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STUDY

Economic Governance Structures in the United States

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Peterson Institute of International Economics

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Abstract

This report summarizes the history and organization of the principal economic governance institutions in the United States. Particular emphasis is given to the main U.S. fiscal actors at the federal and state and local governmental level. Sources and beneficiaries of, and trends in government revenues and expenditures are analyzed, and the lines of democratic oversight relations over other appointed U.S. economic governance institutions are described. Debt issuance procedures at all governmental levels are examined, including the legal circumstances of U.S. local government bankruptcies. In-depth explorations of also the U.S. central bank in the Federal Reserve System, and the U.S. bank deposit and resolution framework centered on the Federal Deposit Insurance Corporation (FDIC) are presented, and brief descriptions of other relevant U.S. financial regulatory agencies provided.

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LIST OF ABBREVIATIONS

ABCF	**Asset-Backed Commercial Paper**
AMLF	**Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility**
ABS	**Asset-Backed Security**
BRAC	**Base Closure and Realignment Commission**
CBO	**Congressional Budget Office**
CDO	**Collateralized Debt Obligation**
CPFF	**Commercial Paper Funding Facility**
CFPB	**Consumer Financial Protection Bureau**
EUC	**Emergency Unemployment Compensation**
FDIC	**Federal Deposit Insurance Corporation**
FFIEC	**Federal Financial Institutions Examination Council**
FOMC	**Federal Open Market Committee**
GDP	**Gross Domestic Product**
HTF	**Highway Trust Fund**
LLC	**Limited Liability Company**
MBS	**Mortgage-Backed Security**
MMMF	**Money Market Mutual Fund**
NCUA	**National Credit Union Administration**
OCC	**Office of the Comptroller of the Currency**
PDCF	**Primary Dealer Credit Facility**
PFR	**Primary Federal Regulator**
QE	**Quantitative Easing**
TALF	**Term Asset-Backed Securities Loan Facility**
TAF	**Term Auction Facility**
TARP	**Troubled Asset Relief Program**
TSLF	**Term Securities Lending Facility**
VAT	**Value Added Tax**

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EXECUTIVE SUMMARY

The United States is a large and highly diverse society. The country's at once constitutionally stable, though politically responsive and malleable economic governance institutions has for over two centuries provided the critically important foundation for continued U.S. economic growth and prosperity. This study examines the design and operations of, and political, economic and legal interactions between the most important American economic governance institutions: The federal government, state and local governments, the central bank, and the bank deposit insurance and resolution framework.

At the core lies the federal government, accounting for most U.S. public sector economic activity, and a sizable majority of the general U.S. government debt. Federal government revenues are derived predominantly from personal income taxes and earmarked employment-based social insurance contributions, while only a limited and declining revenue share origins with corporate and excise taxes. No federal sales/VAT or property taxation exists. Federal government expenditures consist mostly of direct government social benefit payments made to individuals, with national defense and federal grants to state governments also sizable spending items. Federal outlays on areas such as agriculture, education, training and employment services and R&D remain very small components of the overall budget. The federal government's revenue base and spending patterns generate significant geographic budgetary redistribution among U.S. states. However, this fiscal redistribution is overwhelmingly structural in nature and related to the overall income levels of states, their demographic characteristics and the particular location of large federal government facilities. Automatic budgetary stabilizers constitute only a very small part of the total federal government budget. The federal government also through presidential nominations, subject to the approval of the U.S. Senate, controls the top management of most other important national U.S. economic governance institutions.

The 50 U.S. state and tens of thousands of local government entities represent about 40 percent of general government economic activity, and are funded through property, sales and to a lesser extent personal and corporate taxes. Conditional federal government grants account for roughly a fifth of all state and local government revenues. State and local governments are responsible for most U.S. primary, secondary and some tertiary education, as well as have sizable outlays towards social spending, infrastructure and public safety. A strict no-bailout political norm governs the fiscal relationship between the federal and state governments, while some states do allow local government entities within their jurisdiction to enter bankruptcy under federal law. Constitutional balanced budget amendments or other legislative procedures aiming at fiscal stability exist in all 50 U.S. states. Yet, often they do not cover all government spending items and have generally only succeeded in reducing the growth rate of state and local government indebtedness. Rapidly rising pension and healthcare costs for retired workers constitute a growing fiscal problem for many state and local governments.

The U.S. central bank, the Federal Reserve System, controls America's monetary policy and is responsible for a significant part of financial regulation and sector supervision of especially the largest U.S. banks. It is tasked by law to pursue a dual mandate of maximizing employment and deliver price stability. The Federal Reserve, in close collaboration with especially the U.S. Treasury, intervened forcefully and successfully to stabilize the mostly market-based U.S. financial sector during the 2008-09 crisis. As a result of its emergency crisis management actions, including sizable purchases of federal government and federal government guaranteed debt as part of quantitative easing (QE), the Federal Reserve has since earned very large financial profits for the U.S. Treasury.

The Federal Deposit Insurance Corporation (FDIC) is responsible for American deposit insurance and the resolution of failed – at least small and medium-sized – U.S. banks. It is funded exclusively by fees paid by insured banks, though the FDIC does have an explicit emergency borrowing capacity with the U.S. Treasury. Through its national geographic scope and rapid takeover and resale or resolution of failed banks, the FDIC provides an important complement to the regular federal government budget's shock absorbing capabilities in assisting otherwise likely overburdened state and local governments.

1. INTRODUCTION

The United States is a large, populous, very diverse and dynamically changing country. The capacity of its main constitutional governance institutions to over more than two centuries accommodate the resulting political miscellany is among the key foundations for the lasting success of America. Since coming into force in 1788, the United States' constitutional governance framework has been at once both remarkably stable in its key governmental design features, and highly malleable to the dramatic changes in U.S. society witnessed since then.

The United States is today a continental-sized federal state with three distinct levels in the general government: federal (central), state (50 states, plus the federal territory of the District of Columbia), and more than 90,000 local government entities. The governance structure includes also a single central bank in the Federal Reserve System, a single bank deposit insurance entity in the Federal Deposit Insurance Corporation (FDIC) and a host of other financial regulatory agencies with only sporadic relevance for or access to fiscal resources.

This report is intended to provide an overview of the respective roles and activities of the most relevant fiscal and monetary institutions in the U.S. general government. Particular focus is given to the organization and activities of independent fiscal entities, e.g. those U.S. government entities with their own democratic legitimacy and corresponding fiscal power: The federal government (chapter 2) and U.S. state and local governments (chapter 3). The Federal Reserve System is described in chapter 4 and the FDIC in chapter 5. Chapter 6 covers additional relevant financial regulatory agencies in the United States.

Even if the U.S. Constitution stipulates that all powers not explicitly delegated to the federal government resides with the U.S. states, the federal government today is the politically dominant government entity in the United States and – though only marginally – accounts for the largest part of general government fiscal expenditures. U.S. local governmental entities are highly diverse in size, legal authority and responsibilities, ranging from rural primary school districts to often highly autonomous global metropolises in New York or Los Angeles. The federal government exerts its democratic oversight and control rights mainly through its budgetary and executive branch nominating power and Congressional approval rights over appointments to the U.S. federal courts system and top positions in the main national regulatory agencies and institutions.

2. THE UNITED STATES FEDERAL GOVERNMENT

2.1 Institutional Set-Up

The U.S. federal government is the central government of the United States, and is an independent fiscal entity with its own democratically elected institutions and associated direct own power to tax. The U.S. federal government embodies the separation of powers first described by Montesquieu[1] into the legislative, executive and judicial branches of government, and operates according to the U.S. Constitution under what is generally referred to as governmental "checks and balances".

The president of the United States heads the executive branch and is the only elected American official with a nation-wide democratic mandate. Upon taking office, the president as part of a "new administration" typically staffs up to the top-three administrative layers of the federal government with appointees from the winning party, though a sizable number of such appointments (or nominations) are subject to confirmation by a majority in the U.S. Senate. Among the most notable appointments made by the president and subject to confirmation by the U.S. Senate are the nominations for the judicial branch. Of most importance is the the life-time job of U.S. Supreme Court judge (the U.S. Supreme Court also functions as the final arbitor of constitutional law issues in the United States), or other judgeships on regional federal courts and federal appeals courts. The U.S. president possesses the power of veto over new proposed laws, which can only be overruled by a 2/3rd majority in both chambers of the U.S. Congress.

The U.S. Congress is America's legislative power. It consitsts of two equal chambers, which have general co-decision on almost all legislative issues, e.g. no legislative proposal can become the law of the United States without the approval of both chambers. The 100-strong U.S. Senate is a fully federal body with two directly elected senators from each of the 50 U.S. states. Each senator is elected for six years, with 1/3 of all senators on the ballot every two years.

The 435-member U.S. House of Representatives is directly elected in proportion to the population in each state, as determined by the most recent U.S. population census[2]. State representation in the House of Representatives currently range from 53 members elected in the most populus state of California, to just one member from Arkansas, Delaware, Montana, North Dakota, South Dakota, Vermont and Wyoming[3]. Every member of the U.S. House of Representatives is up for election every two years. All elections to the U.S. Congress are direct first past-the-post elections in single electoral districts (or states). The federal District of Columbia, currently home to around 650,000 people (or in 2014 more than two U.S. states– Wyoming and Vermont – with full Congressional representation), has under the U.S. Constitution no voting representatives in Congress, merely a singly non-voting "observer member" in the U.S. House of Representatives[4].

2.2 Federal Government Funding Sources

The U.S. Congress has the sole right under the U.S. Constitution to determine federal government revenues and expenditures, though it can, and often does, delegate specific implementation power over

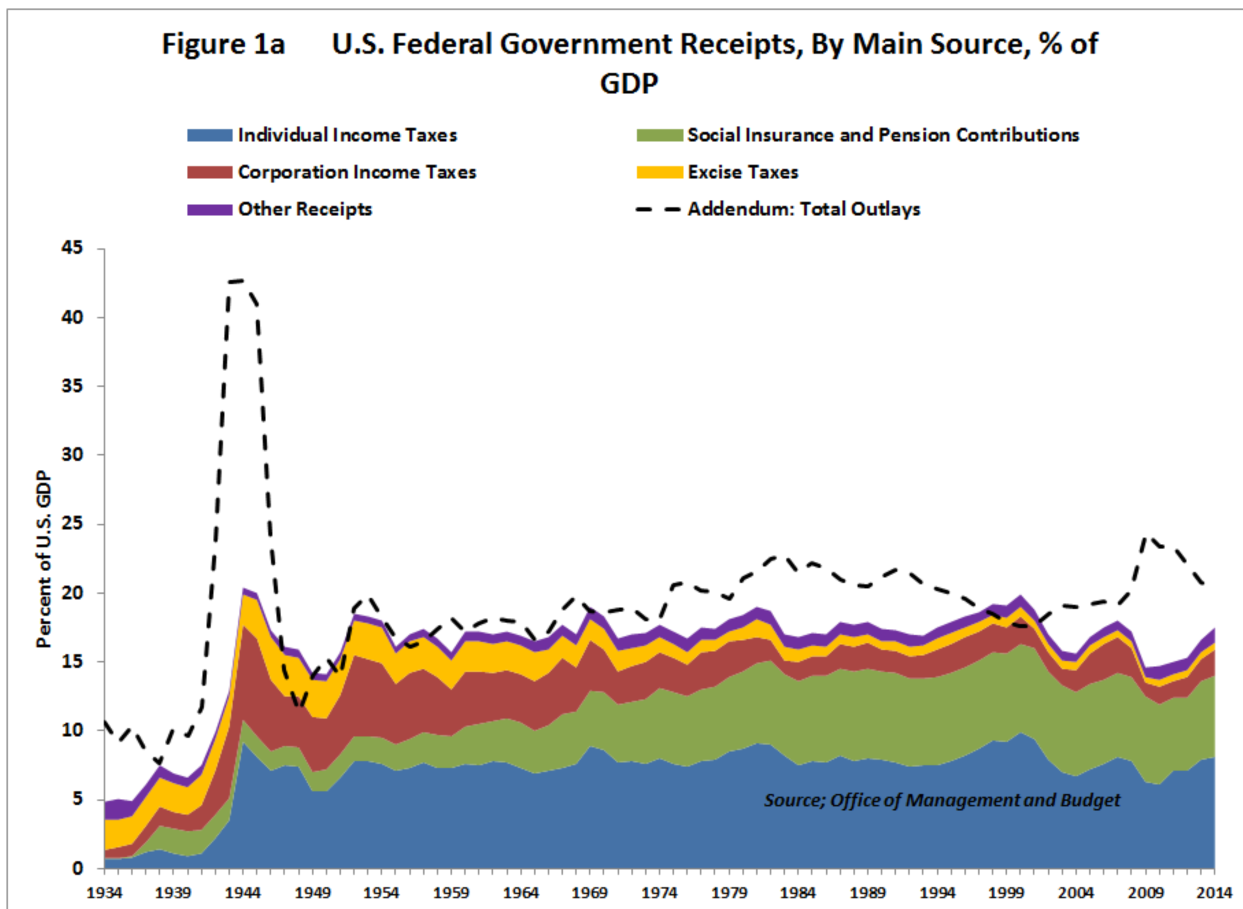
[1] Montesquieu (1748).
[2] U.S. population census are conducted every 10 years, most recently in 2010.
[3] Under the U.S. Constitution, no state can lose its representation in the House of Representatives, even if their total population is significantly smaller than in any individual election district in more populous states. Hence the proportionality of seats in the U.S. House of Representatives is not complete, and less populous states do receive a degree of "over-representation" here, too.
[4] The main political reason for this is the unwillingness of the Republican Party to grant full constitutional congressional representation rights to the District of Columbia, as it would yield probably the safest Democratic Party seats in the U.S. Congress. The residents of the District of Columbia did though the 23rd Amendment to the U.S. Constitution adopted in 1961 get the right to have their votes counted towards presidential elections.

for instance fee structures for governmental services and general government program enactment to the executive branch.

