Lecture 17: Gorton, Part III

ECON 43370: Financial Crises

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Fall 2026

Bank Capital

Bank capital is just equity/net worth: the difference in the value of assets and liabilities

Capital "absorbs" losses: equity holders lose first given the seniority of debt holders

More capital: more ability to absorb losses before becoming insolvent

How to raise capital ratios?

- Sell shares
- Deleverage (reduce assets and liabilities at the same time)

Capital Regulation

Gorton argues there has been "too much" focus on capital regulation in last decades

This isn't to say capital isn't important, but it's mostly at a micro-level, not at the macro-level

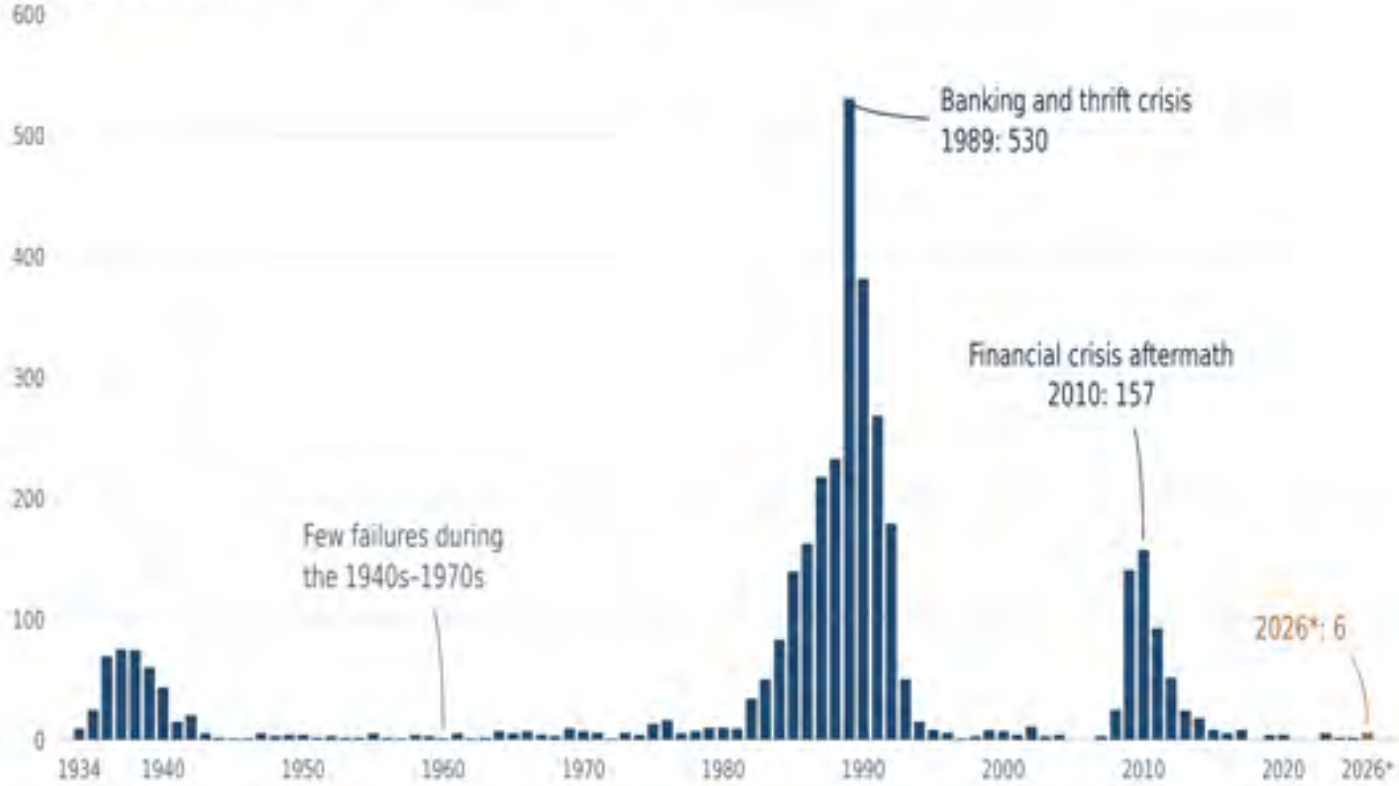
Crises are about liquidity, not capital. Nothing short of 100 percent capital can stop a crisis

Do not want banks trying to raise capital in a crisis

- Deleveraging might be good in the long run, but not in a crisis. Do not want institutions trying to sell assets
- Selling shares almost impossible in a crisis and would convey negative information

U.S. bank and thrift failures, 1934-2026

Annual failures of federally insured banks and savings institutions
Number of institutions



*2026 is year to date through November 2; latest failure: September 25, 2026.

Coverage: FDIC, BIF, SAIF, DIF, FSLIC and RTC. Assistance transactions excluded.

Source: FDIC BankFind Suite, Failures and Assistance; FDIC closure announcements. Counts measure institutions, not assets.

Savings and Loan Crisis

S & Ls ("thifts") financed long-term, fixed-rate mortgage with short-term deposits

- Different charters and regulations than regular banks
- Focused almost exclusively on home mortgage finance

As interest rates rose in early 1980s, the cost of liabilities went up relative to fixed return on assets

In response, thrifts were deregulated and the Federal Savings and Loan Insurance Corporation (FSLIC) went bankrupt, but this led to "gambling for resurrection." Resolution was costly

Why not a broader panic? Contained to a (relatively) small part of the banking industry, and depositors believed insurance would make them whole

The Paradox of Financial Crises

"The central paradox of financial crises is that what feels just and fair is the opposite of what's required for a just and fair outcome." – Timothy Geitner

Gorton argues that the political optics make government response slower than in the old clearinghouse days

This slowness paradoxically makes modern crises more costly than earlier ones

Costs and Benefits

Crises are very costly

Could potentially regulate them away:

- Full reserve banking
- Equity banking
- CBDC
- Capital ratios and other regulations

But have to avoid being financial repressive: is there a tradeoff between growth & innovation and crises?

