

TARP and other Bank Bailouts and Bail-ins around the World. 2020 : 43–56.
Published online 2020 Jun 26. doi: 10.1016/B978-0-12-813864-9.00002-1



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Conditions that generally bring about bank bailouts, bail-ins, and other resolution methods

This chapter discusses the conditions that typically bring about bailouts, bail-ins, and other types of bank resolution. As noted in the Introduction, bailouts and bail-ins are usually triggered by financial crises, but may also occur during normal times in response to the distress of too-big-to-fail (TBTF), too-interconnected-to-fail (TITF), or too-many-to-fail (TMTF) banks.

In the interest of brevity, [Section 2.1](#) describes just two recent financial crises, the Global Financial Crisis and European Sovereign Debt Crisis, and the links between them, and refers the reader to some literature on other financial crises. The two recent crises are the most relevant here because they triggered most of the bailouts covered in this book and also helped in the creation of most of the bail-in regimes described in the book. We are not able to detail the Global Coronavirus Financial Crisis, which just began as this book was going to press. [Section 2.2](#) reviews some research on the lending booms and liquidity buildups that tend to bring about financial crises. [Section 2.3](#) discusses the theory of how the distress of TBTF, TITF, or TMTF banks may also trigger bailouts and bail-ins, and [Section 2.4](#) examines the empirical research on factors that tend to bring about distress or failure of TBTF, TITF, and/or TMTF banks.

Note that in later chapters in Part V, we also discuss countercyclical prudential and conventional monetary policies that may reduce the likelihood and severity of financial crises that precipitate most of the needs for bailouts, bail-ins, and other resolutions. We also include an entire book part, Part IV, on the first lines of defense. These help avoid bank distress and the need for resolution for all types of banks during financial crises and TBTF, TITF, and/or TMTF banks at other times as well.

2.1 Financial crises

2.1.1 Links between recent financial crises

As noted above, we focus on the two recent crises—the Global Financial Crisis and European Sovereign Debt Crisis—that brought about most of the bailouts and bail-ins discussed in the book. These two crises are inexorably linked, and so any separate discussions of them are inevitably flawed. The Global Financial Crisis began in the US as the US Subprime Financial Crisis and spread through many linkages to Europe and the rest of the world, and so it is an integral part of the European Sovereign Debt Crisis. The distresses of banks and governments during the European Sovereign Debt Crisis are also inescapably linked. In some cases, government finances came under pressure because of the economic damages caused by the bank distress and the costs of the bank bailouts. In other cases, bank distress was exacerbated by sovereign debt problems because the banks invested substantially in sovereign debt, particularly the debt of their home countries. Despite these links, we briefly describe these two different crises separately.

2.1.2 The Global Financial Crisis

The Global Financial Crisis began as the US Subprime Financial Crisis in 2007:Q3 when losses on US Mortgage-Backed Securities (MBS) backed by subprime mortgages started to spread to other markets, including the syndicated loan market, the interbank lending market, and the commercial paper market. In some cases, these other markets at least partially froze up. Many banks experienced substantial capital losses and at least partially withdrew from these markets. A number of large financial institutions, especially thrifts that were heavily involved in subprime lending (e.g., Countrywide, Washington Mutual, IndyMac Bank), investment banks that purchased and/or packaged subprime MBS (e.g., Bear Stearns, Merrill Lynch, Lehman Brothers), and a large insurance company that sold many credit default swaps (CDSs) on subprime MBS (American International Group (AIG)) suffered capital, liquidity, and public confidence problems and either failed, were taken over, or were individually bailed out.

As the crisis spread to many commercial banks, the TARP program, expansion of the discount window and Term Auction Facilities (TAFs), and many other bank bailouts shown in the Introduction and described in more detail in Chapter 3 occurred. It is also notable that bank and thrift failures became so widespread that the FDIC Deposit Insurance Fund fell into a deficit position and assessed banks for 3 years of deposit insurance premiums in advance to try to fill this hole. US stock market values also plunged significantly, with the Dow Jones Industrial Average falling by more than half.