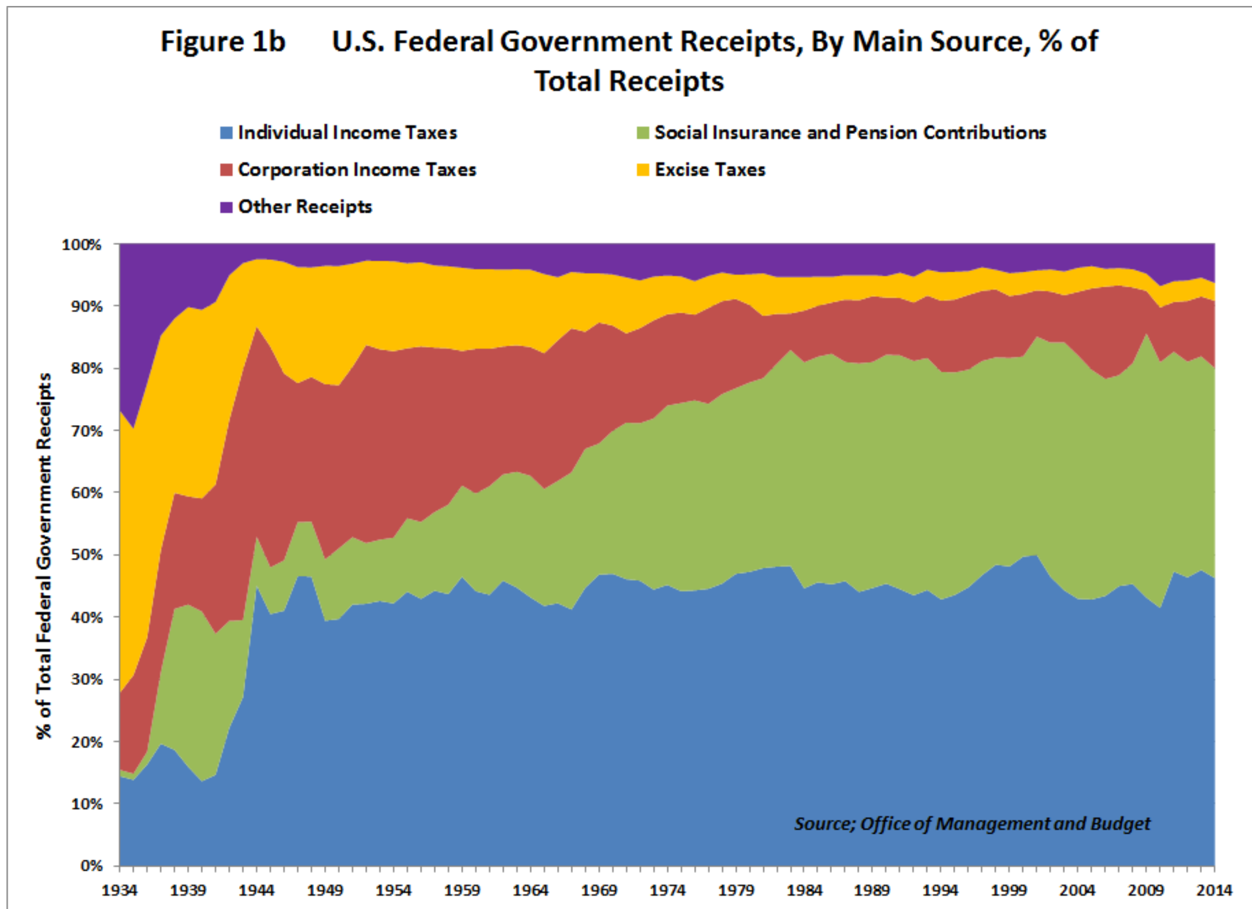
The U.S. federal government is the most important governmental level in the United States, and accounts for the largest share of the total general government budget.

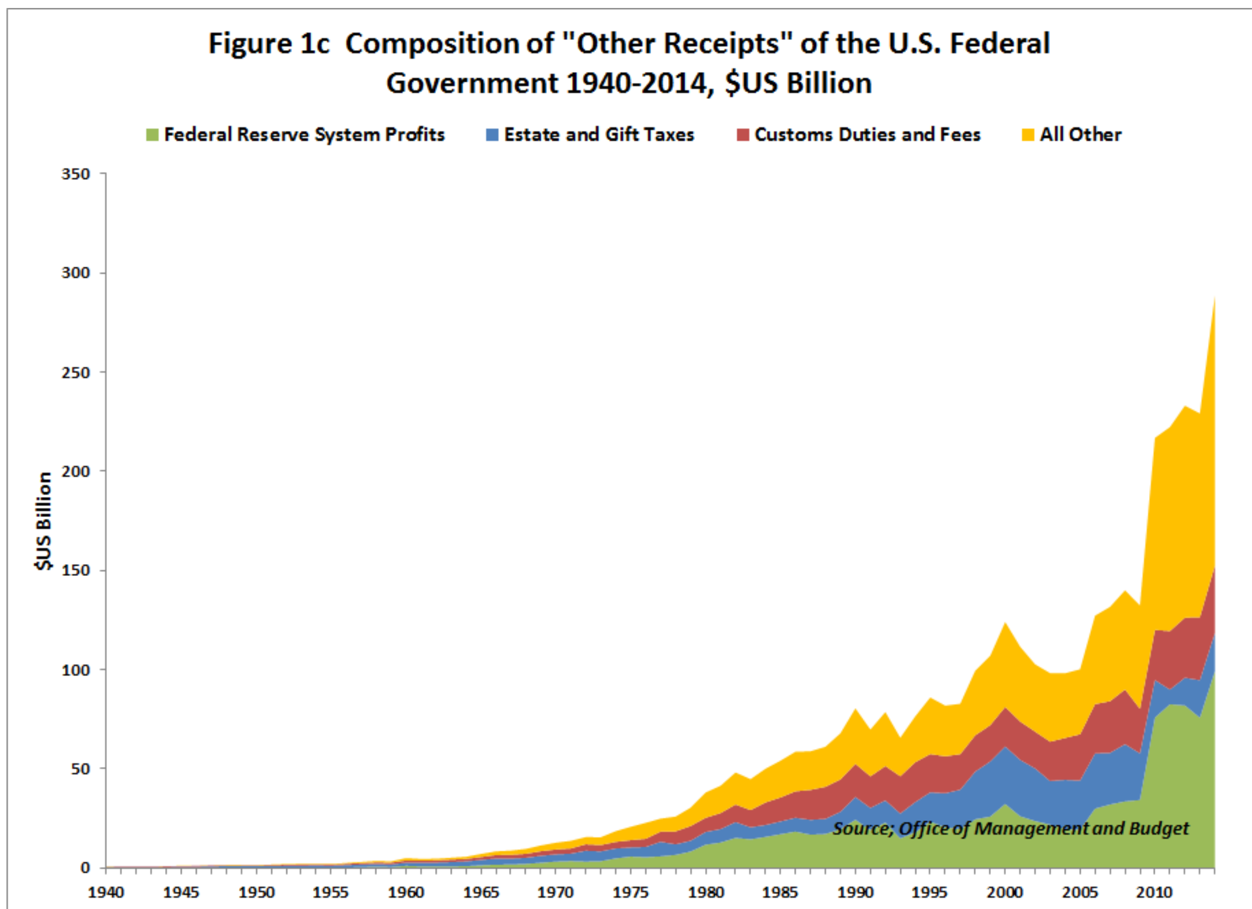
The main sources of revenue are individual income taxes, corporate taxes, earmarked social contributions towards retirement, disability and healthcare, excise taxes[5], and other receipts (including estate/gift taxes, custom duties, and profits from the Federal Reserve System).

Figures 1a/b show the development in U.S. federal government receipts from 1934 to the latest available data from 2014. Figure 1c breaks out the trends in "other receipts" from 1940 onwards.



[5] U.S. federal excise taxes include for instance taxes on fuel, communication, air transportation, some manufacturers, ship passengers, and environmental taxes. See IRS (2015) for details at http://www.irs.gov/pub/irs-pdf/p510.pdf.





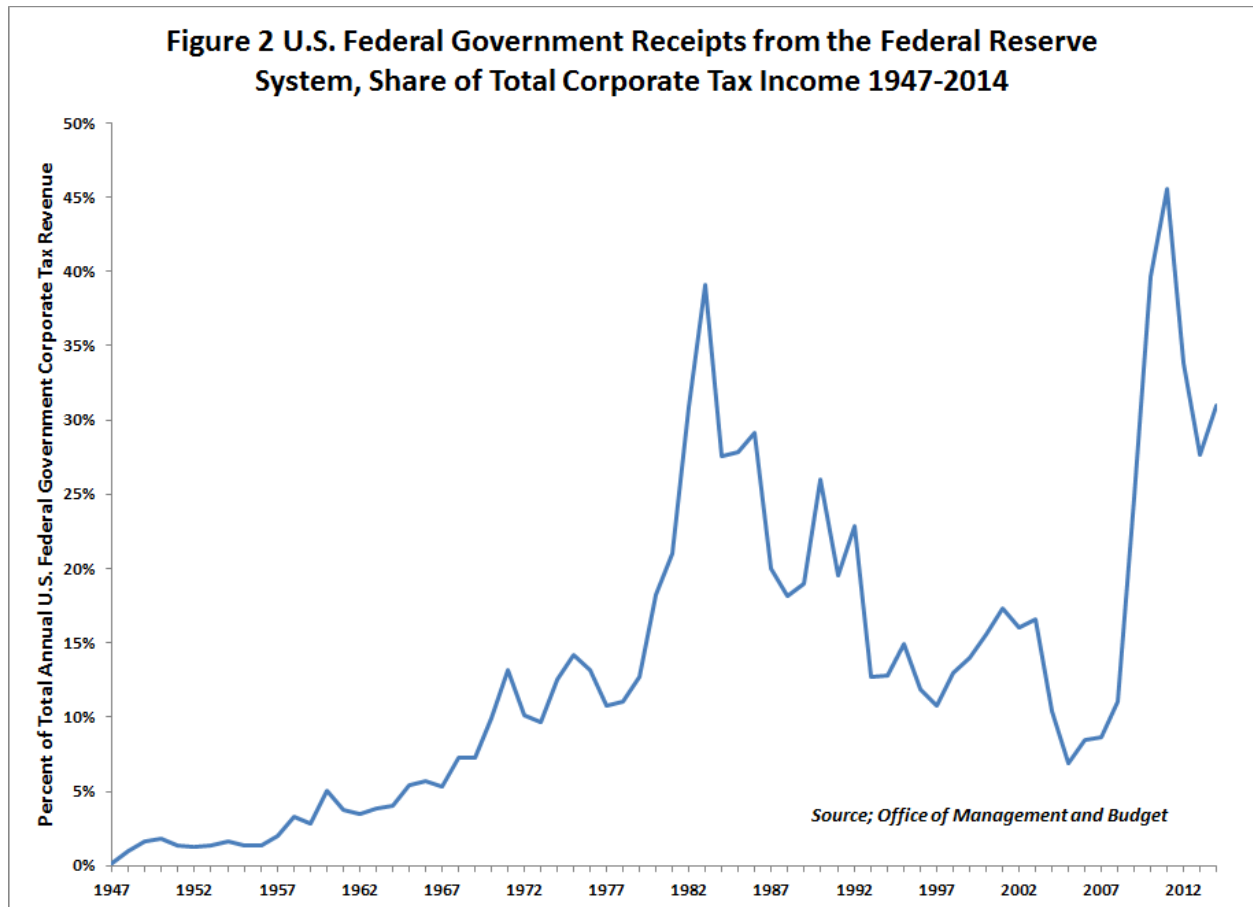
Figures 1a/b show how the size of U.S. federal government receipts rose dramatically during the 1930s and World War 2, while total receipts have since 1945 been relatively stable and averaged 17.2 percent of

U.S. GDP. Federal income taxes have since 1945 accounted for a steady approximately 40 percent of total federal government revenues, and averaged 7.7 percent of GDP. Earmarked social contributions to old-age pensions (e.g. Social Security), disability pensions and healthcare meanwhile grew gradually until around 1980, when they accounted for almost 40 percent of total government revenues and 6-7 percent of U.S. GDP. The importance of U.S. corporate taxation has declined significantly over the decades and today account for only about 10 percent of total federal government revenue, or 1.5-2 percent of U.S. GDP. U.S. federal excise taxation has meanwhile dwindled to a very small part of total revenues.

Figure 1c shows how the recent years since the Global Financial Crisis began in 2008 have witnessed a very dramatic increase in the profits remitted by the U.S. Federal Reserve System to the federal government, amounting to almost $100bn in 2014 alone[6]. This rise in federal government revenue from the Federal Reserve System can be attributed to the large interest income and capital gains proceeds earned by the central bank on its very large interventions in financial markets during the crisis, and especially its large balance sheet expansion following the introduction of quantitative easing (QE) in 2009. Under U.S. law, any profits made by the Federal Reserve System in the course of its activities are transferred directly as regular “tax payments” to the U.S. Treasury’s general funds.

Figure 2 illustrates how the U.S. central bank has (again) though its crisis interventions become the by far largest individual contributor (e.g. de facto tax payer) to U.S. federal government revenues, with its payments of just under $100bn in 2014 amounting to about one third of total U.S. corporate tax receipts that year. The very large and regular direct contributions of the U.S. Federal Reserve System to U.S. federal government receipts – amounting in total to more than $1.1 trillion from 1947-2014[7] - has significant implications. First of all, it of course represents a substantial source of “own income” from a federal government institution for the U.S. federal government. But secondly, and perhaps more importantly, the large payments to the U.S. Treasury since 2009 following the Federal Reserve’s crisis interventions and QE highlights, how these emergency measures were inherently less financially risky than is often alleged. Not only did the Federal Reserve not lose large sums of money, it actually earned the federal government a very large profit.

[6] The U.S. Federal Reserve System is run on a strict non-profit basis, and as such remits all profits back to the U.S. federal government. The actions of the U.S. Federal Reserve will be analyzed in detail in chapter 4.
[7] In real $-terms more than $1.5 trillion.



2.3 Issuance of Government Bonds at Federal Level

The U.S. Constitution grants Congress the power to borrow money on the credit of the United States and also mandates that Congress exercise control over the federal debt. Over time, Congress has granted Treasury secretaries more leeway in debt management. In 1941, Congress agreed to impose an aggregate limit that gave the U.S. Treasury authority to manage the structure, types and maturities of the federal debt. This statutory debt ceiling limit applies to almost all U.S. federal debt[8]. The limit applies to federal debt held by the public (e.g. debt held by private investors outside the federal government itself[9]) and to federal debt held by the government's own accounts.

In July 2015 **federal government debts held by the public amounted to $13.1tr[10], or approximately 74 percent of GDP.** Another just over $5tr is intergovernmental debt holdings inside the U.S. federal government. Federal government trust funds, such as Social Security, Medicare, Transportation, and Civil Service Retirement accounts, hold most of this internally held debt. U.S. federal government social insurance schemes operate as an essentially partly prefunded pay-as-you-go retirement system. Trust funds are separate federal government accounts into which individuals' social contributions are made, and due to advantageous U.S. demograhics, contributions have exceeded benefit payments in recent decades, allowing for sizable "trust fund buffers" to have been built up[11]. All trust fund revenue is by law invested

[8] Approximately 0.5% of total U.S. federal debt is excluded from debt ceiling coverage. The U.S. Treasury defines "Total Public Debt Subject to Limit" as "the Total Public Debt Outstanding less Unamortized Discount on Treasury Bills and Zero Coupon Treasury Bonds, old debt issued prior to 1917, and old currency called United States Notes, as well as debt held by the Federal Financing Bank and Guaranteed Debt." For details, see http://www.treasurydirect.gov.

[9] State and local government pension funds often own U.S. federal debt, but counts as private investors under this demarcation.

[10] U.S. Treasury (2015). Of this $13.1tr, approximately $6tr (45%) is owned by foreigners, and $4.1tr (31%) by foreign official sector holders. See U.S. Treasury TIC data, available at http://www.treasury.gov/ticdata/Publish/mfh.txt.