Great Recession

The "Financial Crisis" really began in summer of 2007

The NBER dates the start of the recession to December 2007

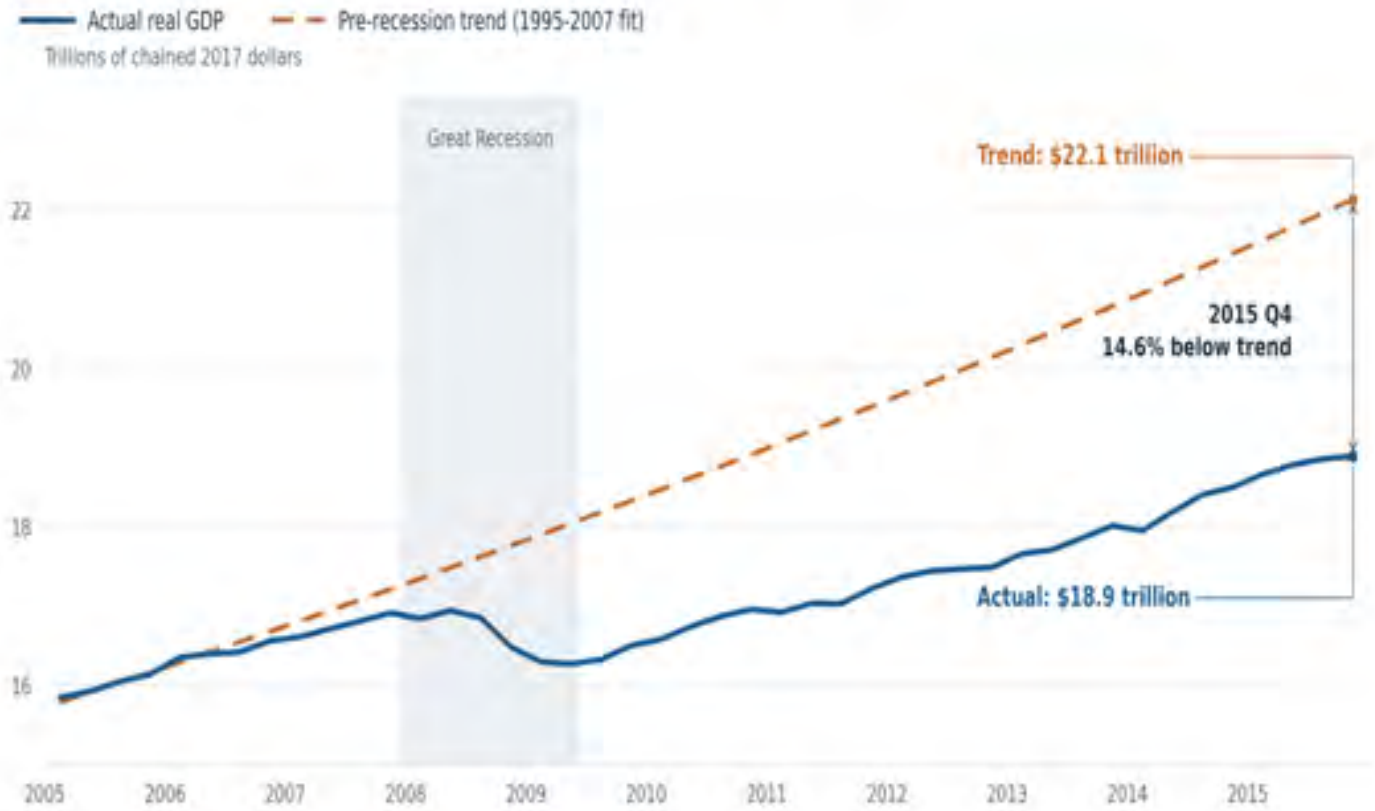
Things were the worst in fall of 2008 and early-spring of 2009

Recovery began in 2009

Deepest post-Depression recession on record (prior to COVID, which was short-lived)

Real GDP and its pre-recession trend

United States | Quarterly, 2005-2015



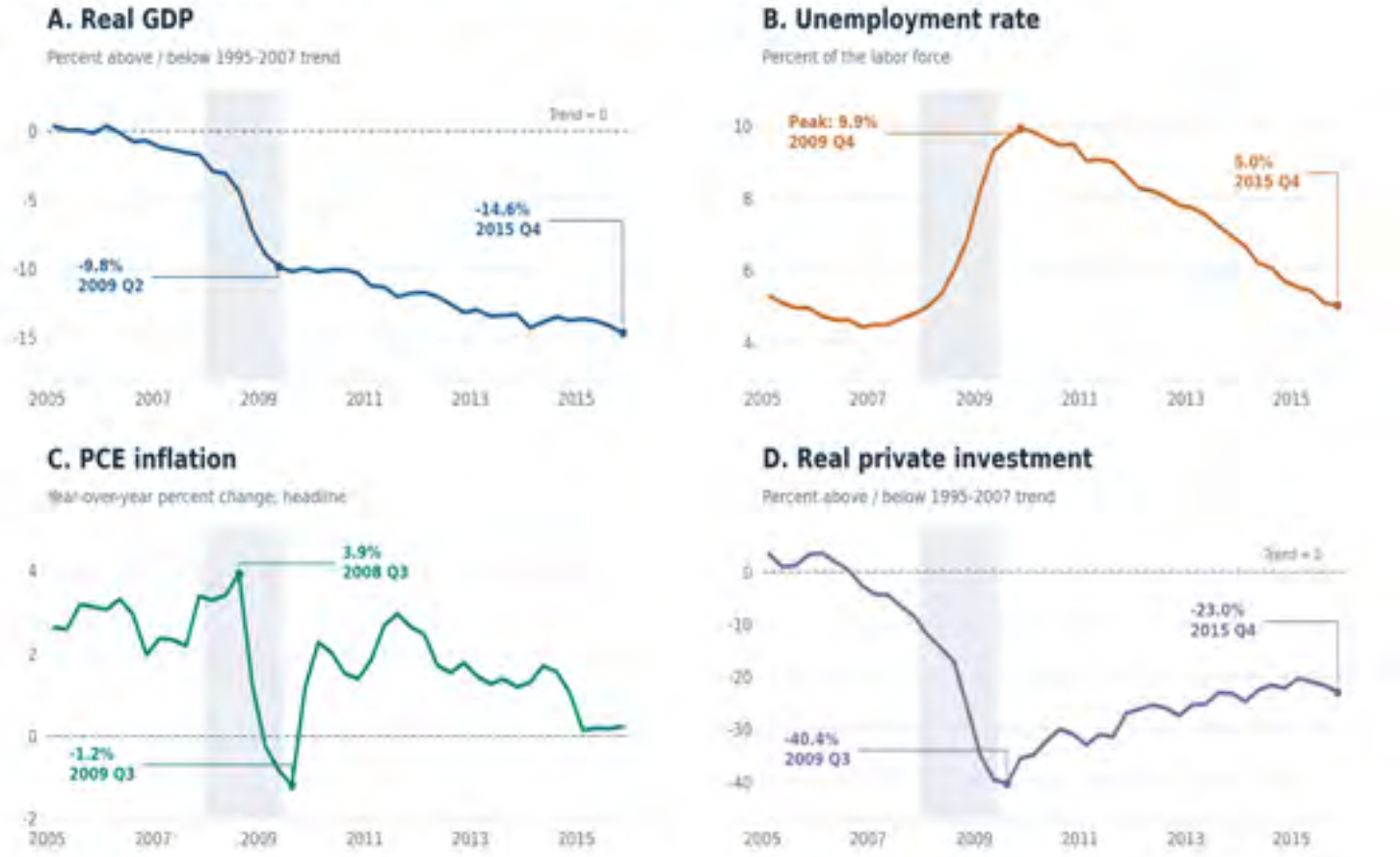
Trend: log-linear fit over 1995 Q1-2007 Q4, extrapolated forward at 3.19% annual growth.