As a result of these financial problems, the US economy also suffered the most severe recession since the Great Depression. The recession resulted in a number of government programs to stimulate the economy, including a massive stimulus government spending package and expansive conventional and unconventional monetary policy stimulus by the Federal Reserve.

Despite all the bailouts of financial institutions and government stimulus programs, economic losses in the US totaled in tens of trillions of dollars, as noted in the Introduction. The US recession officially ended in mid-2009, but economic growth remained slow for many years afterward. The financial crisis in the US was more or less concluded by the end of 2009, by which point much of the TARP funds invested in financial institutions had been repaid, order had been restored to most of the financial markets, and the Federal Reserve shortly thereafter began rolling back expansions to the discount window and concluded the TAF auctions (Berger and Bouwman, 2016).

However, the financial issues continued in other nations. The US Subprime Financial Crisis became the Global Financial Crisis as financial losses spread to other countries through financial linkages. There are too many such linkages to discuss here, but we simply mention one. The Basel II capital requirements, which had been earlier adopted in Europe, gave very low capital weights to AAA-rated tranches of US subprime mortgage-backed securities (MBS). This encouraged their purchases by European banks, helping to spread the problems created by these securities across the Atlantic.

2.1.3 The European Sovereign Debt Crisis

The European Sovereign Debt Crisis began in 2008, with the collapse of Iceland's banking system, and then spread to the GIIPS countries, Greece, Italy, Ireland, Portugal, and Spain. The crisis was significant through 2012, and some might argue that remnants still exist as of this writing. Some government debt remains on shaky grounds, European authorities, such as the ECB, are still engaging in stimulus, and interest rates in a number of nations are negative. As indicated above, this crisis was precipitated in significant part by the Global Financial Crisis, and it involved sovereigns as well as banks, which are also linked (Pagano and Sedunov, 2016). Other contributing factors include the recessions that covered a number of countries, the real estate market crisis and property bubbles in several countries, and fiscal policies in some nations.

Regarding the latter point, Greece revealed in 2009 that its previous government had underreported its budget deficit, a violation of EU policy, prompting fears of a Eurozone collapse via political and financial contagion. In 2010, with the growing fear of excessive sovereign debt, lenders demanded higher interest rates from Eurozone states with high debt and deficit levels, aggravating their fiscal problems. Some affected countries raised taxes and cut expenditures to battle the crisis, which added to

social unrest and confidence problems in their governments. During this crisis, several of these countries, including Greece, Portugal, and Ireland had their sovereign debt downgraded to junk by international credit rating agencies, augmenting investor fears.

Greece, Spain, Ireland, Portugal, and Cyprus were incapable of repaying or refinancing their government debt or bailing out their struggling banks without the help from third-party institutions such as the European Central Bank (ECB), the International Monetary Fund (IMF), and the European Financial Stability Facility (EFSF). Seventeen Eurozone countries voted to create the EFSF in 2010, specifically to resolve the European Sovereign Debt Crisis. These other Eurozone countries were partially driven by desires to preserve the Eurozone and/or EU, and partly driven by worries related to large investments by the banks in these healthier nations in the sovereign debt of the weaker nations. Some of these bank investments in risky sovereign debt were brought about in part by the low risk weights on this debt assigned by the Basel II capital requirements.

2.1.4 Blame for the recent financial crises

A number of parties are blamed for creating or exacerbating the effects of the Global Financial Crisis, and by implication, the European Sovereign Debt Crisis that followed. In some cases, the blame is not fully deserved either because the reasoning is incorrect or because the *ex post* consequences of some of the pre-crisis period actions could not be reasonably anticipated *ex ante*.

The Federal Reserve and its leaders receive blame for (1) keeping interest rates too low for too long in the pre-crisis period, encouraging risky lending; (2) not recognizing the dangers of the build-up of correlated risks in real estate lending; (3) not devoting sufficient resources to their financial stability mission to identify future stability and systemic risk threats; (4) pushing for Basel II capital standards, which lowered requirements for large, systemically important banking organizations and encouraged risky investments by European banks by putting low capital weights on AAA-rated tranches of MBS backed by subprime mortgages and sovereign debt of risky national governments; (5) not regulating the new complex and opaque instruments of finance, which were built on faulty models that underweighted the probability of housing price declines; and (6) not applying safety and soundness and consumer protection regulations consistently across intermediaries which gave rise to regulatory arbitrage; and (7) not pursuing accusations of consumer predatory lending.