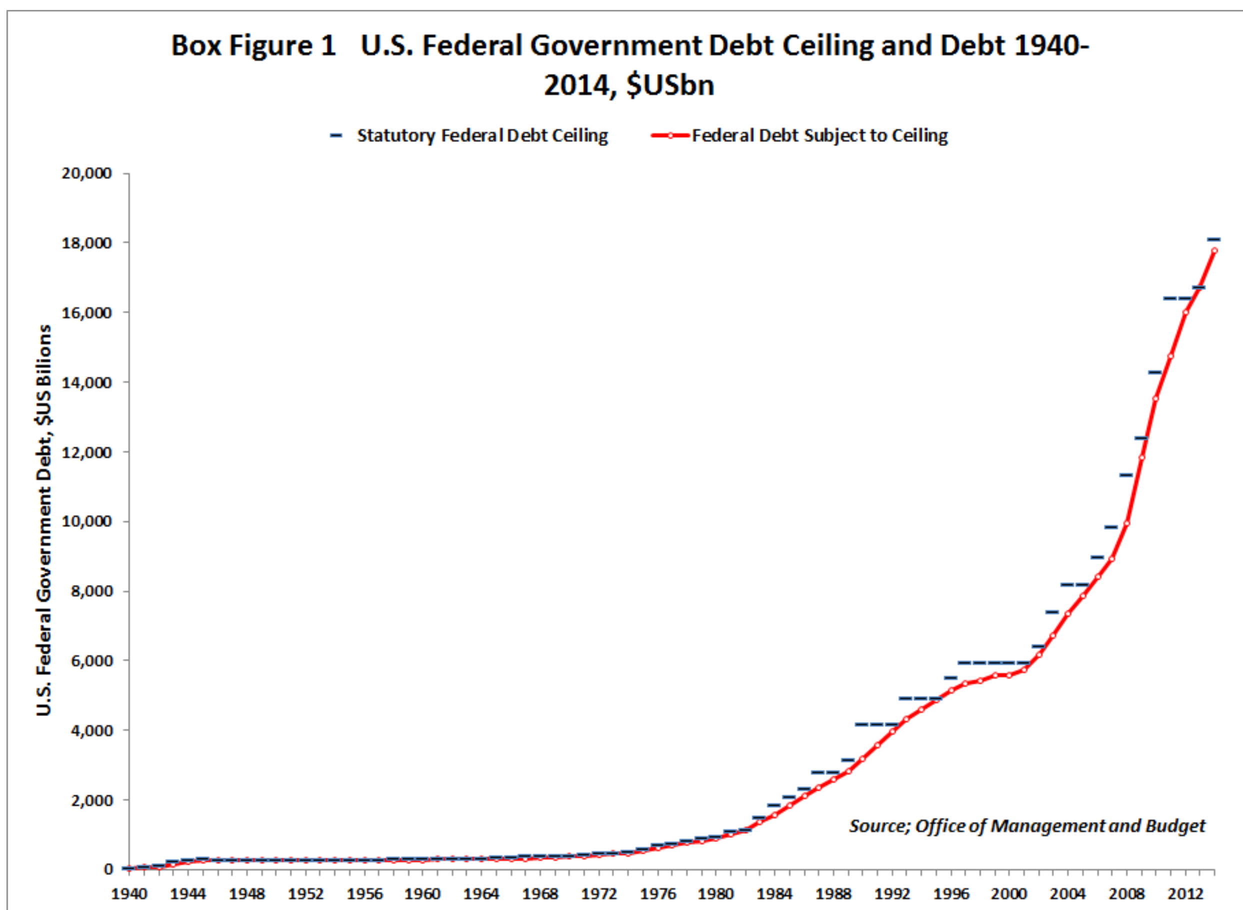
[11] By far the largest individual federal government trust fund is the Social Security (old-age pensions) trust fund, which was last reformed in 1983. As part of this reform, Congress explicitly intended through appropriate contribution rates and benefit levels and demographic

only in U.S. federal government debt, accounting for the difference between U.S. federal government debt held by the public and **total outstanding U.S. federal government debt.** The latter in July 2015 **amounted to $18.1tr, or 102 percent of U.S. GDP.**

Conceptually, it is debatable which debt concept is most appropriate to rely on, though it is clear that for direct comparison purposes with EU government debt data, total outstanding public debt data should be used. At the same time though, U.S. government debt held in government trust funds should be viewed as basically bringing part of future unfunded pension (and other social insurance) liabilities onto the government balance sheet. U.S. gross government debt rises today, but unrecorded and presently unfunded future pension liabilities decline by the same amount.

Box 1: The Federal Government Debt Ceiling

In recent years, as a result of large U.S. federal government deficits, total outstanding debt has risen rapidly. Due to political resistance to raising the federal government debt ceiling substantially, a need has emerged to repeatedly raise the ceiling to avoid a U.S. government default. This, however, is not a historical anomaly, as the federal debt ceiling has always been legislated by Congress to closely track the actual level of U.S. federal government debt. This is illustrated in box figure 1.



One interpretation of the debt ceiling is that it should serve a political function of an extra check on the accumulation of federal government debt. In that regard, however, as illustrated in box figure 1, it has patently failed over the years. Historically, though related to broader political issues surrounding the federal income tax, it was less political reasoning and more a need to adhere to the constitutional

forecasts to see the buffer trust funds increase to the approximate current $3tr level. In the coming years though U.S. demographic trends will reverse and the Social Security trust fund buffer will gradually be eroded as benefit payments exceed contributions. Current projections expect the trust fund to be completely exhausted in the early 2030ies.

requirement that Congress authorize all U.S. federal government debt, that led to the statutory limit on such debt being enacted in 1917. Constitutionally, this absolved Congress from having to approve (e.g. vote on in public) each new bond issuance to finance the U.S. entry into World War 1, and instead gave the U.S. Treasury greater control over how it chose to finance the federal governments ongoing operations[12]. Before 1917 Congress typically sanctioned individual issues of debt, but after 1917 Congress rather imposed an aggregate limit on federal debt.

The introduction of a modern federal income tax[13] in the United States required a change of the U.S. Constitution through the ratification of the 16th Amendment in 1913, which for the first time allowed the federal government to collect taxes on any income without explicitly having to apportion the proceeds among the U.S. states according to their population. Initially, the new federal income tax was relatively modest at up to just 7 percent for incomes over $500,000 ($11.6mn in real dollar terms), but in 1916-18 to help raise funds for the United States' entry into World War I, federal income taxes rose very substantially to up to 77 percent for incomes over $1mn ($15.2mn in real dollar terms) by 1918[14]. Part of the political compromise to enable these federal government income tax increases was the introduction of the government debt ceiling in 1917. Today's debt ceiling has its origin in the Public Debt Act of 1941, which stipulated an overall limit of $65bn on outstanding federal government debt.

Prior to 2011 legislated increases in the federal government debt ceiling was not associated with any noticable degree of politicization and were generally carried out as relatively routine parts of the ongoing legislative work in Congress. Indeed, as the accumulated federal debt of course by and large reflect the sum of previously legislated annual federal government deficits, this would seem the only reasonable and responsible legislative approach to take. Since 2011, however, this has not been the case in the U.S. Congress, as Republican majorities in the House of Representatives have repeatedly attempted to force through large deficit reductions via their unwillingness to pass required increases in the statutory federal government debt ceiling. This political strategy has precipitated several shutdowns of the U.S. federal government, and even occationally stepped closer to the situation of the U.S. federal government being unable to meet its legislated financial commitments in a timely manner.

The current level of the federal government debt ceiling is $18.1tr, highlighting the fact that in quantitative terms, the debt ceiling was already reached again in March 2015, forcing the U.S. Treasury to initiate a series of extraordinary budgetary measures to avoid legally breaching it. Operationally, reaching the federal government debt ceiling means that the liquid cash reserves available to the U.S. Treasury falls below zero, or more leniently defined drops below the U.S. Treasury desired absolute minimum of $US50bn. Currently, the Congressional Budget Office (CBO 2015) forecasts that the U.S. Treasury can remain below the federal debt ceiling until mid-November 2015.

With few political indications of an early compromise and the 2016 presidential campaign already begun, there is consequently a high risk that the United States federal government will in the fall of 2015 revisit the political brinkmanship of earlier debt ceiling episodes, and another potential federal government shutdown cannot be ruled out later this year.

2.4 Main Expenditures at the U.S. Federal Governmental Level

Federal government spending has been a critical component of the American economy since the foundation of the United States in the late 18th century. Yet, it is important to recognize that the present-day relatively large size of the U.S. federal government is a function of the growth of the modern 20th century state. Indeed, as is illustrated in figure 3, it was only after Word War 1 that the size of non-war

[12] For details, see also GAO (2012).
[13] Abraham Lincoln introduced an earlier federal income tax in 1861 to finance the Civil War, though this tax was repealed after 10 years.
[14] See detailed historical U.S. federal income tax brackets published by the Tax Foundation at http://taxfoundation.org/article/us-federal-individual-income-tax-rates-history-1913-2013-nominal-and-inflation-adjusted-brackets.

related U.S. federal expenditures began to grow rapidly (and only then exceeding the current around 1.17percent of GDP scope of the EU budget).

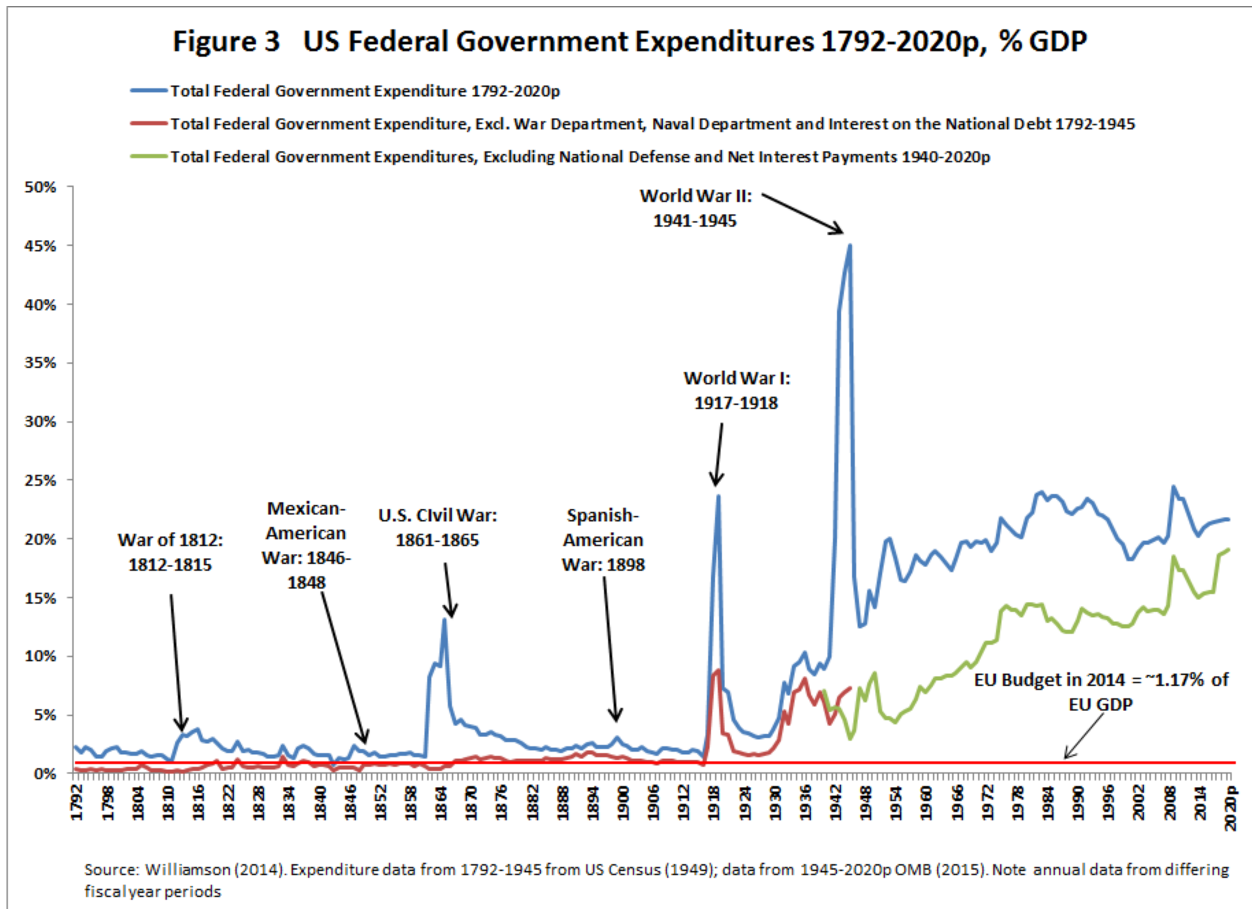
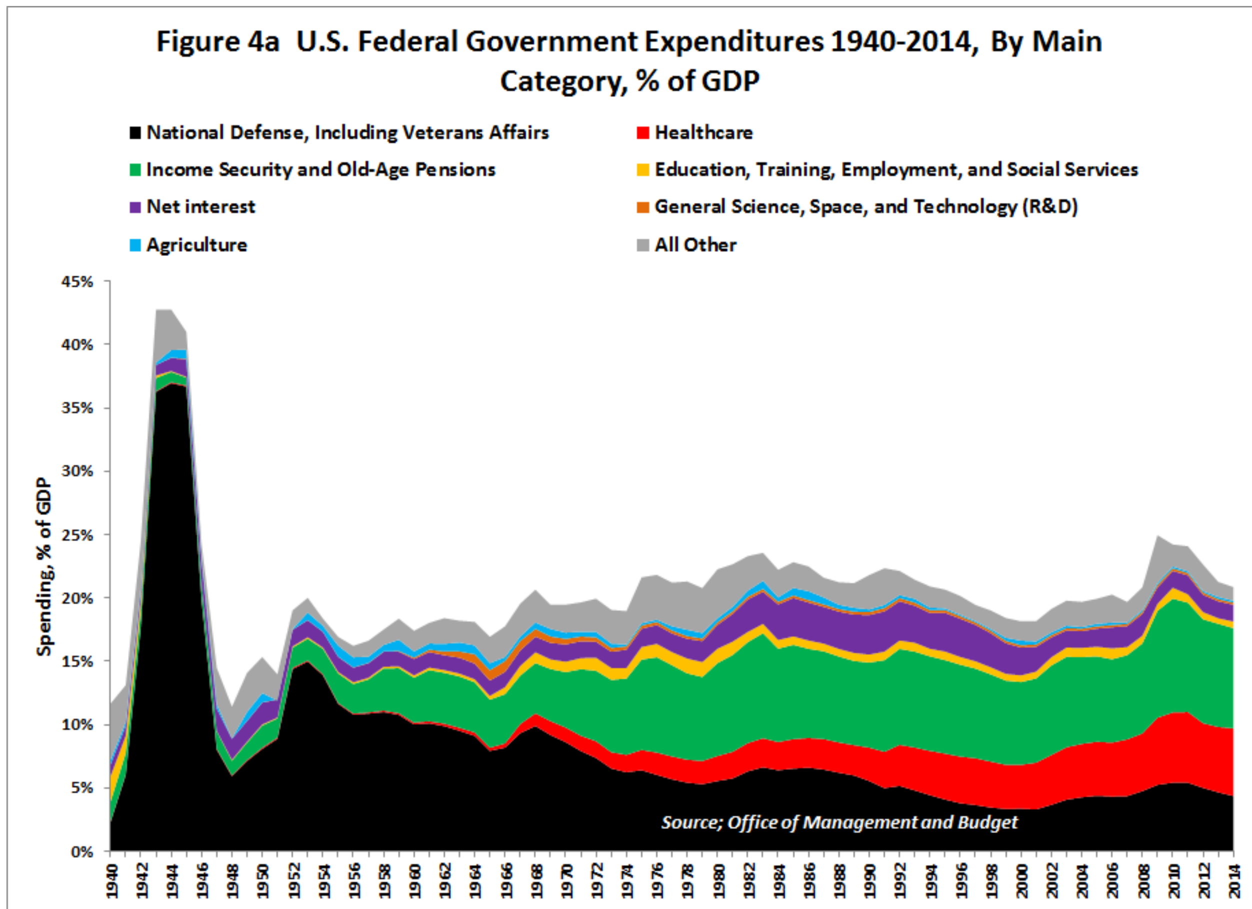
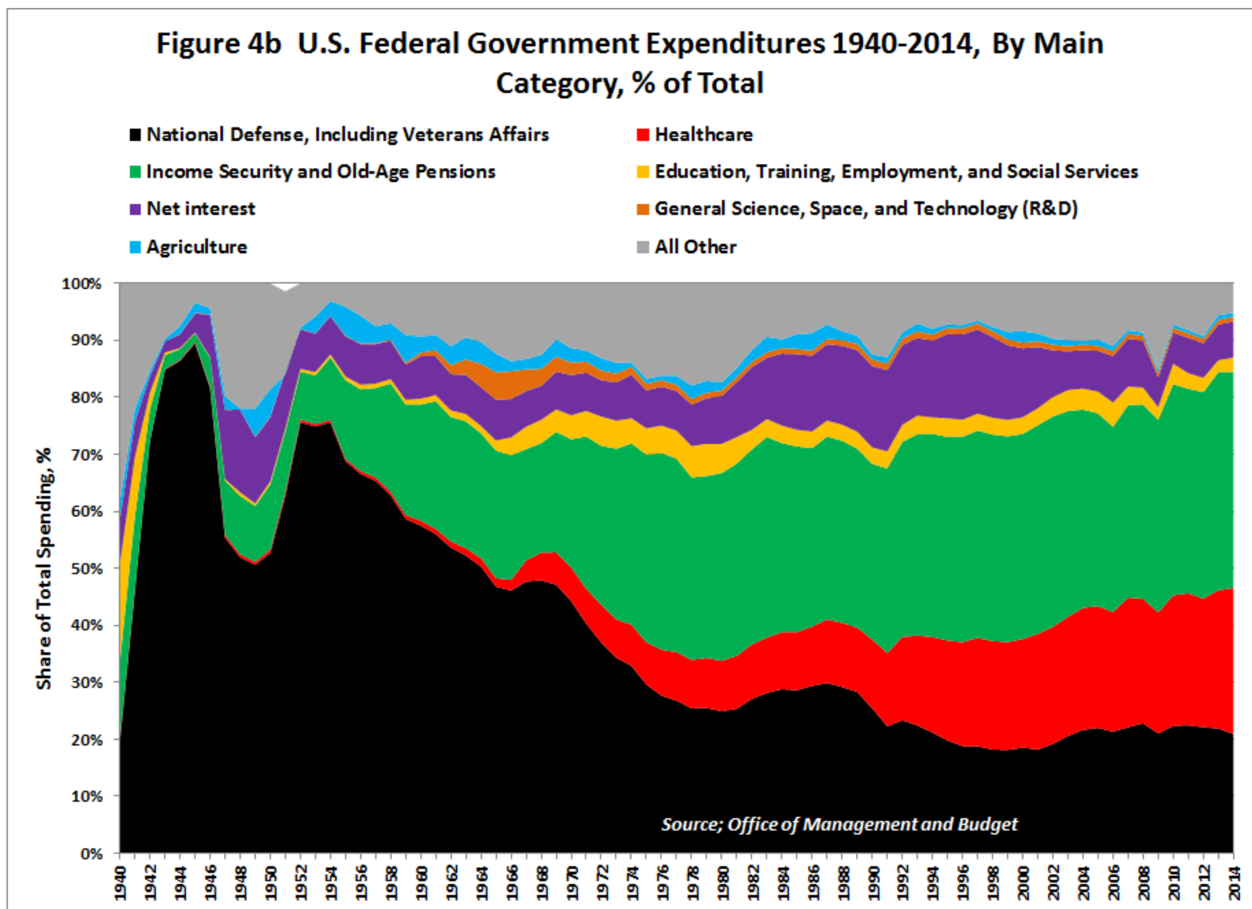