Gray shading: NBER recession, Dec. 2007-Jun. 2009. The historical trend is a descriptive benchmark, not an estimate of potential GDP.

Sources: BEA via FRED (GDPC1); NBER. Seasonally adjusted annual rate. Revised historical data retrieved November 1, 2026.

The U.S. macroeconomy around the Great Recession

Quarterly, 2005-2015 | Gray shading: NBER recession, December 2007-June 2009



GDP and investment gaps = 100 × (actual / trend − 1). Separate log-linear trends are fitted over 1995 Q1-2007 Q4 and extrapolated forward.

Investment includes business fixed investment, housing, and changes in inventories. PCE inflation uses the quarterly average price index.

Trend benchmarks are historical extrapolations, not estimates of potential output. All series are seasonally adjusted; monthly data are averaged by quarter.

Sources: BEA and BLS via FRED (GDPC1, UNRATE, PCEPI, GPDICI); NBER. Revised historical data retrieved November 1, 2016.

What Happened? The Gorton Narrative

"Parallel" or "Shadow" banking system had grown massively since 1980s

Relied on securitized products (e.g., mortgage-backed securities) to serve as collateral for repo and ABCP

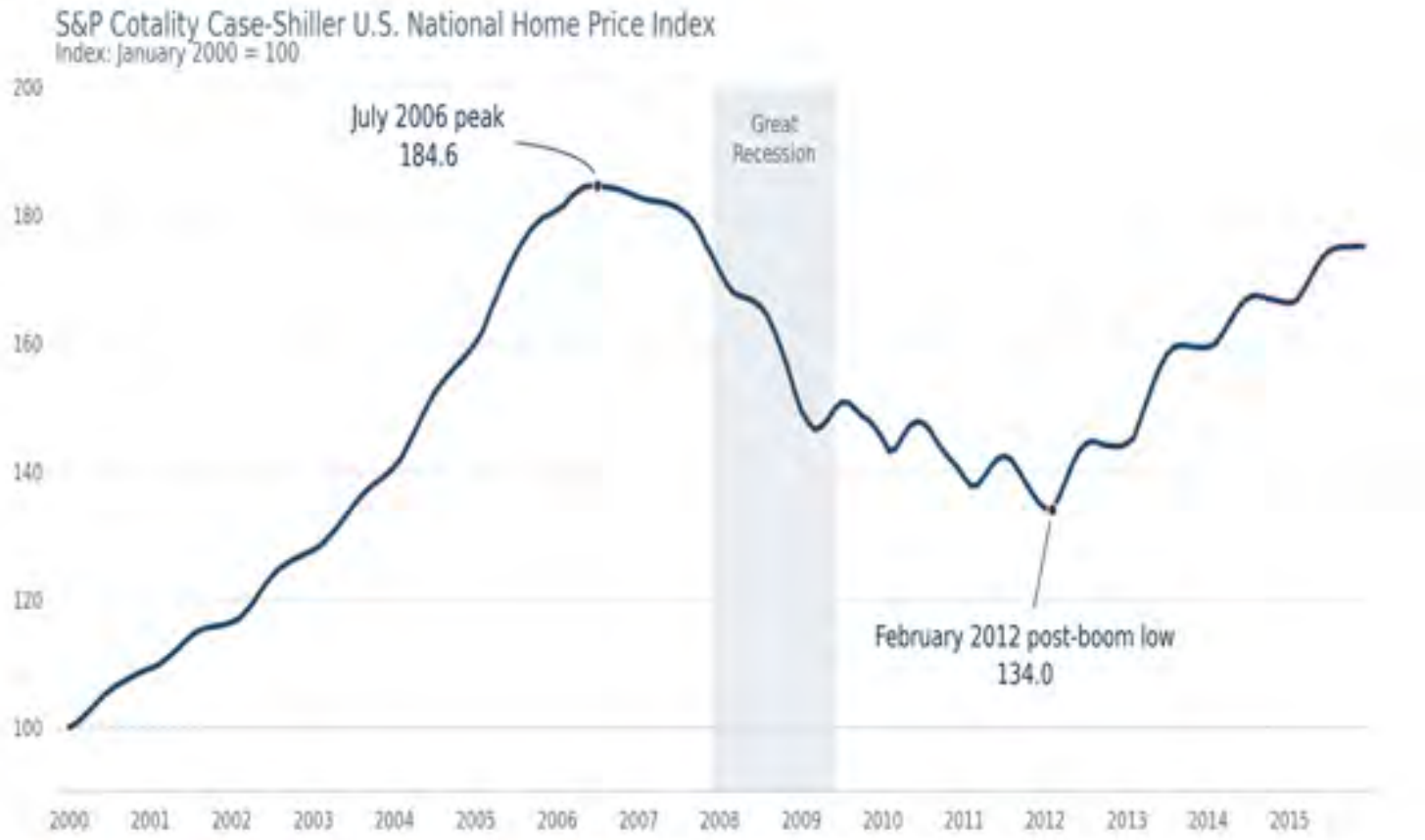
House prices declined, mortgage delinquencies increased starting late 2006 and into 2007

The backing collateral supporting the parallel banking system suddenly became interest-sensitive

Quiet, drawn-out wholesale run

- Increased haircuts and non-rollovers
- Scramble for cash drove fire sales
- Credit markets froze