Blame is also often assigned to Government Sponsored Enterprises (GSEs) Fannie Mae and Freddie Mac, which were undiversified entities that operated with very little capital and were able to borrow cheaply due to implicit government guarantees, which were realized during the crisis.

With the backing of the US President George W. Bush and Congress, the GSEs began investing in subprime MBS during the pre-crisis period, encouraging lenders to make more such loans.

In addition, the Securities and Exchange Commission (SEC) is blamed for allowing the investment banks to operate with very low capital ratios, despite very high portfolio risks in packaging and holding opaque MBS. The investment banks that engaged in these risky activities are also held responsible for their behavior. Rating agencies are blamed for faulty ratings on mortgage-related securities in which additional AAA-ratings were assigned to riskier and more opaque tranches. Accounting firms are criticized for unrealistic values placed on opaque MBS. Mortgage bankers and underwriters are charged with overlooking unfavorable credit information and in some cases, complicity in creating false favorable information.

Finally, a prior President and Congress were blamed for allowing combinations of commercial and investment banks under the Financial Services Modernization Act of 1999, aka the Gramm–Leach–Bliley Act. We argue that this blame is misplaced, given that the main financial institutions that created the crisis were not combined commercial banks and investment banks. To the contrary, one of the solutions to the crisis was to encourage such combinations because the stand-alone investment banks had significant liquidity problems during the crisis.

2.1.5 Literature on other financial crises

There are many other financial crises that are not discussed in this section in the interest of brevity. We refer readers to literature that discusses these crises in detail for the US by [Berger and Bouwman \(2013, 2016, 2017\)](#); and worldwide by [Demirgüç-Kunt and Detragiache \(1998\)](#), [Von Hagen and Ho \(2007\)](#), [Reinhart and Rogoff \(2009\)](#), and [Laeven and Valencia \(2018\)](#).

2.2 Research on lending booms and liquidity buildups that tend to bring about financial crises

There are as many causes as there are financial crises, and each one is different ([Reinhart and Rogoff, 2009](#)), so it is not possible to review all of the causes. In the interest of brevity, we focus here on just two recurring causes—lending booms and liquidity buildups. These two causes are not entirely independent, as bank credit also creates liquidity for the economy. It is often argued that unusually high quantities of bank lending and bank loan commitments may help result in financial crises. Loans are a form of on-balance sheet bank liquidity creation and loan commitments are a type of off-balance sheet bank liquidity creation ([Berger and](#)

Bouwman, 2009). Excessive credit of either type can result in asset price bubbles that burst and result in financial crises (Rajan, 1994; Acharya and Naqvi, 2012). Brunnermeier, Gorton, and Krishnamurthy (2011) also argue that liquidity build-ups in the financial sector can create systemic risk.

The quality of credit issued may also significantly deteriorate during lending and liquidity booms because of an institutional memory problem in banks. Veteran loan officers may have difficulty remembering how to deal with problem loans when it has been a long time since they dealt with significant problems, and turnover results in newer loan officers who have not previously faced such problems (Berger and Udell, 2004). In a theoretical setting, Thakor (2015a, 2016) show that good times corrupt risk management in banks and also lead to an “underpricing” of risk from an *ex post* perspective. This is because an extended period of profitable bank growth may also create a false sense of security among bankers and regulators that banks can withstand significant shocks (Thakor, 2015b). Excessive risk-taking may also occur off the balance sheet during economic booms, as banks shy away from exercising material adverse change (MAC) clauses on loan commitments¹ due to reputational concerns during such booms (Thakor, 2005). Consistent with these views, former Federal Reserve Chairman, Alan Greenspan argues that “the worst loans are made at the top of the business cycle.” (Alan Greenspan, Chicago Bank Structure Conference, May 10, 2001). Both excessive credit and poor quality of credit were evident in the US in the buildup to the Global Financial Crisis. Subprime mortgages in great numbers were issued to overlevered consumers. In some cases, these mortgages were issued based on the optimistic assumption that housing prices would continue to rise, given that many of the subprime borrowers would be unable to make the future payments without refinancing at higher home prices. In addition, Fannie Mae and Freddie Mac lowered their credit standards by buying subprime mortgages in the mid-2000s, further encouraging banks to make such loans. Finally, another reason for bank failures and crises is that regulatory career concerns may lead bank regulators to pursue self-interest and delay closures of financial institutions until things get really bad (e.g., Boot and Thakor, 1993).

