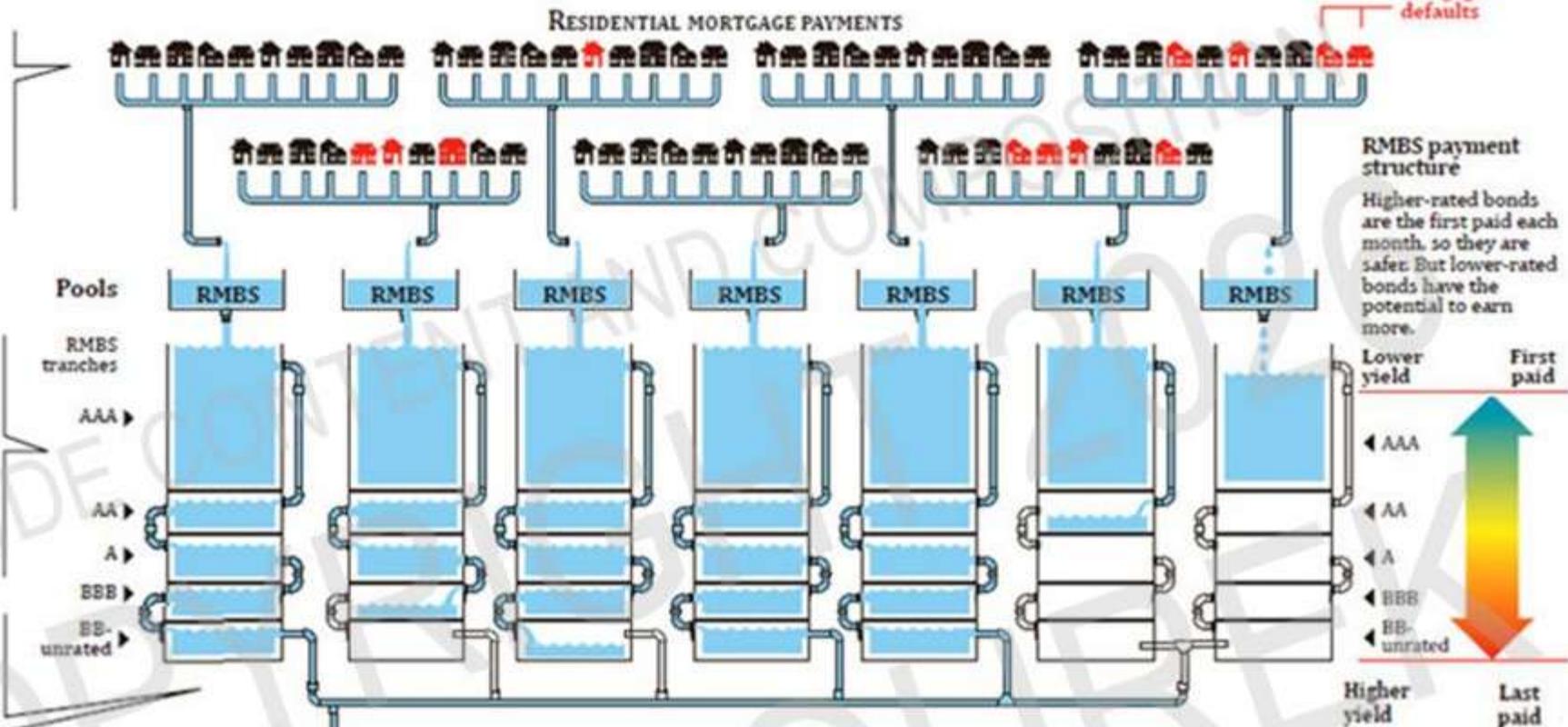
"The ratings agencies didn't really have their own CDO model," says one former Goldman CDO trader. "The banks would send over their own model to Moody's and say, 'How does this look?'"

Somehow, roughly 80% of what had been risky triple-B-rated bonds, now looked like triple-A-rated bonds.

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Source: IMF, Global Financial Stability Report: Containing Systemic Risks and Restoring Financial Soundness, April 2008.