U.S. home prices, 2000–2015



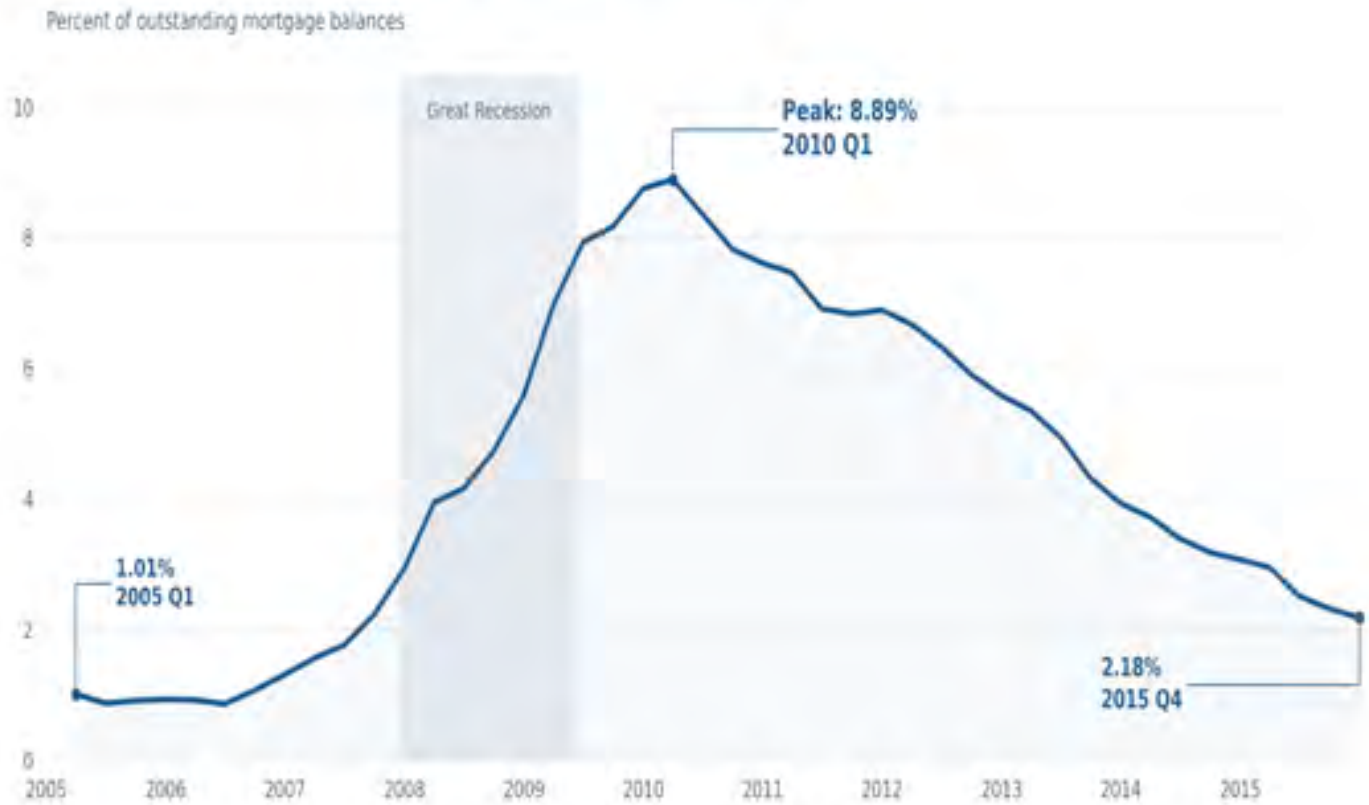
27.4% decline from the July 2006 peak to the February 2012 low

Monthly, not seasonally adjusted, nominal prices (not adjusted for inflation). January 2000–December 2015.

Source: S&P Dow Jones Indices via FRED (CSUSHPINSA); recession dates: NBER. Retrieved November 2, 2026.

Serious mortgage delinquencies

United States | Mortgage balances 90+ days delinquent | Quarterly, 2005-2015



Serious delinquency includes balances 90+ days late or classified as severely derogatory (e.g., foreclosure or charge-off).

This is the share of outstanding dollar balances in serious delinquency, rather than a count of borrowers or the rate of new foreclosures.

Mortgage accounts include closed-end home equity loans; revolving HELOCs are excluded. Gray band: NBER recession, Dec. 2007-Jun. 2009.

Source: New York Fed Consumer Credit Panel/Equifax, Household Debt and Credit Report (2016 Q2 workbook); NBER. Quarter-end data, as published.

From Mortgage Losses to Lehman

June 2007: Bear Stearns' Enhanced Leverage Fund halts withdrawals and eventually files for bankruptcy

August 2007: BNP Paribus freezes redemptions on three funds

Fall-Spring 2007-08: Fed lowers discount rate, cuts FFR, announced TAF, TSLF, and dollar swap lines

March 2008: Bear Stearns fails and is rescued by Fed/JP Morgan. Fed opens PDCF

July-September 2008: IndyMac (a thrift) fails and is taken over by FDIC

A higher repo haircut forces asset sales

Illustrative investment bank | T-accounts | All amounts in $ billions

Haircut rises: 0% → 20% **Repo capacity: (1 – 20%) × $100 = $80**

The MBS are still worth $100, but the bank must repay $20 of repo.

1 Initial balance sheet

0% haircut

Assets		Liabilities & equity	
MBS	$100	Repo	$100
Other high-quality assets	$40	Other debt	$30
Cash	$0	Equity	$10
Total	**$140**	**Total**	**$140**

Repo finances 100% of the MBS.
Other high-quality assets are unpledged.

→

2 Sell $20 of other assets

Cash raised; $20 repo repayment pending

Assets		Liabilities & equity	
MBS	$100	Repo	$100
Other high-quality assets	$20	Other debt	$30
Cash	$20	Equity	$10
Total	**$140**	**Total**	**$140**

Other assets: $40 → $20
Cash: $0 → $20

→

3 Repay $20 of repo

20% haircut; balance sheet after repayment

Assets		Liabilities & equity	
MBS	$100	Repo	$80
Other high-quality assets	$20	Other debt	$30
Cash	$0	Equity	$10
Total	**$120**	**Total**	**$120**

Repo: $100 → $80
Cash: $20 → $0

Result: $20 of asset sales and a smaller balance sheet. Equity remains $10.