For the interest of brevity, we review one empirical paper on lending booms and one on liquidity buildups, both using US data. Dell’Ariccia, Igan, and Laeven (2012) examine factors related to the rapid expansion of the US mortgage market prior to the Global Financial Crisis. Using a large data set of loan applications, they find that the denial rates were lower in

¹ MAC clauses are intended to protect the lender against gaps in due diligence or unforeseen “material” changes to the borrower’s financial condition and assets that could affect the borrower’s ability to repay the loan. If a change is deemed material enough, the lender can modify terms or terminate its agreement with the borrower.

areas that experienced faster credit demand growth, and that lenders in these high-growth areas put less weight on applicants' loan-to-income ratios, after controlling for other economic fundamentals.

The other study explicitly tests the propositions that excessive on-balance sheet and off-balance sheet liquidity creation increase the likelihood of future financial crises. [Berger and Bouwman \(2017\)](#) use data on five financial crises in the US. They essentially use empirical models to predict when the fifth crisis (the subprime crisis) would occur, controlling for a number of other aggregate factors that might cause financial crises. They find that lagged detrended aggregate liquidity creation has a statistically and economically significantly positive effect on the probability of a future crisis, supporting the theories discussed above. They also find that the effects are primarily driven by off-balance sheet liquidity creation, which is mostly composed of loan commitments.

2.3 The theory of too-big-to-fail (TBTF), too-interconnected-to-fail (TITF), and too-many-to-fail (TMTF) banks

As discussed above, the distress of TBTF, TITF, and/or TMTF banks may trigger bailouts or bail-ins outside of crisis times. The TBTF term was introduced in 1984 by the bailouts of Continental Illinois National Bank and Trust Company, which failed at that time, but was not closed. It was propped up by government bailouts for a number of years, and was eventually bought by Bank of America. The Chicago bank was the seventh largest bank in the US, with about \$40 billion in assets ([FDIC, 1997](#)), and its failure was the largest in US history as of that time.² After Continental Illinois, investors had reasons to believe that the creditors of large banks were likely to be protected. In addition, in congressional hearings after the event, Comptroller of the Currency, C. Todd Conover, the primary supervisor for national banks, explicitly stated that regulators were unlikely to allow the nation's 11 largest banks to fail.³ Congressman

²https://www.federalreservehistory.org/essays/failure_of_continental_illinois.

³ Although Conover did not name the banks, [Barth and Wihlborg \(2015\)](#) collected information from the *Wall Street Journal*, The Banker, Federal Reserve, and Milken Institute and identified the 11 largest banks and their associated BHCs in 1983 as: Citibank; Bank of America, San Francisco; Chase Manhattan Bank; Morgan Guaranty Trust, New York; Manufacturers Hanover Trust, New York; Chemical Bank, New York; Continental Illinois National Bank and Trust, Chicago; Security Pacific National Bank, Los Angeles; First National Bank of Chicago; Bankers Trust New York; and Wells Fargo Bank. The authors follow these banks through time and note that many of them got integrated into larger organizations, while two of the original BHCs remain, and all became much bigger over the past three decades.

Stewart McKinney responded, “let us not bandy words. We have [created] a new kind of bank. It is called too-big-to-fail, TBTF, and it is a wonderful bank.” This was the first time that government officials confirmed the existence of such a government policy.