Figure 3 also shows it is only with the launching of Roosevelt's New Deal of large public investment projects and the establishment of the US government social safety net at the federal level with the Social Security pension system in 1935 that US federal non-defense expenditures permanently rose. As described in Baily and Kirkegaard (2009), several smaller US state-level pensions and specific federal systems for veterans preceded the federal Social Security program in the United States. Yet the Social Security old-age pension program marked the implementation of the first American social safety net available to most Americans, and as such began the formation of this important part of the functions of the modern American state at the federal level and in the process initiated the era of a far larger US federal government budget.

Figures 4a/b illustrate the historical development of the main economic beneficiary sectors and categories of U.S. federal government spending.

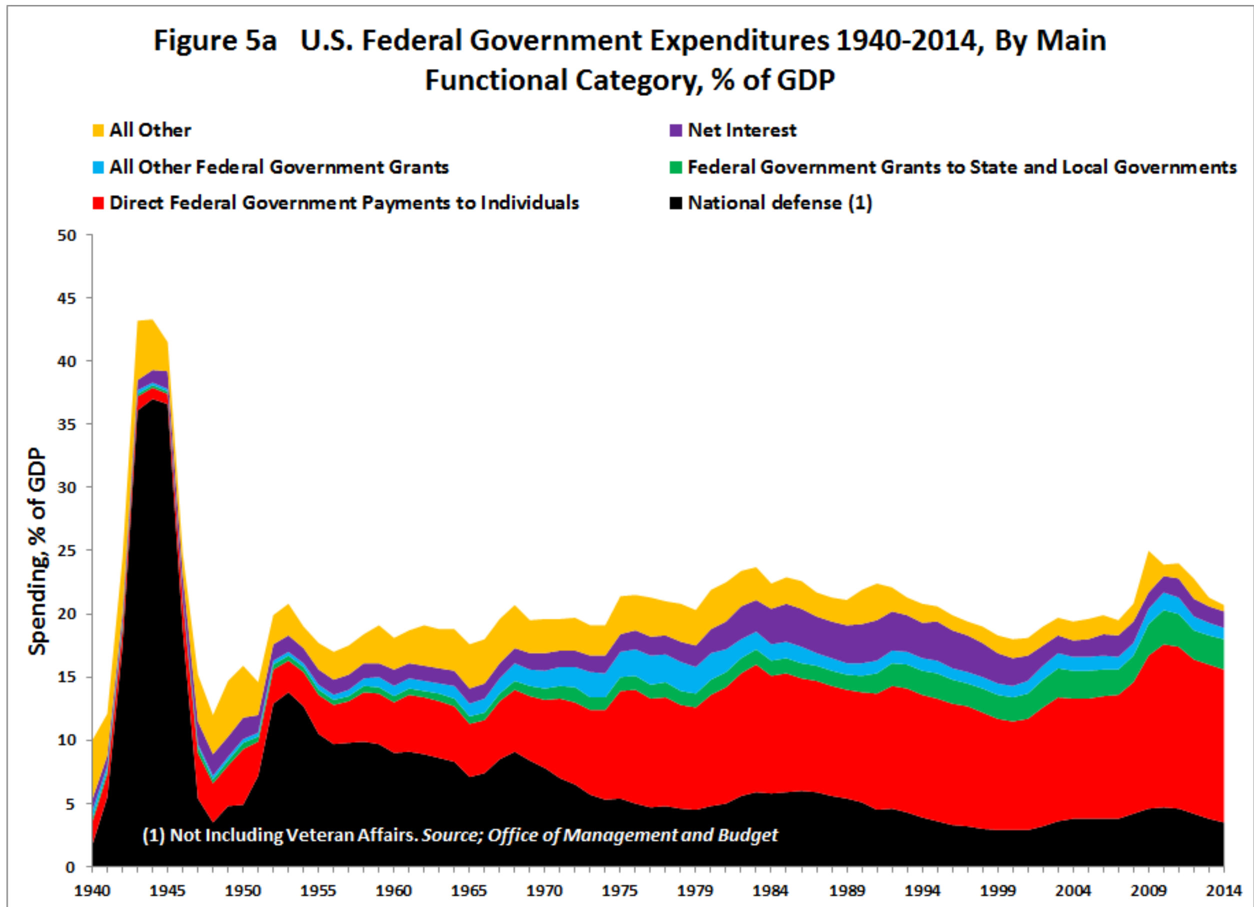


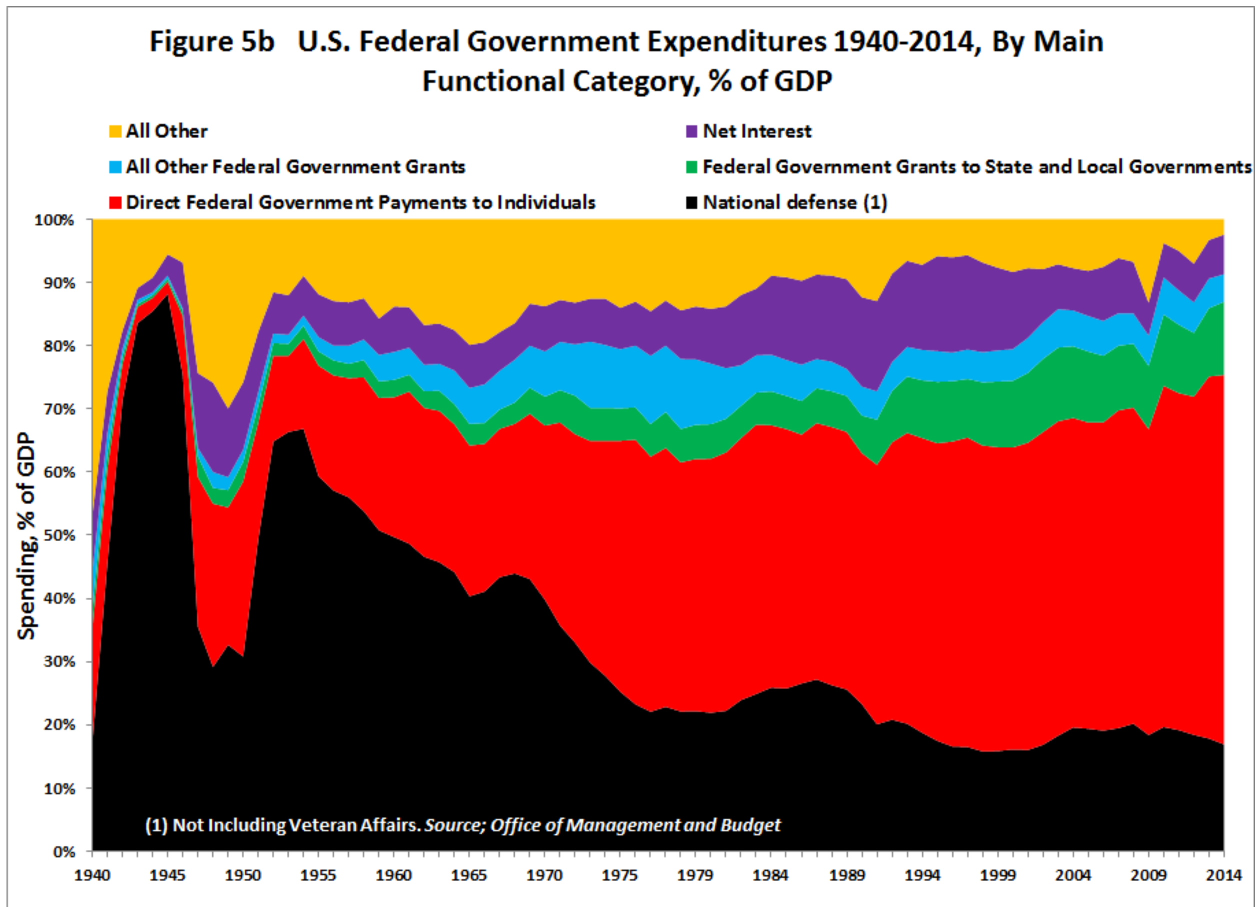


It is clearly visible how previously dominant national defense spending is gradually replaced by U.S. federal government social spending on healthcare and old-age income security as the largest government

sector expenditure items. Meanwhile U.S. federal government spending on items and sectors like agriculture, education, training and employment services and R&D remain very small components of the overall budget.

Figures 5a/b break down U.S. federal government spending instead by functional spending category, highlighting the dramatic changes in the types of expenditures the U.S. federal government carries out.





It is visible how traditional national defense expenditures decline in importance, and are replaced by direct federal government payments (in the form of retirement, disability, social assistance and healthcare benefits) to individual Americans. The only other category that grows noticeably over time is federal government grants to U.S. state governments.

Federal government grants to states are essentially conditional offers of co-payment for public services provided by state governments. The federal government will pay a certain share (or in some cases all) of costs for a given service offered, on the condition that state governments provide the service in accordance with policy guidelines specified by the federal government. In recent years, such grants have accounted for 2-3 percent of U.S. GDP annually or just over 10 percent of total federal expenditures.

Viewed from the recipient side in individual states, the relative importance of individual federal government spending categories will vary according to the state's demographic composition and geographic location. This is illustrated in figure 6[15].

[15] In what amounts to a remarkably misguided example of government cutbacks, the underlying data source for figure 6 —the US Census Bureau's Consolidated Federal Funds Report (CFFR)—was discontinued in 2011 (see http://www.census.gov/govs/cffr/). Figure 6 thus represents the most up-to-date available data.