Assumptions: MBS value and collateral pool stay fixed; no new funding or additional collateral; other assets sell at book value.
Haircut = (collateral value − repo borrowing) ÷ collateral value. Hypothetical example; not an actual bank's financial statements.

Rising repo haircuts reduced the funding available

Gorton-Metrick index | Selected dealer-to-dealer collateral classes | Approximate reconstruction, 2007–2009



Approximate curve recovered from the published vector figure; dates and values are not original raw observations. No smoothing is applied.

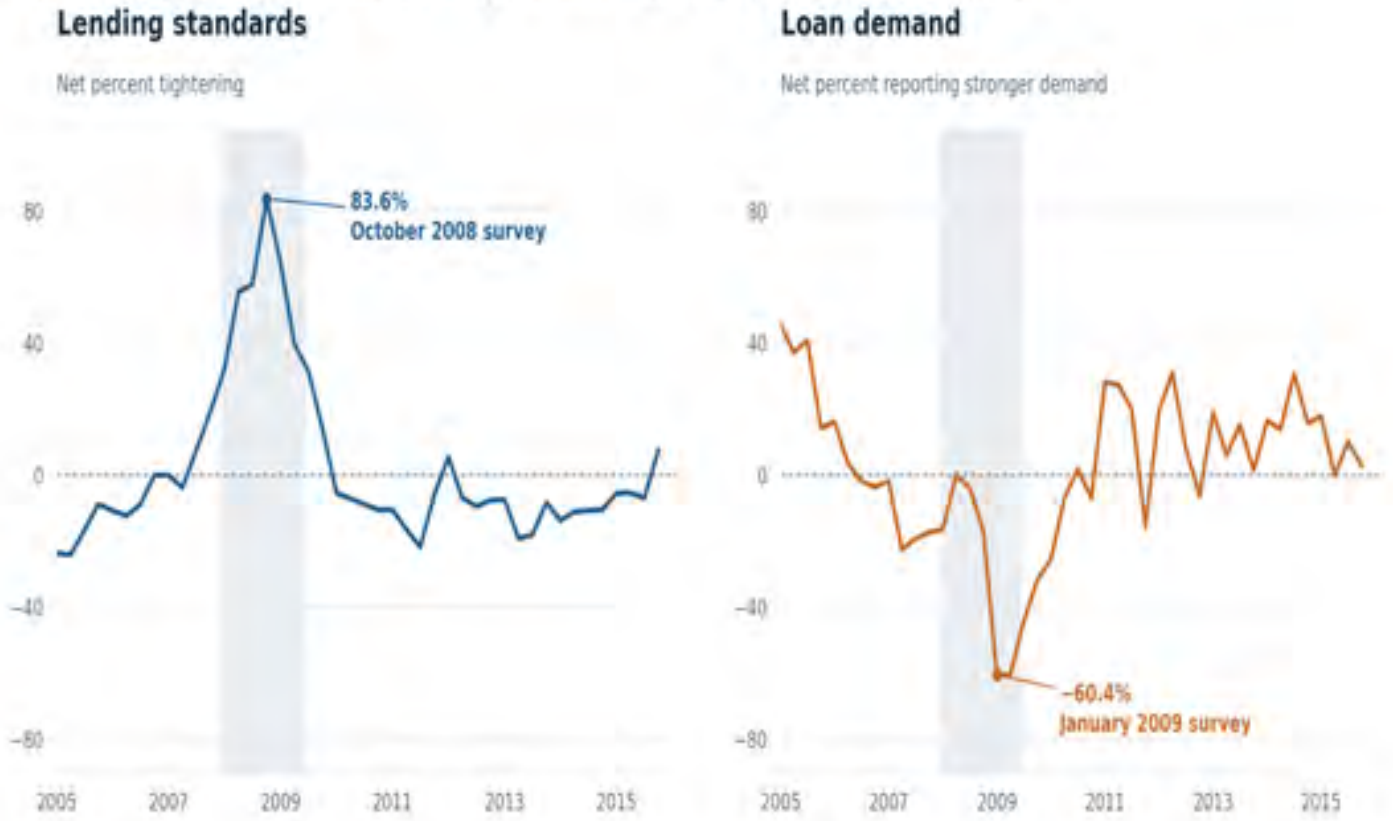
Index: equal-weighted average across nine collateral classes, excluding U.S. Treasuries, in a sample of dealer-to-dealer repo transactions.

A class is assigned a 100% haircut when financing disappears ("no trade"). Thus, the index includes both higher haircuts and lost access to funding.

Source: Gorton and Metrick (2012), "Securitized Banking and the Run on Repo," Journal of Financial Economics, Figure 4 (author-hosted proof).

Credit tightened as demand for business loans weakened

United States | Domestic banks' C&I loans to large and middle-market firms | Quarterly surveys, 2005–2015



Net tightening = share of banks tightening minus share easing. Net stronger demand = share reporting stronger demand minus share reporting weaker demand.