Wall Street conned [or bribed] the ratings agencies into blessing piles of crappy loans;

This enabled the lending of trillions of dollars to ordinary Americans, who happily complied and told the lies they needed to tell to obtain the loans;

The machinery that turned loans into supposedly riskless securities was so complicated that investors ceased to try to evaluate risks;

The problem grew so big that the end was bound to be cataclysmic, and have big social and political consequences.

Another strange aspect of the booming market was the speed with which subprime borrowers paid off their loans [during the years leading up to the crash].

It had to do with the structure of the loans, which was fixed for two or three years at an artificially-low teaser rate before shooting up to the floating rate.

“They were making loans to lower-income people at a teaser rate when they knew these people couldn’t afford to pay the go-to rate.

They were doing that so that when borrowers got to the end of the teaser rate, they’d have to refinance, so the mortgage originators and lenders could make more money off them.”

Thirty-year loans were thus designed to be replaced and repaid every few years.

Meanwhile, the mechanisms for insuring these securities against default were being developed.

In 1998, AIG's Financial Products division had entered the then-new market for **credit default swaps**: it sold insurance to banks against the risk of default by investment-grade public corporations.

Large numbers of investment-grade companies in different countries and different industries were indeed unlikely to default on their debts all at the same time.

The credit default swaps sold by AIG FP that insured such loan pools proved to be a good business: by 2001, they were generating \$300 million a year in profit, or 15% of AIG's bottom line.

But then, in the early 2000s, the financial markets performed a fantastic bait and switch, in two stages.

Stage One was to take a formula that had been dreamed up to cope with *corporate* credit risk, and apply it now to *consumer* credit risk – messy piles of *credit card debt, student loans, auto loans, prime mortgages*, and just about anything else that generated a cash flow.

As there were many different sorts of loans, to different sorts of people, the logic that applied to corporate loans seemed to apply to them, too: they were sufficiently diverse that they were all unlikely to go bad at once.

Stage Two, beginning at the end of 2004, was to move on to selling credit default swaps on huge piles consisting of nothing but *subprime mortgage loans*.

“The problem,” as one AIG trader put it, “is that something else came along that we thought was the same thing as what we’d been doing. But it wasn’t.”

The piles that AIG was insuring, went from being 2% subprime mortgages, to 95% subprime mortgages.

In effect, by selling insurance against default on what accumulated into \$50 billion worth of triple-B-rated subprime mortgage securities, AIG had for all intents and purposes *bought them*.

And yet no one said anything about it – not AIG CEO Martin Sullivan, not the head of AIG FP, Joe Cassano, and not Al Frost, who was the guy in AIG's Connecticut office in charge of selling credit default swaps to the big Wall Street firms.

The deals, by all accounts, were simply rubber-stamped inside AIG FP, and then again by the top AIG corporate brass.

Everyone concerned apparently assumed they were being paid insurance premiums to take basically the same kinds of risks that they had already been taking for a decade.

They weren't. They were now, in effect, the world's biggest owner of subprime mortgage bonds.

All these new Wall Street techniques for squeezing out profits should perhaps have raised a few questions.

Why were the supposedly sophisticated traders at AIG FP doing this stuff?

If credit default swaps were, for all intents and purposes, insurance, why weren't they being regulated as insurance? Why, for example, wasn't AIG required to reserve capital against them, like insurance companies are required to do?

Why, for that matter, were Moody's and Standard & Poor's willing to bless 80% of pools containing *nothing but crappy subprime mortgage loans*, with the same triple-A rating they bestowed on *United States Treasury debt*?

Why didn't someone, anyone, inside any of these investment banks stand up and say, "*This is obscene. The ratings agencies, who are the ultimate evaluators and pricers of all these subprime mortgage securities, clearly do not understand the risks, and their idiocy is creating a recipe for catastrophe*"?

Apparently none of those questions popped into their minds as quickly as another question did:

How can I do what Goldman Sachs just did?

**Capitalism,
Government,
Money,
and the
Future of
the World**

*Finding
and Keeping
the Right Balance
in
Market-Capitalist
Democracies*