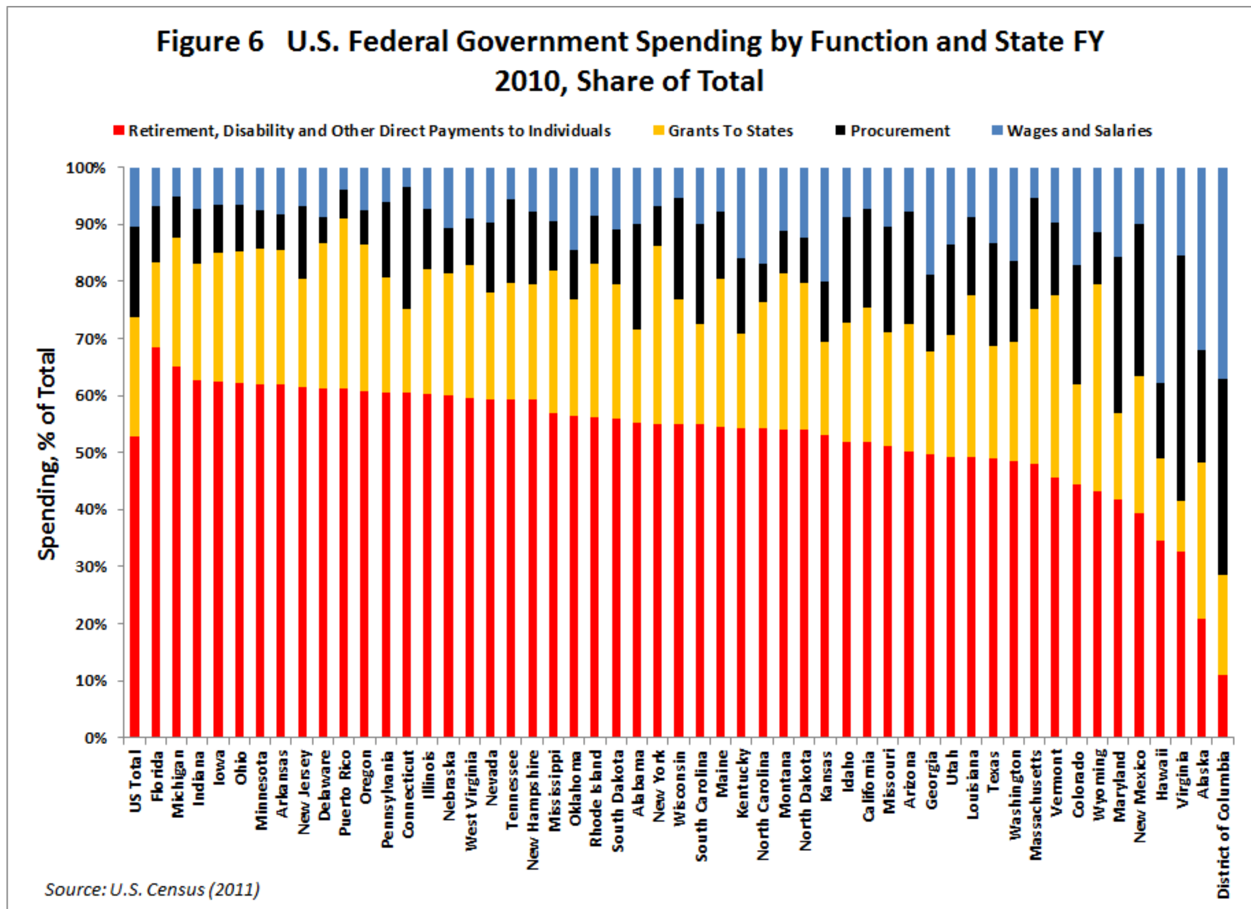


Figure 6 U.S. Federal Government Spending by Function and State FY 2010, Share of Total

Source: U.S. Census (2011)

Figure 6 utilizes a different state level data source, which breaks down the functional spending categories differently than figure 5 for the latest available data from fiscal year 2010[16]. However, the broader picture remains the same. Direct federal government payments to individual Americans remain by far the largest individual spending category in almost all states. The exception is those like the District of Columbia, Alaska, Virginia, Hawaii, New Mexico and Maryland, where large federal government facilities and military bases means federal government wages, salaries and procurement expenses dominate.

2.5 Fiscal Re-distribution Though the Federal Budget among U.S. States

With the vast majority of U.S. federal government revenue coming from individual income taxes and mandatory employment related social contributions and most federal spending going out in direct payments to individual Americans, the scope for geographic fiscal redistribution between U.S. states through the federal budget is quite large. Yet, at the same time it must be emphasized that the directions of any such fiscal redistribution among U.S. states is overwhelmingly structural in nature, and is not very sensitive to the effects of the business cycle.

The reasons are several. On the revenue side, federal government proceeds raised in a given state is, as revenue is mostly income tax based, largely dictated by the state's general level of prosperity. High levels of average state resident incomes (e.g. GDP/capita) equal relatively high levels of payments into the federal budget. Conversely, on average poor U.S. states like West Virginia or Mississippi will contribute relatively less, and therefore generally be net recipients of federal government resources. States' average GDP/capita levels, however, only change relatively slowly and the ranking of states' contributions to the federal budget is therefore quite stable.

[16] Military spending is largely included in the procurement category, "grants to states" include federal government grants to all entities in a given state, not just the state level government, and wages and salaries received by federal government employees (including in the military) are a separate category.

On the spending side a similar inertia exists, as it is longer-term demographic issues that mostly influence precisely where the American individuals receiving direct federal transfers live. States which have in recent decades seen a large inflow of elderly residents, such as for instance Florida, will therefore benefit from a relatively higher inflow level of this category of federal fiscal resources. At the same time, the biggest geographic impact of where federal money is spent comes through the location of federal government facilities, and noticeably U.S. military institutions. States with a large number of such government facilities, such as the District of Columbia, New Mexico, Hawaii, Virginia, Maryland or Alaska, will witness relatively larger inflows of federal resources. As with changes in the pattern of states' contributions, locational patterns for federal government facilities and residents' age structure adjust only quite gradually[17].

By taking the federal government fiscal resources received by individual states' residents and subtracting from them the payments made by the same individual states' residents into the federal government budget, the implied level of geographic fiscal redistribution can be estimated. Figure 7[18] shows the implied fiscal redistribution through the federal budget between U.S. states in fiscal year 2010[19].

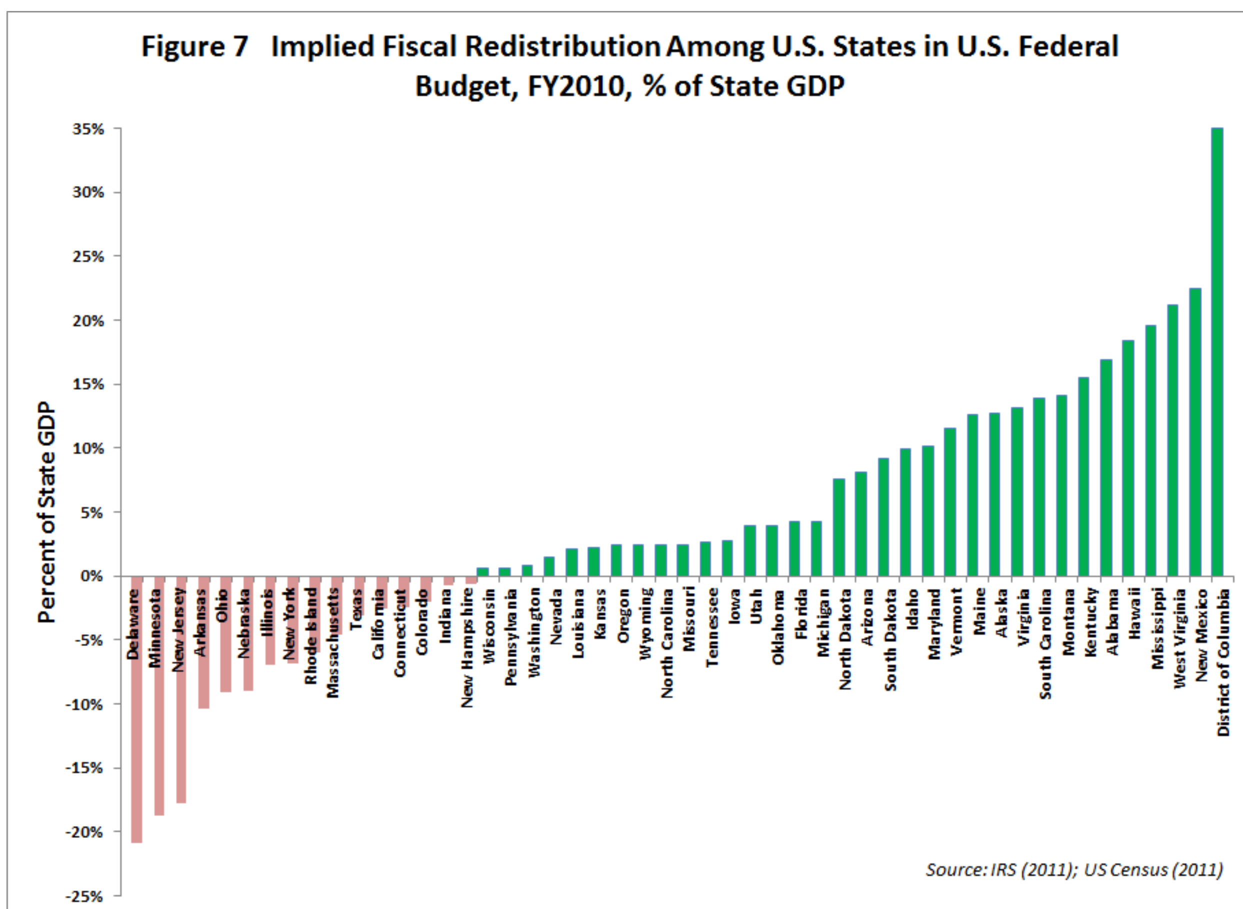


Figure 7 Implied Fiscal Redistribution Among U.S. States in U.S. Federal Budget, FY2010, % of State GDP

[17] Recognizing the economic and political importance of the locations of U.S. military installations, Congress and the Department of Defense has after the end of the Cold War – which precipitated the closure of many such facilities – governed the process through the establishment of an independent Base Closure and Realignment Commission (BRAC). The BRAC, made up generally of retired general-rank military personnel, diplomats and policymakers, is charged with issuing a report to the President, concerning how best to achieve the optimal U.S. military base structure, given the tasks and challenges facing the Department of Defense. There has been six BRAC processes since the late 1980s.

[18] Figure 7 is estimated by on the expenditure side, assuming that the federal fiscal deficit is distributed among US states along their current relative contributions to US federal government revenue. Therefore figure 7 assumes that changes to US fiscal policy to close the current fiscal deficit fall evenly among the US states, which is of course a heroic assumption.

[19] Per footnote 15, these data cannot be updated.

Figure 7 overall makes it clear how the implied **degree of geographic redistribution among U.S. states through the federal budget is in the case of some states very substantial**[20]. It can be seen how relatively affluent states like Minnesota, New Jersey, Illinois or New York are substantial net contributors to the federal budget, while poor states like Alabama, Mississippi or West Virginia are net recipients. Unsurprisingly, by far the largest net benefactor of the federal budget is the center of the federal government in Washington, D.C., though the homes of large military facilities in New Mexico or Hawaii also benefit greatly. The fact that Delaware is the largest net contributor to the federal budget is related to the state's historical position as the place of incorporation for the vast majority of U.S. corporations[21]. Delaware legally resident firms hence contribute a disproportionally large share of the federal government corporate income tax revenues paid by all U.S. resident firms, including many foreign ones invested and incorporated in the United States in Delaware, too.

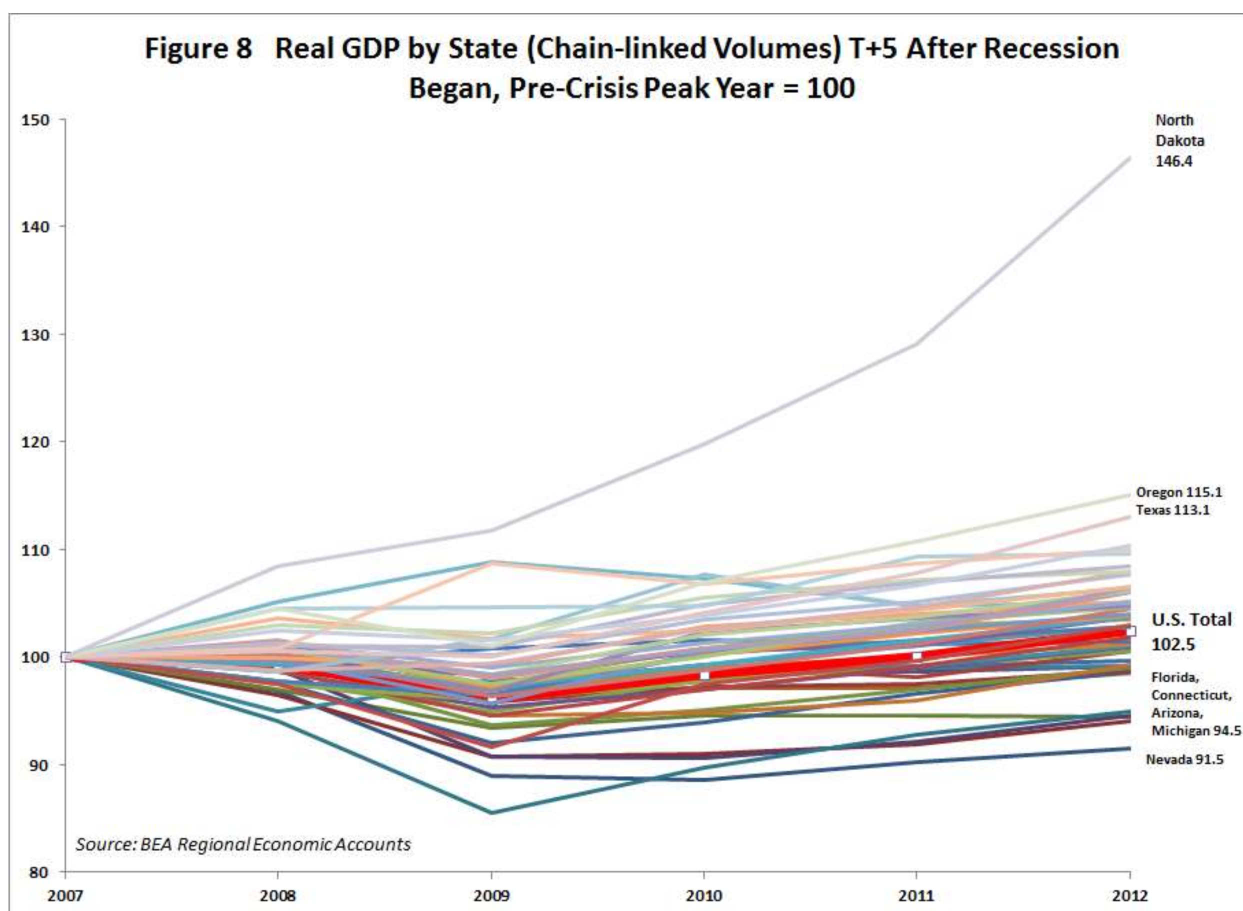
Conceptually, automatic fiscal stabilizers operate through general government budgets on both the revenue and expenditure side. Tax revenues from progressive income taxes, corporate and sales taxes will fall in recessions, while spending on unemployment and general social welfare benefits will rise. However, the strength of these effects will vary among the different layers of the general government, depending on at which level particular tax income is collected and expenditures made. As shown above in figures 4 and 5, the **largest component of U.S. federal government expenditures comprise of direct social transfers to individuals**. However, not all such expenditure is cyclically sensitive, as for instance old age pensions will not increase much more in a recession than otherwise dictated by demographics and statutory retirement ages[22]. In the case of the United States, where the vast majority of federal social expenditures are made up of old-age pension payments and healthcare, the automatic stabilizer effects on the expenditure side are relatively muted. Similarly, as will be further discussed below, federal government revenues consist mostly of personal income taxes, which is among the least cyclically sensitive of taxation categories. The federal government does not for instance collect any – considerably more cyclically sensitive – federal sales tax revenue, as this tax category is only collected by U.S. state governments. On the revenue side therefore, too, the automatic stabilizers in the U.S. federal budget are not particularly pronounced, though of course a dramatic and historically deep economic recession as in 2008-09 will generate substantial revenue declines and associated deficits.