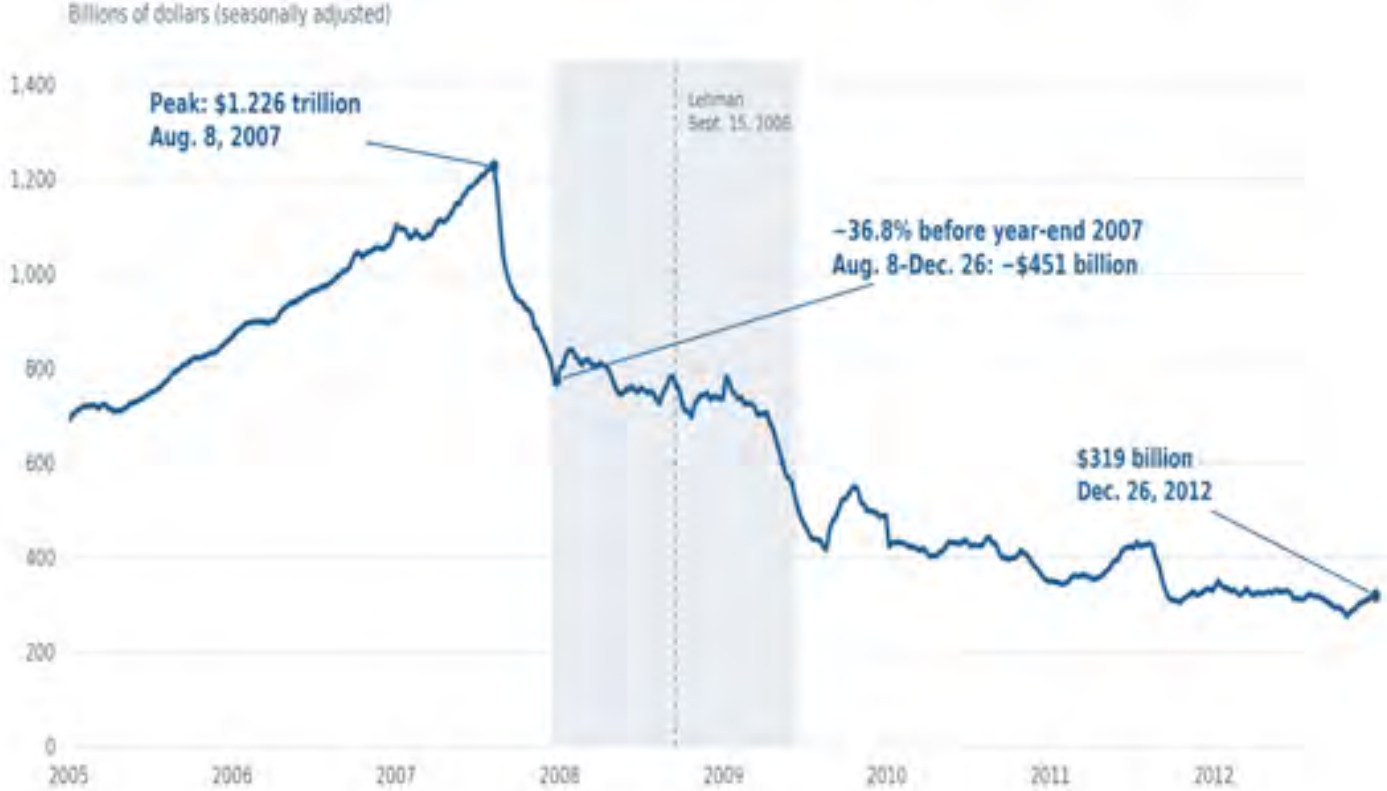
Responses describe changes over the previous three months. A positive tightening reading still indicates further tightening, even when the line is falling.

Observations are assigned to survey quarters, not quarterly averages. Series are not seasonally adjusted. Gray band: December 2007–June 2009 recession.

Sources: Federal Reserve Board, Senior Loan Officer Opinion Survey; FRED series DRTSCILM and DRSDCILM; NBER. Retrieved November 1, 2026.

The contraction in asset-backed commercial paper

United States | ABCP outstanding | Weekly, 2005–2012



ABCP is short-term debt backed by assets such as loans and receivables. The graph shows the stock outstanding, net new issuance or losses.

The sharp contraction began in summer 2007, more than a year before Lehman's failure. Weekly observations end on Wednesday.

Gray band: NBER recession, December 2007–June 2009. Dashed line: Lehman bankruptcy.

Sources: Federal Reserve Board, Commercial Paper release; FRED series ABCOMP, NBER. Historical data retrieved November 2, 2026.

Baa-Aaa corporate bond yield spread

Moody's Baa (BBB-equivalent) minus Aaa | Monthly, 2005-2012



Spread = Baa corporate yield minus Aaa corporate yield. Baa is the broad Moody's counterpart to BBB; Aaa is the highest rating.

Both series cover long-term seasoned corporate bonds (maturities of 20 years and above). Gray band spans Dec. 2007-Jun. 2009.

Sources: Moody's via FRED, series BAA and AAA; NBER recession chronology; SEC Lehman bankruptcy filing.

Monthly observations are plotted at mid-month; the September 2008 value is a monthly observation, not the spread on the bankruptcy date.

Fire sales and the reversal of credit spreads

5-year industrial corporate bonds: AA yield minus AAA yield



Gorton's interpretation: forced sales of high-quality assets pushed their prices down and yields up.

Source: Gorton (2010), "E-coli, Repo Madness, and the Financial Crisis," Fig. 8, p. 172; figure credits Gorton & Metrick (2009).

Reconstructed from the higher-resolution FCIC version; values and dates are approximate. 100 basis points = 1 percentage point.

September 2008

September 7: Fannie Mae and Freddie Mac are put in government conservatorship

September 15: Lehman declares bankruptcy

September 16: Fed authorizes loan to AIG, Reserve Primary Fund "breaks the buck"

September 19: Treasury announced guarantee of money market funds; Fed announced AMLF

September 21: Goldman and Morgan Stanley become bank-holding companies

September 25: Washington Mutual Fails

Fannie and Freddie

Public mission but private ownership: government sponsored enterprises (GSEs)

Shareholder-owned companies with federal charters to support housing finance

Big funder of traditional banking system: bought conforming loans and packaged into MBS

They were undercapitalized and falling house prices and mortgage losses were a problem: they guaranteed the cash flows from MBSs

Put into conservatorship by the Federal Housing Finance Agency (FHFA) with Treasury purchasing preferred stock

Lehman

Standard investment bank: underwrote securities issues, advised on mergers, traded securities, managed investments