TBTF theory describes the motivations of the regulators in bailing out TBTF banks and the incentives that the expectations of such bailouts create for the banks and their stakeholders. Regulators’ bailout decisions may be motivated by the desires to reduce damages to the financial system and the real economy. The failure of a large bank may spill over to other financial institutions and increase the likelihood of future financial crises. Supporting this, [Acharya \(2009\)](#) finds that the limited liability of banks and the presence of a negative externality of one bank’s failure on the health of other banks give rise to a systemic risk-shifting incentive where all banks undertake correlated investments, thereby increasing economy-wide aggregate risk. The loss of credit and other banking services of a single large bank may also cause significant economic losses. In addition, they may bail out large banks to avoid personal embarrassment about failures on their watches or to direct credit according to their preferences (e.g., [Kane, 1989, 1991](#); [Stern and Feldman, 2004](#); [Mishkin, 2006](#)). The expectation that the largest banks are likely to be bailed out in the event of their distress from TBTF policies is a subsidy to large banks in conditions of financial distress and good financial health as well because the lessened probability of failure allows the large banks to raise equity and debt capital more cheaply. This motivates the banks to become larger to be able to raise capital more cheaply, and motivates shareholders, creditors, and other counterparties to do business with them (e.g., [Cetorelli and Traina, 2018](#)).

[Table 2.1](#) provides some data indicating how large banks have grown since the TBTF policy was introduced in 1984. The number of FDIC insured banks has fallen by about 70% as of 2019:Q1, while the number of banks with at least \$10 billion in assets has increased by about 340%, and their share of industry assets has more than tripled. Of course, both inflation and real growth of banks play roles in these figures, but it seems likely that TBTF be responsible for some of the growth of the large banks.

The theoretical motivations behind TITF and TMTF mostly follow those of TBTF. They also involve regulators avoiding risks to the financial system and the economy, circumventing personal embarrassment, and/or maintaining the ability to direct credit, and banks and their stakeholders taking actions to gain the subsidies of bailout expectations. TITF theory differs from TBTF theory in that it takes into account the highly interconnected network among banks, rather than the size of these institutions. Banks may be interconnected either directly or indirectly. Direct interconnectedness arises from bilateral transactions or relationships between banks, such as interbank deposits, loans, or derivatives (e.g., interest rate swaps). If the bank that owes money or is out-of-the-

TABLE 2.1 US bank numbers and asset concentration by size class, 1984:Q4 versus 2019:Q1.

Report period	1984:Q4				2019:Q1			
	Number		Assets		Number		Assets	
Bank size classes	Number	% of Total	Total assets	% of Total	Number	% of Total	Total assets	% of Total
Assets ≥ \$10 billion	32	0.2%	1004.6	27.5%	141	2.6%	15,208.2	84.1%
Assets \$1 billion–\$10 billion	468	2.6%	1231.1	33.7%	648	12.1%	1718.5	9.5%
Assets \$100 million–\$1 billion	3594	20.1%	934.8	25.6%	3306	61.7%	1096.3	6.1%
Assets < \$100 million	13,807	77.1%	484.0	13.3%	1267	23.6%	76.0	0.4%
All FDIC insured commercial banks	17,901		3653.1		5362		18,090.0	

This table shows the numbers and asset concentration by bank size classes for all FDIC insured commercial banks in the US.

Source: Adapted based on FDIC quarterly banking profile, <https://www.fdic.gov/bank/analytical/qbp/>

money on derivative contracts becomes financial distressed or fails, the banks with direct interconnections to it suffer losses on the values of their claims, losing all of the values in the event of failure. Indirect interconnectedness—in which the financial distress or failure of a bank may spread losses to banks without direct bilateral exposures to it—stems from many potential sources. These include mark-to-market losses on similar assets, margin calls, and/or increased haircuts on posted collateral triggered by fire sales by other banks, or information spillovers from other banks that result in runs (e.g., [Lui, Quiet, and Roth, 2015](#)). Under TITF theory, the financial distress or failure of more interconnected banks causes more damage to the financial system than problems of less interconnected institutions. Thus, regulators are more likely to bail out more interconnected banks and banks have incentives to become more interconnected to increase their likelihoods of receiving such bailouts. The theoretical arguments in [Choi \(2014\)](#) suggest that bailouts be allocated to the stronger of the interconnected banks, who are in better positions to reduce systemic risk than the weaker banks.