Direct and automatic federal budgetary measures are therefore not a particularly strong component of the stabilizing macro-economic forces in the United States countering any asymmetric economic shock. As will be discussed in chapter 4, the costs of banking crises are borne through the Federal Deposit Insurance Corporation (FDIC), an independent federal entity with potential access to federal government regular revenues in an emergency, but not part of the regular ongoing federal government budget. Instead, a stronger **reliance on more market-driven mechanisms has generally been present in the U.S**. economy in the form of labor and capital mobility, and wage and price flexibility. A long-run decline in inter-state migration levels among U.S. states, however, has in recent years threatened this historically most potent stabilizing economic force in America[23]. U.S. geographic labor mobility though remains at levels considerably higher than in the EU or other regional economic groupings.

As such, despite its generally relatively flexible economy, it is important to recall that **sizable regional differences in state GDP levels remained in the United States** in the aftermath of the global financial

[20] The comparable levels of redistribution among member states in the 2010-11 EU budget ranged from -0.4 percent for Germany to +3.9 percent for Lithuania. See European Commission (2011).
[21] This status for Delaware is in many ways the result of a long-term state government policy, and is a combination of a historical tradition for lenient state corporate tax laws and a general very business friendly state regulatory and legal framework. The latter has resulted in a great deal of U.S. common law practice in corporate affairs being established under Delaware state law, providing businesses with what is in many ways a more predictable (and friendly) legal environment here than in other U.S. states.
[22] Some older workers may, if presented with the option at their age, choose to enter into retirement earlier than would otherwise have been the case, if for instance affected by cyclical unemployment. Other working age people may similarly seek permanent disability pensions, rather than temporary unemployment benefits. Such leakage though is generally limited in well-designed social systems.
[23] See Kaplan and Wohl (2015) and the sources cited herein.

crisis. Figure 8 shows the developments in state GDP's in the five years after the previous U.S. economic peak in 2007.



The state of Nevada remained 8.5 percent below the previous peak after 5 years, while Florida, Connecticut, Arizona and Michigan were still missing 5 percent of their pre-crisis economic output. The post-crisis economic performance by the laggard states in the U.S. fiscal union was therefore not materially better than the "T+5 performance" five years after the crisis began in euro area crisis countries like Spain, Portugal, Ireland or Italy[24]. It is also visible that probably the most important "automatic macroeconomic stabilizer" in the U.S. economy after 2008 was the fortuitous emergence of the shale gas/oil boom in states like North Dakota and Texas.

With automatic macroeconomic stabilizers forming only a very limited part of the U.S. federal budget, **any general government counter-cyclical fiscal policy financed through the federal budget in the United States must therefore be explicitly legislated by Congress in every economic downturn** in the form of explicit and often headline grapping and politically contentious stimulus packages. An example of this budget process exists in the federal spending on unemployment benefits, where the costs for the standard about 6 month (or 26 weeks) of available benefits[25] are in normal economic times shared between the federal budget and the U.S. states. When, however, in prolonged economic downturns (e.g. generally in every recession officially dated by the National Bureau of Economic Research, NBER[26])

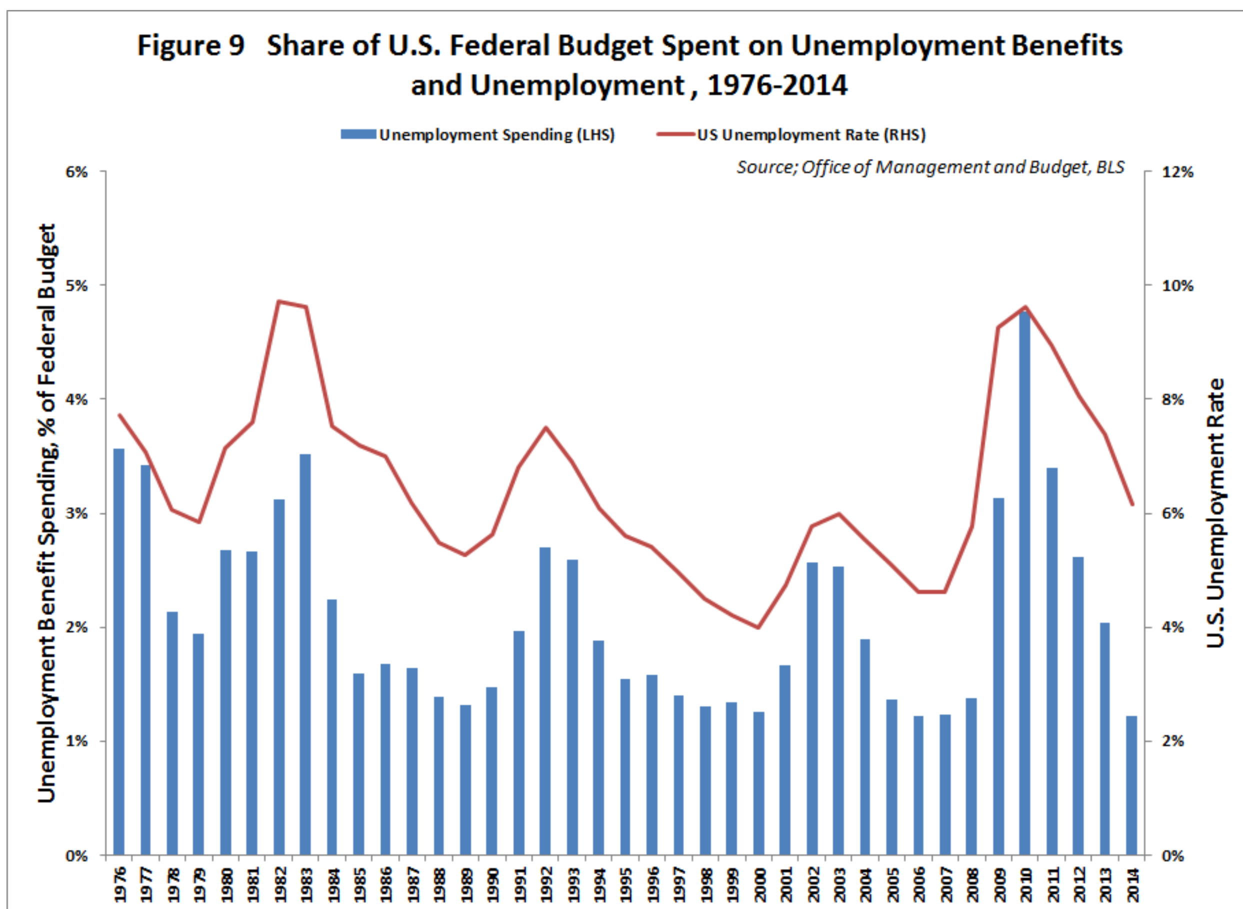
[24] The euro area recession started later than in the United States in only 2008. By 2013, real GDP in Ireland had recovered to 94.5 percent of 2008, in Spain and Portugal 93.3 and Italy 92.5. Only in Greece at 76.5 percent was economic performance much worse.

[25] The precise duration of standard unemployment benefits varies between U.S. states. In 2014, availability was 28 weeks in Montana and 30 weeks in Massachusetts, but only 25 weeks in Arkansas, 20 weeks in Michigan, Missouri, Kansas and South Carolina, 19 weeks in North Carolina, 18weeks in Georgia and between 16-19 weeks in Florida. See details at http://www.cbpp.org/blog/where-things-stand-for-the-unemployed.

[26] Founded in 1920, the NBER is a private, non-profit, non-partisan organization economic research organization closely related to MIT and Harvard Universities. NBER's Business Cycle Dating Committee meets regularly and is officially tasked with determining when the U.S. economy enters into a recession. The Committee is not guided by the "media principle" that a recession means two consecutive quarters of

elevated unemployment affect many American workers for longer than the relatively short 6 month standard benefit duration, the costs of further extending benefit coverage (beyond the standard 6months) is typically covered fully by the federal government.

Figure 9 illustrates how the counter-cyclical spending item of unemployment benefits even at the height of the crisis in the United States in 2010 was less than 5 percent of the total federal budget expenditures.



As discussed above, it has for decades been common practice for Congress to vote to supplement regular state unemployment benefits during periods of high unemployment. Crisis period federal government unemployment benefit payments are thus made through the federal government's so-called Emergency Unemployment Compensation (EUC) schemes, which provide additional weeks of unemployment benefits available to workers who have exhausted regular state unemployment insurance benefits during such periods of high unemployment. The specific level and duration of federally funded extra unemployment benefits varies according to the unemployment rate of the state in which the recipient resides. The U.S. federal government last had an EUC scheme in place from June 2008 until the end of 2013[27], and EUC payments are always made out of the federal government's general funds.

Just as U.S. federal government revenue collection for and expenditures on old-age pension provision (e.g. Social Security) are carried out through a set of segregated accounts and trust funds, other specific federal governmental tasks are carried out through similar specific segregated accounts. These typically

negative economic growth, but rather defines it as "*a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales*." A finding by the independent and respected NBER that the U.S. economy has entered into a recession typically carries substantial importance in the American policy debate, and often is the prerequisite trigger for congressional discussions of providing potential fiscal stimulus to the U.S. economy. See details about the work of the NBER's Business Cycle Dating Committee at https://www.nber.org/cycles/sept2010.html.

[27] See details at the US Department of Labor at http://www.ows.doleta.gov/unemploy/pdf/euc08.pdf.

include earmarked tax funding under the general U.S. public finance principle of "spend where you must, and get the money where you can".

The probably most important example hereof is the U.S. federal government Highway Trust Fund (HTF). With President Eisenhower's decision in 1956 to greatly expand the U.S. inter-state highway system, the HTF was created to help fund this road construction[28]. Since inter-state highways as the name implies connect (at least the 48 states in continental America, not counting Alaska and Hawaii) America's states, this was from the beginning viewed as a natural task for the federal government to carry out. This was especially, so as the interstate highway system was – at the time – viewed as having important national security implications, a subject area exclusively handled by the federal government.

The HTF is financed through an earmarked federal fuel (excise) tax on gasoline sold throughout the United States, and all revenue collected is to be exclusively used for highway construction and maintenance (often in collaboration with state governments covering parts of the costs). Currently the HTF is collecting 18.3cent per gallon of gasoline sold in the United States. However, the current level of the fuel tax has been left unchanged by Congress since 1993. This has, due to inflation and legislated rising fuel efficiencies in the American car park, left the HTF underfinanced. It is today in need of occasional congressionally approved budget support from regular federal government funds, in order to be able to continue to finance required new U.S. road infrastructure and maintenance work. While the financing of HTF therefore is currently under stress, it has successfully for decades represented a form of implicit American road-pricing, as it is America's drivers that through their fuel purchases finance the construction and maintenance of the inter-state highways on which they drive.

[28] Previously, federal road construction in the United States had been funded directly from the U.S. Treasury general funds.

3. UNITED STATES STATE AND LOCAL GOVERNMENTS

3.1. Institutional Set-Up

The United States consists of 50 'sovereign' states (and one federally administered territory with extended self-determination in the District of Columbia), which according to the U.S. Constitution's Tenth Amendment, in principle, have jurisdiction over all subjects not explicitly delegated to the federal government. The U.S. Constitution, however, grants the federal government control over many crucial policy areas, and it has since the U.S. Civil War from 1961-65 been clear that any U.S. state will be prevented from leaving the American union though ultimately military means[29]. Very substantial constraints therefore exist of state level sovereignty in the United States. However, each state government is an independent fiscal entity with its own democratically elected institutions and direct taxing power.

Specific governmental organization varies greatly among the U.S. states, though each state has a broad structure similar to that of the U.S. federal government with a bicameral legislature (lower House of Representatives and an upper house Senate), a state executive led by the state-wide directly elected governor and a state judicial branch. Unlike the federal government, most U.S. states typically have a so-called plural executive, where the powers of the executive branch are split up among a number of office holders directly elected in state-wide elections. These often include the deputy governor (i.e. he/she can be of a different party than the governor), attorney general (the highest state legal officer), treasurer and various state sector commissioners (e.g. for instance agriculture or insurance), and the governor's state executive powers are therefore often both legally and politically substantially curtailed.

The 50 U.S. state governments and the approximately 90,000 governmental entities in the United States at the local level[30] have over time accounted for a rising share of general government revenues and spending. Figure 10 shows federal and state and local government finances from 1929-2014.

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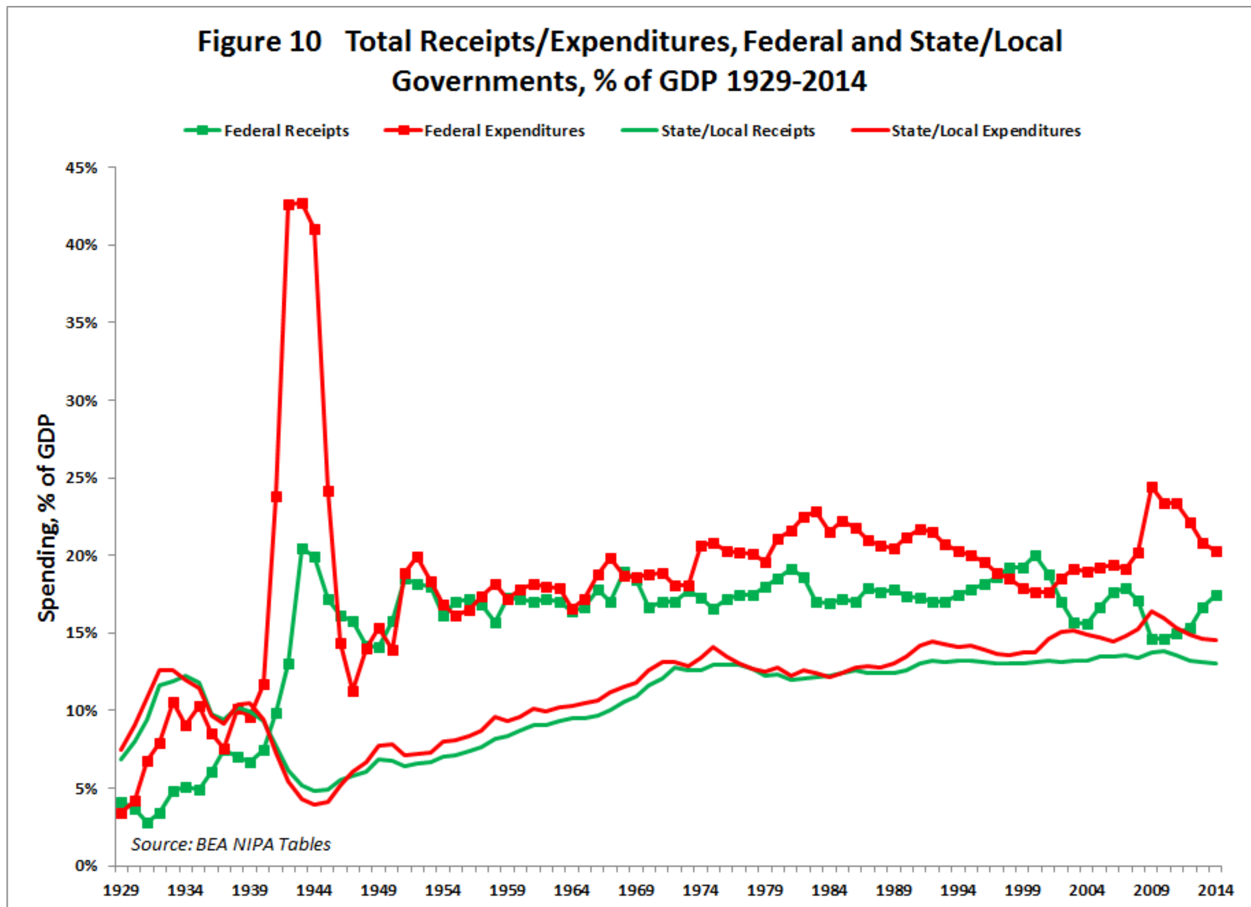
[29] The issue of whether there in the United States exists a right to secede for individual states has been historically debated, but is generally agreed to have been settled by the U.S. Civil War, establishing that no such right exists. See for instance letter from Supreme Court Justice Antonin Scalia to Daniel Turkewitz on October 31st 2006, reproduced at http://www.newyorkpersonalinjuryattorneyblog.com/uploaded_images/Scalia-Turkewitz-Letter-763174.jpg