Particularly large holdings of MBS and commercial real estate

Also extremely levered: in 2007, something like leverage ratio of 30

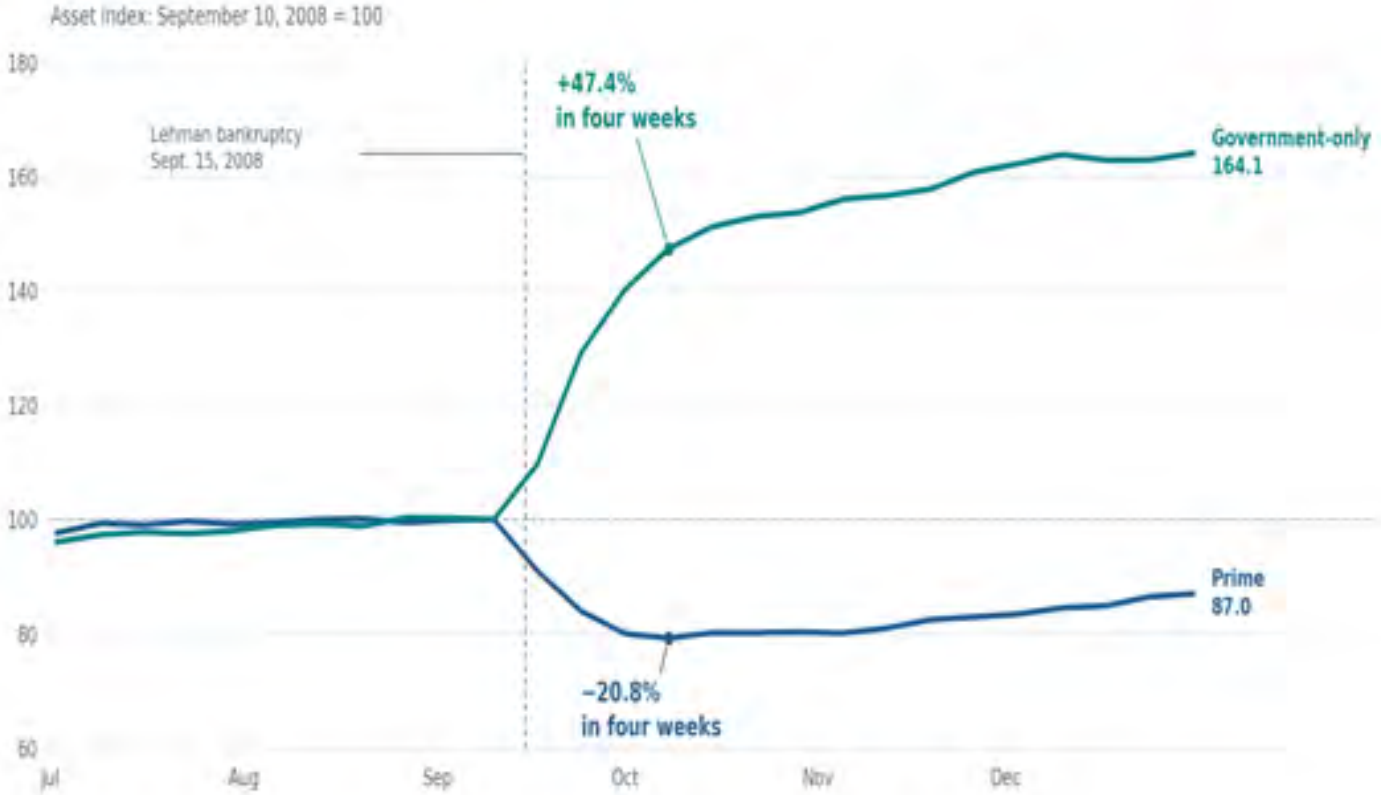
Relied heavily on short-term borrowing, in particularly repo. Wholesale funding run

The Fed and others tried to find someone to acquire Lehman, no one would/could, and it declared bankruptcy on September 15

The Reserve Primary Fund held almost $800 million of Lehman's commercial paper

Money-market funds: a flight to safety

United States | Prime and government-only fund assets | Weekly, July–December 2008



Four-week changes are September 10–October 8, 2008. Initial assets: $2.178 trillion in prime funds; $0.886 trillion in government-only funds.

Both series include retail and institutional funds. Government-only includes Treasury, agency/GSE securities and repos backed by those securities.

These are assets under management; changes are not a direct measure of net flows or a tracing of transfers between the two categories.

Source: ICI, as published in McCabe (2010), FEDS 2010-51, Figure 1A; Federal Reserve Board accessible data table (2010 historical vintages).

AIG and CDS

CDS: credit default swap

Essentially an insurance product on debt: buyer pays a premium, the seller promises compensation if a "credit event" occurs

Unlike standard insurance products, one didn't need to own the underlying debt to buy CDS. So you could get additional exposure to mortgage debt without additional mortgages

AIG had sold a ton of CDS: was on the hook for these

AIG was reliant on short-term funding

Fearing systemic importance, it was bailed out on September 16

Policy

The policy response (Fed + Treasury) was large. Gorton would argue it was late and somewhat hodge-podge

Stage 1 (Monetary): lending facilities to get liquidity where it needed to go

- Bagehot's rule, but not legally straightforward – had to invoke 13(3)

Stage 2 (TARP): authorized Treasury to use up to $700 billion to stabilize the financial system

- Ended up being equity injections (preferred stock). These were widespread

Stage 3: "unconventional" monetary policy: QE and ZIRP

Stage 4: stress tests. Supervisory Capital Assessment Program. Announced May 7, 2009

Emergency liquidity and credit programs

Original crisis programs | Operating windows include extensions beyond 2009 | Approximate durations

PROGRAM	FULL NAME	OPERATION / AVAILABILITY WINDOW	DURATION	WHAT IT DID, IN BASIC TERMS
TAF	Term Auction Facility	Dec 17, 2007: first auction Mar 8, 2010: last auction	~27 months	**Banks** Auctioned loans lasting about 1-3 months to banks against collateral, giving them funding when private lenders pulled back.
Dollar swaps	Central bank dollar liquidity swap lines	Dec 12, 2007: authorized Feb 1, 2010: original lines expire	~26 months	**Dollar funding abroad** Fed supplied dollars to foreign central banks, which lent them to banks in their jurisdictions. This eased shortages of dollar funding.
STOMO	Single-Tranche Open Market Operations (term repos)	Mar 7, 2008: first auction Dec 30, 2008: last auction	~10 months	**Securities dealers** Made term repo loans to primary dealers, taking Treasuries, agency debt or agency mortgage securities as collateral.
PDCF	Primary Dealer Credit Facility	Mar 17, 2008: opens Feb 1, 2010: closes	~22.5 months	**Securities dealers** Lent overnight cash against collateral to primary dealers - major securities firms whose usual funding had become unreliable.
TSLF	Term Securities Lending Facility	Mar 27, 2008: first auction Feb 1, 2010: closes	~22 months	**Dealers needing liquid collateral** Lent Treasury securities, usually for 28 days, against other securities. Dealers could use the Treasuries to raise cash more easily.
AMLF	Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility	Sep 22, 2008: opens Feb 1, 2010: closes	~16 months	**Money funds facing withdrawals** Lent to banks buying existing ABCP from money market funds, giving the funds cash to pay investors who wanted out.
CPFF	Commercial Paper Funding Facility	Oct 27, 2008: first purchases Feb 1, 2010: closes	~15 months	**Commercial-paper issuers** Financed a special-purpose vehicle that bought new 3-month commercial paper, including ABCP. Helped issuers replace maturing debt.
MMIFF	Money Market Investor Funding Facility	Nov 24, 2008: available Oct 30, 2009: closes	~11 months	**Money-market investors** Designed to finance vehicles buying short-term debt from money-market investors needing cash. Never used: it made no loans.
TALF	Term Asset-Backed Securities Loan Facility	Mar 25, 2009: first loans Mar 31, 2010: most lending ends Jun 30, 2010: new CMBS ends	~12 / 15 months	**Securitized household / business credit** Lent to investors buying eligible asset-backed securities. Supported auto, student, credit-card and small-business lending; later commercial mortgages.