TMTF theory posits a more dynamic view that includes multiple banks. Holding the total number of banks constant for a period of time, when the number of failed banks increases and the number of surviving banks decreases, the investment opportunity set for surviving financial institutions grows large, but the total investment capacity of surviving banks decreases ([Acharya and Yorulmazer, 2007](#)). To prevent widespread damage, the optimal choice for regulator is to bail out when the number of failures is large. The expectations of such widespread bailouts may encourage banks to engage in herding behavior that results in highly correlated portfolios to be able to benefit from future bailouts (e.g., [Acharya and Yorulmazer, 2007, 2008](#); [Brown and Dinc, 2011](#); [Farhi and Tirole, 2012](#); [Acharya, Mehran, and Thakor, 2016](#)). Perhaps surprisingly, some empirical research suggests that the asset similarity created by TMTF may actually reduce systemic risk because the market expects banks with greater similarities to be more likely to survive during financial crises ([Cai, 2019](#)).

2.4 Empirical research on factors that tend to bring about distress or failure of TBTF, TITF, and/or TMTF banks

In this section, we focus on what might cause TBTF, TITF, and/or TMTF banks to become financially distressed and potentially fail that would result in bailouts or bail-ins. Most of the studies on the determinants of bank problems focus on bank failure, rather than financial distress, and so we review the bank failure literature. Presumably, the

factors that bring about financial distress are largely in common with those that cause failure, given that banks usually fail before a period of financial distress.

Most of the literature on bank failure concentrates on accounting variables. Virtually all such studies find that low capital ratios raise the probability of bank failure. Other weak accounting performance measures such as low profitability and poor loan quality raise the probability of failure, as do certain activities, commercial real estate credit, particularly construction and development loans, and nontraditional activities (e.g., Lane, Looney, and Wansley, 1986; Cole and Gunther, 1995, 1998; Wheelock and Wilson, 1995, 2000; Calomiris and Mason, 1997, 2003; Elsinger, Lehar, and Summer, 2006; Schaeck, 2008, Cole and White, 2012; Knaup and Wagner, 2012; Admati, DeMarzo, Hellwig, and Pfleiderer, 2013; Berger and Bouwman, 2013; DeYoung and Torna, 2013; Berger, Imbierowicz, and Rauch, 2016).

Sampling a few of these studies, Cole and Gunther (1995) find that capital, troubled assets, and net income are key indicators in explaining bank failure. Berger and Bouwman (2013) find that low capital ratios reduce the probability of survival for small banks under all general economic conditions—banking crises, market crises, and normal times—while low capital hurts medium and large banks primarily during the banking crises. Schaeck (2008) finds that liability structure affects a bank's time to failure. Fee-based nontraditional activities (e.g., securities brokerage and insurance sales) decrease and asset-based nontraditional activities (e.g., venture capital, investment banking, and asset securitization) increase the probability of distressed bank failure (DeYoung and Torna, 2013). Some also find that commercial real estate loans, particularly real estate construction and development loans, play important recurring roles in explaining bank failure (e.g., Cole and Fenn, 2008; Cole and White, 2012). In addition, some composite measures of bank soundness or risks forecast bank failure, including the traditional measure of bank soundness, CAMELS components (Cole and White, 2012), and a market-based measure of credit portfolio quality and bank performance, Credit Risk Indicator (CRI) (Knaup and Wagner, 2012).

Others focus on corporate governance with mixed results on both bank performance and failure (e.g., Fahlenbrach and Stulz, 2011; Beltratti and Stulz, 2012; Berger and Bouwman, 2013; Berger, Imbierowicz, and Rauch, 2016; Calomiris and Carlson, 2016). One study also finds that bank cost inefficiency during normal times, a signal of poor management, predicts both performance problems and failure during subsequent financial crises (Assaf, Berger, Roman, and Tsionias, 2019).

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