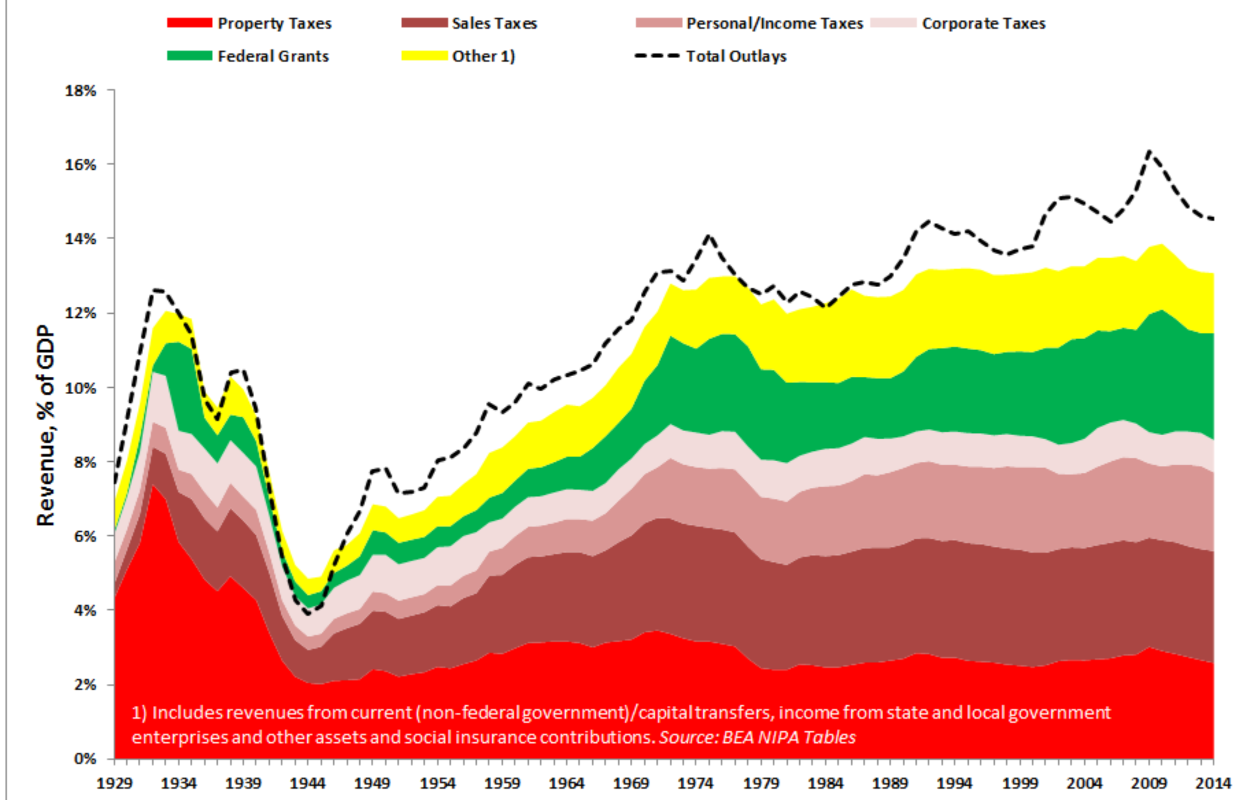
[30] Local government in the United States refers to any governmental jurisdiction below state level. It typically includes both the county and municipal level of government, but may also incorporate city-, town-, borough- or village levels of government. In addition, numerous special-purpose local governmental jurisdictions exist in the United States, such as specialized school, fire protection, sanitation, public library, public transportation or water resource districts. Such entities will often incorporate multiple general purpose local government jurisdictions.

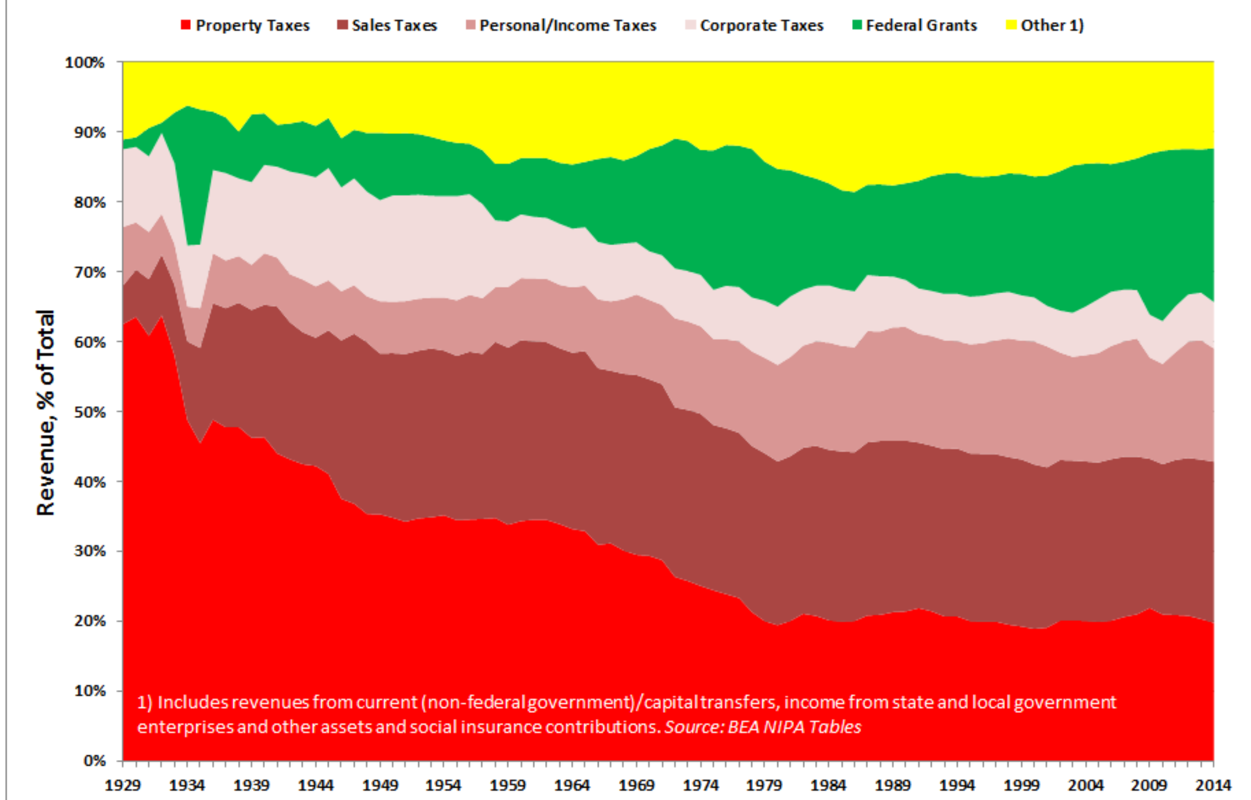


The relative post-World War 2 stability in the economic weight of the U.S. federal government discussed in Chapter 2 is again visible, while the scope of U.S. state and local governments continued to rise quite dramatically also in the 30y from 1945-1975. Since the mid-1970s, state and local government size has been relatively stable accounting for about 40 percent of the total U.S. general government activity levels. A slow increase on the state and local government expenditure side is visible in figure 10, starting around 1990. Today, state and local government spending accounts for roughly 14-15 percent of U.S. GDP.

3.2 Funding Sources at State and Local Government Level

U.S. state and local governments have as independent fiscal entities diverse revenue sources, including various different types of tax revenue and capital transfers, income from state and local government enterprises and other assets and social insurance contributions. Figures 11a/b show the development of state and local government revenues since 1929.





Among the three most important taxation categories, state and local government property taxation has generally declined in importance over the years, while state sales and personal income taxation have

increased. Corporate taxes have declined to a relatively limited share of all state and local tax revenues. Direct grants from the federal government meanwhile today make up the majority of the roughly 30 percent non-tax revenues for state and local governments, while other sources of income are stable at about 10 percent of the total.

An implicit distribution of tax revenue categories is visible in the U.S. general government in figures 11a/b (and 1a/b above), as property and sales/VAT type taxes account for almost half total state and local government revenues, but are not levied at the U.S. federal level. Meanwhile, the federal government takes in the vast majority of about 80 percent of all general government personal income taxes and 70 percent corporate income taxes levied[31]. This distribution of tax revenue income means the federal government is the governmental level that collects most U.S. taxes. As state and local level governments also have to contend with more relatively cyclically sensitive revenues from the property and sales/VAT tax categories, the fiscal prominence of the federal government in the United States is unquestionable.

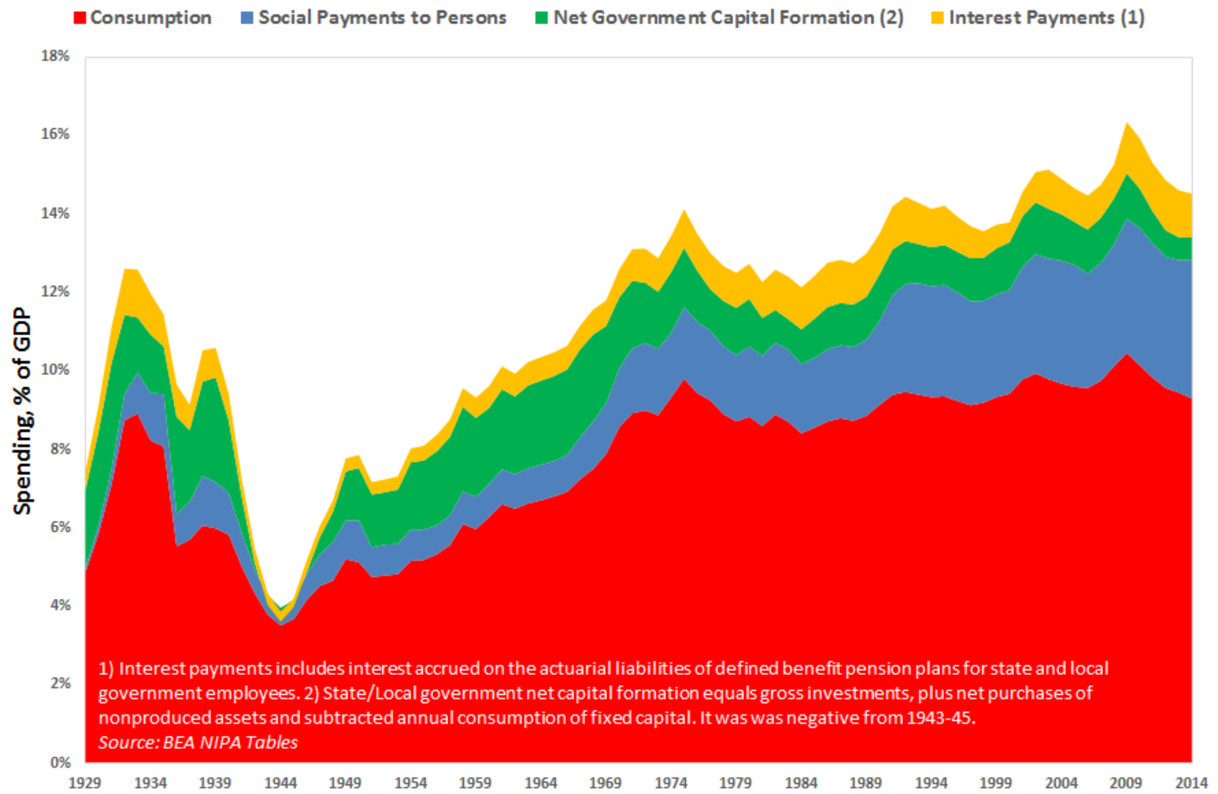
The lack of a U.S. federally collected sales/VAT tax stands in marked contrast with most other advanced economies, where a shift towards higher central government reliance on sales/VAT taxation revenues has occurred in recent decades. The introduction of a federal sales tax has been politically resisted in the U.S. Congress[32], while the levels of state and local sales (and income) taxation is de facto constrained by the risk of losing economic activity to neighboring economic entities. Total broad based consumption taxation in the United States is consequently considerably lower than in most other advanced economies.

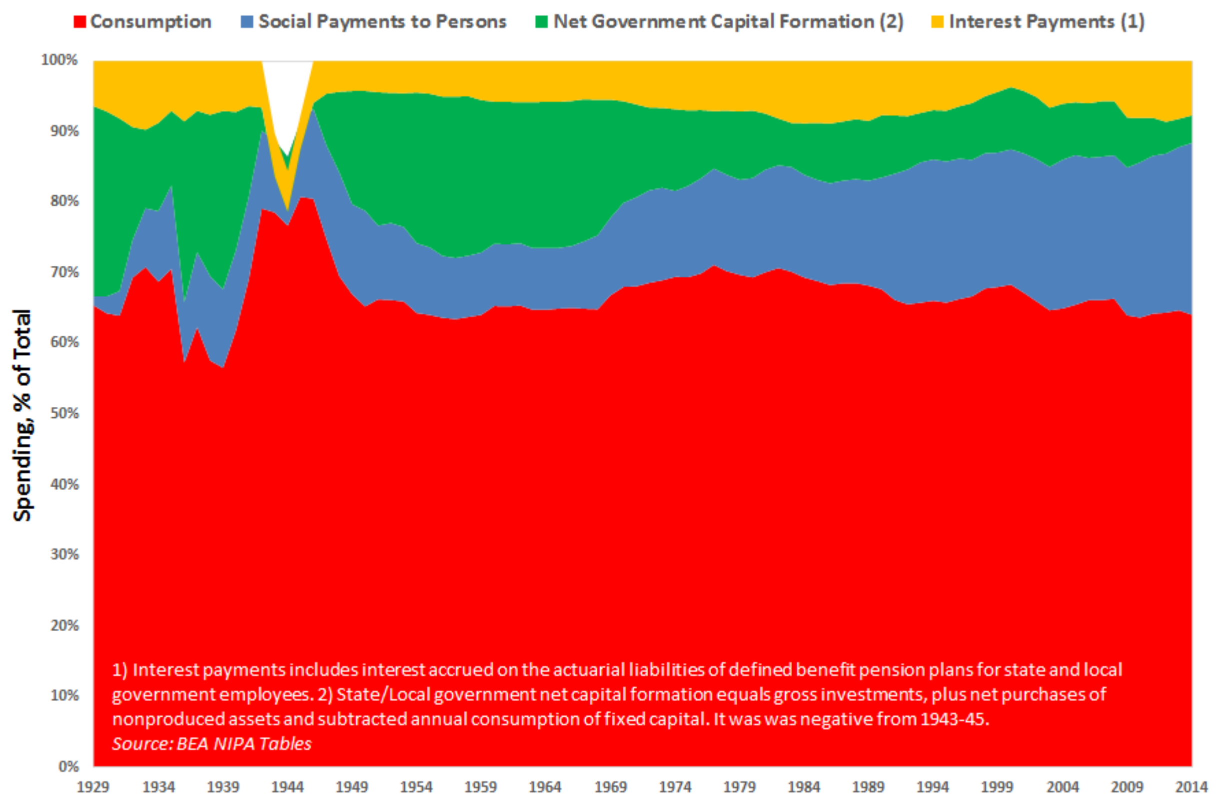
At the same time, a fair degree of differentiation exists among individual U.S. states in their reliance on and levels of individual tax revenue categories. Most states levy most types of taxes, but for each tax revenue category at least one U.S. state has no such tax. A number of states levy no state property tax, while for instance Alaska, Delaware, Montana, New Hampshire and Oregon have no state-level general sales tax. Several states, including Texas and Florida have no state personal income taxes, while among others Ohio, Texas and Washington have no state corporate taxation. Appendix table 1 lists the share of each tax revenue category in each of the 50 U.S. states, as well as the levels of state (and local) government general sales taxes. The latter category ranges from zero to over 9 percent in Arkansas and Tennessee.