DATES: Starts are labeled by event type. End dates mark final auctions or closure to new activity, not final repayment. Durations use the dates shown.

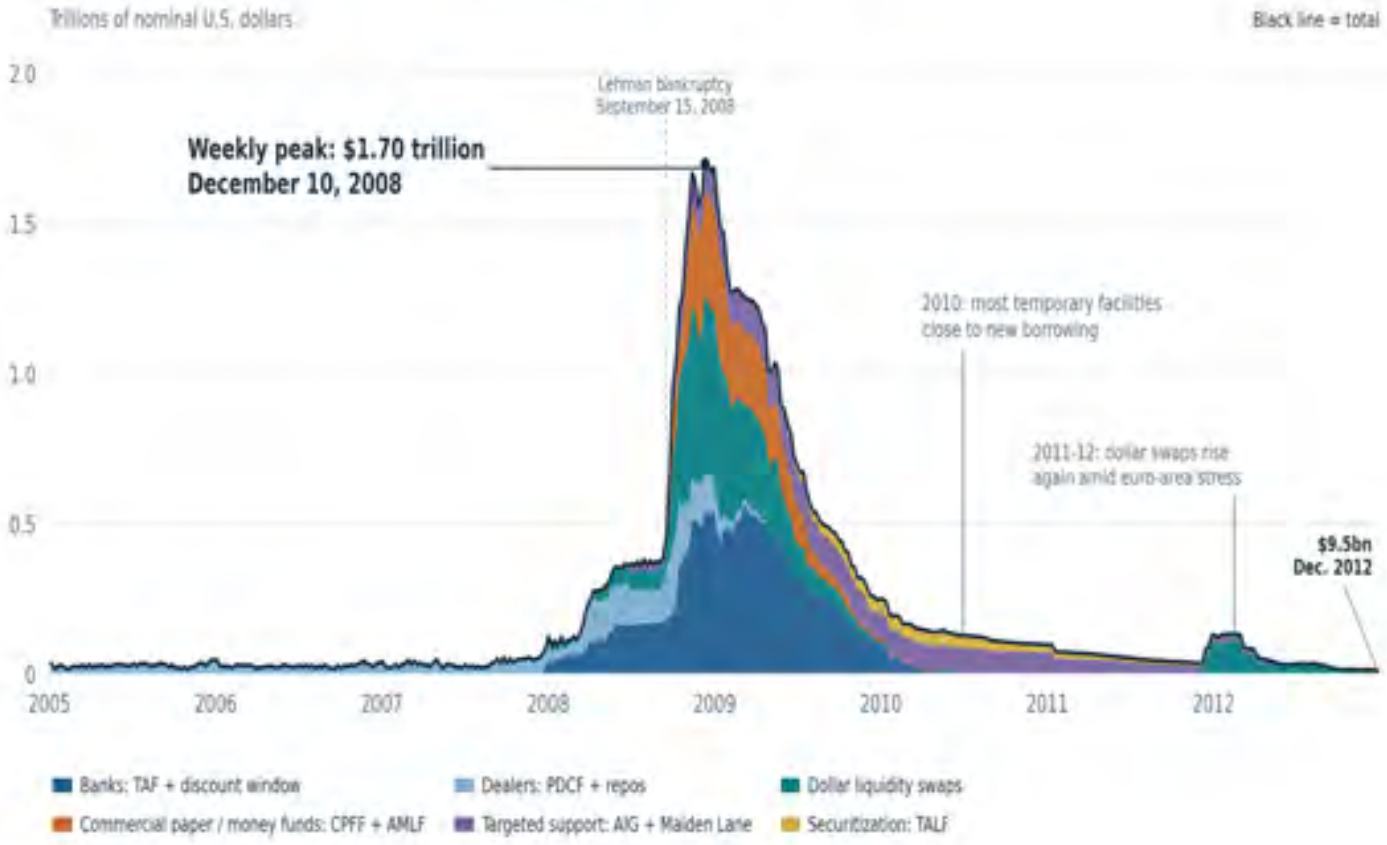
TALF: March 2010 closure covered ABS and older (legacy) CMBS; June 2010 closure applied only to newly issued CMBS. Dollar swaps shown are the original crisis round.

CP = commercial paper (short-term debt); ABCP = asset-backed CP; ABS = asset-backed securities; CMBS = commercial mortgage-backed securities.

Source: Federal Reserve Board and Federal Reserve Bank of New York; one program commenced one additional week in the subprime ABCP.

Federal Reserve lending to the financial system

Amount outstanding across programs, 2005-2012 | Weekly Wednesday observations



Includes loans, repos and dollar swaps. Excludes QE securities purchases, TSLF securities lending and equity investments.

The colored areas add to outstanding credit at each date. This is not cumulative loan originations, total Fed assets, or taxpayer cost.

Source: Federal Reserve H.4.1 via FRED. CPFF and Maiden Lane use Fed loan principal, other loans use reported credit balances.

Covers January 5, 2005-December 26, 2012. Ordinary lending continued, small TALF balances remained until October 2014.

The Fed's balance sheet and quantitative easing

Total assets, December 2002-December 2018 | Weekly Wednesday observations



QE bands run from announcement through the end of net purchases; settlements can lag. Total assets include both securities and lending.

Operation Twist exchanged shorter-term for longer-term Treasuries; it was designed to change maturity composition without expanding holdings.

Source: Federal Reserve H.4.1 via FRED (WALCL). The consistent weekly series begins Dec. 18, 2002; the last observation is Dec. 26, 2018.

Dodd-Frank

Passed in 2010, aimed to strengthen regulation, protect consumers, reduce likelihood of future crises

Requried stronger capital cushions and regular stress testing

Promised to end "too big to fail": firms had to have "living wills" and FDIC gained greater powers to wind down major financial companies

Section 13(3) was restricted: had to have Treasury approval and broad eligibility

Limiting bailouts was meant to discourage moral hazard, but it also reduced the flexibility of the Fed during a panic