3.3 Expenditures at U.S. State and Local Government Level

The detailed analysis of longer-term trends in U.S. state government expenditures is greatly complicated by the great diversity of state-level governmental scopes, changing accounting methodologies and spotty data collection of the required itemized budget expenditure data from especially local governmental entities. Figure2 12a/b show trend developments in broad spending categories from 1929-2014.

[31] Percentages refer to the average for the 2000-2014 period. Distribution was different in earlier periods of U.S. fiscal history.
[32] See Gale and Harris (2011) and Toder and Rosenberg (2010) for details on the economic effects of a sales tax/VAT introduction in the United States and the political hesitation concerning the issue.





Roughly 60 percent of U.S. state and local government spending consists of government consumption expenditures, and has accounted for about 8 percent of U.S. GDP since the mid-1970s. In recent decades

the main driver of rising state and local government spending has instead been accelerating social benefit payments to individuals, mainly accounted for by rising costs of retirement pensions to former employees. Net state and local government capital formation and interest payments have since the mid-1970s been relatively stable at each around 1 percent of U.S. GDP, though in recent years since the crisis began in 2008 interest costs have increased and capital expenditures declined somewhat.

Table 1 presents the most recently available detailed breakdown of U.S. state and local governments' spending by functional category.

Table 1 US State and Local Government Spending, by Function, $bn 2012

Functional Expenditure Category		Share of Total
Total Expenditure	**3,151.7**	**100.0%**
Education	**869.2**	**27.6%**
Higher education	259.7	8.2%
Elementary & Secondary	565.4	17.9%
Other education	44.1	1.4%
Libraries	11.4	0.4%
Public welfare	**485.6**	**15.4%**
Cash assistance payments	23.1	0.7%
Vendor payments (1)	387.5	12.3%
Other public welfare	75.0	2.4%
Hospitals	**155.8**	**4.9%**
Healthcare	**84.4**	**2.7%**
Employment security administration	**5.1**	**0.2%**
Veterans' services	**0.8**	**0.0%**
Transportation	**182.0**	**5.8%**
Highways	158.6	5.0%
Air transportation (airports)	21.5	0.7%
Parking facilities	1.9	0.1%
Sea and inland port facilities	5.3	0.2%
Public safety	**225.5**	**7.2%**
Police protection	97.0	3.1%
Fire Protection	42.4	1.3%
Correction	72.6	2.3%
Protective inspection and regulation	13.6	0.4%
Governmental administration	**123.9**	**3.9%**
Financial administration	39.0	1.2%
Judicial and legal	43.2	1.4%
General public buildings	14.0	0.4%
Other governmental administration	27.8	0.9%
Utility Service expenditure	**207.0**	**6.6%**
Insurance trust expenditure	**346.5**	**11.0%**
Unemployment compensation	95.6	3.0%
Employee retirement	233.2	7.4%
Workers' compensation	10.9	0.3%
Other, Including General expenditure n.e.c	**335.8**	**11.4%**
Interest on general debt	**109.1**	**3.5%**

1) Vendor payments include paments to private purveyors for medical care, burials, and other commodities and services provided under welfare programs; and provision and operation by the government of welfare institutions

Source: US Census 2012 Census of State and Local Governments

The largest state and local government spending category is education, as the responsibility for primary and secondary education in the United States resides here accounting for 28 percent of total outlays. The next "meta category" should be labeled social spending and would consist of the combined expenses for public welfare, insurance trusts[33], hospitals and healthcare and would account for a total of approximately a third of total state and local government outlays. Transportation, public safety, government administration and utility services account for most of the remainder of U.S. state and local government expenditures. Hence responsibility for a host of critically important governmental functions resides at this governmental level. As will be discussed further below, ensuring the continued provision of such key services is a key constraint on the process through which U.S. local governmental entities can declare bankruptcy, an option generally only available once such ongoing provision becomes economically impossible.

Box 2: Balanced Budget Rules at U.S. State and Local Government Level

U.S. state and local governments are generally today subject to so-called "balanced budget requirements", so the fact that table 1 shows how U.S. state and local governments spent more than $100bn, or 3.5 percent of total expenditure, in 2012 on interest payments, would at first glance appear surprising. Given the diversity at U.S. local government entities, a comprehensive analysis of their balanced budget requirements is difficult. However, as many local government entities are special purpose constructs, such as school districts, without direct independent taxing powers and only able to raise fee income or issue debt at the explicit permission of higher levels of government, they are subject to de facto budgetary controls and must run balanced budgets. Only general purpose local governments, such as counties and municipalities, are able to issue debt, though the degree to which they are restricted in doing so varies greatly from state to state. Often states with very large metropolitan areas, such as New York City in New York state or Chicago in Illinois, have relatively fewer restrictions on the behavior of such large local general purpose local governments. By far and away the most important force in instilling sustainable finances on local governments in the United States is not legal requirements, but comes in the form of market discipline, as all local government debt in the United States is subject to federal bankruptcy procedures (chapter 9) and restructuring.

At the U.S. state level, substantial diversity exists in what constitutes a balanced budget, as it is often more complicated than one would immediately expect.

For state lawmakers, the legal requirement for a balanced budget typically concerns the need to balance the operating budget. In most states, this means the state general fund budget being subject to the standard annual (or biennial in some states) budget process. The general fund is made up of the majority of state tax revenue, and pays out the bulk of state expenditures. Often overlooked though, is whether a U.S. state's entire budget, or just parts hereof, must be kept in balance. With significant parts of states' budgets often managed through vehicles outside the general fund, state lawmakers possess legal opportunities to run deficits in the elements of their spending powers outside the normal statutory balanced budget requirements.

Other implicit control functions exist though, as federal government grants and budget reimbursements comprise a sizable chunk of states' non-general fund budget resources. Balancing such revenues is straight forward, as states can only allocate as much spending from them as the resources they receive. Other parts of state non-general fund outlays from within the state are often from earmarked revenues legally required to go towards particular spending priorities, which may moreover generally not be topped up with other budget resources. The main exception for balanced budget requirements is therefore project bond finance for capital projects, with borrowing to be financed explicitly against the future proceeds

[33] As in the U.S. federal government, state and local government retirement expenses are managed in separate fiscal accounts and trusts (e.g. the pension funds for retired state and local government employees), a framework utilized also utilized for state level unemployment benefits to accommodate contributions by private employers.

from the project in question. More generally, it can therefore be argued that a lot of U.S. state governments' capital spending is outside balanced budget rule procedures and many of the states' rules approach so-called "golden rules", where only investments may be debt financed.

The National Conference of State Legislatures (NCSL 2010) lists 49 states with various degrees of legal requirements for balancing budgets, with Vermont currently being the sole exception.

Strictness of general fund budget restrictions varies. Some states explicitly demand that expenditures in a fiscal year are within the cash collected for the same fiscal year. Others, like the Oklahoma constitution, require fiscal year expenditures from the general fund be automatically reduced dollar-for-dollar if projected revenues fall below what is forecast in the budget. Still others like Virginia are weaker, with just a constitutional requirement for the governor to maintain spending on par with revenues, but no mechanism of enforcement. Constitutional provisions elsewhere, as in Michigan, permit so-called "unavoidable deficits" to be carried into the next fiscal year. Yet never properly defining what is meant by "unavoidable" and thus opening a pathway for persistent "unavoidable deficit spending". At the same time though, a lack of explicit balanced budget legal language is in many states counter-balanced by a long standing historical practices of maintaining balanced budget, based also on the degree of market pressure arising from the lack of federal government bailouts of states in the United States since the early 18th century.

As such, while almost all U.S. states have some sort of formal legal balanced budget requirements, what is explicitly meant of often subject to local political interpretation and requires the additional support of market pressure and state political cultures and traditions to become really politically binding on state governments.

U.S. state level balanced budget requirements are a mix of various legal requirements and political procedures, which are not compatible across states. U.S. states' balanced budget requirements have not been the direct political outcome of explicit federal government political initiatives, or coordinated policies across many states. Rather, they to a large degree reflect "domestic political origins" inside each state and the state governments' relations with financial markets, which were shaped by the wave of early state-level fiscal problems dating back to the 1840s[34].

The origin of the U.S. governmental financial system lies in the famous Hamiltonian assumption by the new federal government of the existing debt (largely related to the "common costs" of fighting the War of Independence 1775-1783) of the individual U.S. states in 1790. This transfer of state debts to the federal government set a precedent for the early period of the U.S. federal republic. The federal government again took on the largely war-related debts of states following the War of 1812 and then again for the District of Columbia in 1836.

This pattern was broken in the 1840s, as eight states (plus the then territory of Florida) defaulted on their debts. The eight indebted states requested that the federal government again assume their debts, recalling the multiple precedents in the United States since 1790. Cross-state financial contagion was present, as bond prices for even financially sound states fell, and the U.S. federal government itself was cut off from European financing in 1842. However, Congress was for several reasons politically able to reject the petition for a federal bailout of the affected states. First, debts were largely to finance projects strengthening the local state economy, rather than providing national public goods as would be required for projects for the federal government. Second, the defaulted bonds were not a large part of the U.S. domestic banking portfolio, and default itself had limited contagion effects and caused little financial pain for domestic savers. Third, the financially solid U.S. states outnumbered defaulting states. And, finally, the U.S. economy had reached a developmental level where it was no longer to be held hostage to

[34] See details in Henning and Kessler (2012)

continued access foreign (e.g. European) capital in the future. Imposing losses on foreign creditors was therefore less risky than before.

Eventually, following defaults in the form of debt repayment moratoria most states repaid most or all of their debt as a condition for returning to the private financial markets[35].

The rejection of debt assumption by the defaulting states established a strong political "no bailout" norm on the part of the federal government. This norm is neither a legal statute in the U.S. Constitution, nor even a clause in federal law. Nevertheless, it is politically powerful, as no state bailout request has been accepted since the early 19th century[36].

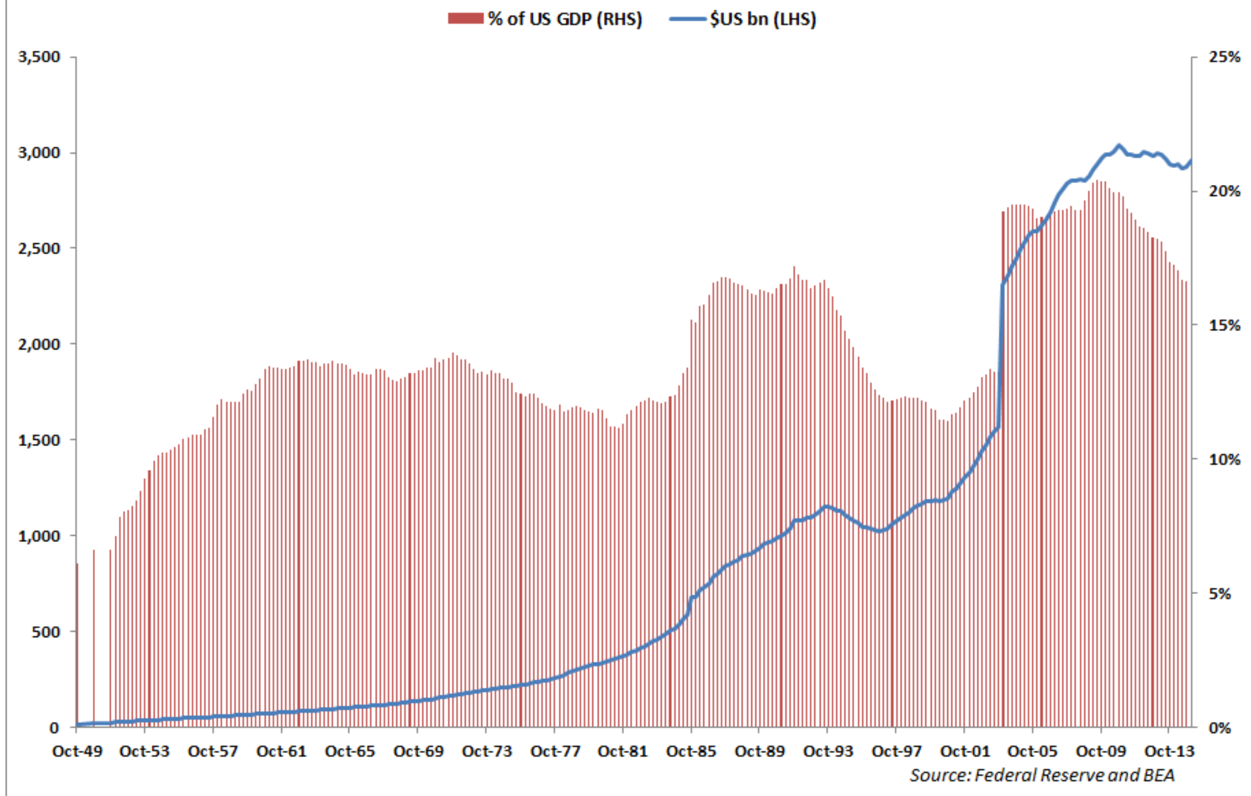
The fiscal sovereignty of U.S. states was an indirect outcome of the no bailout norm, established and in some ways imposed upon some U.S. states by (the majority) of other states and the accompanying unwillingness of the federal government to provide any bailouts. This set a very potent political precedent in the fiscal interaction between U.S. states and the federal government. Subsequently, during the 1840s and 1850s, states began their own procedures to adopt balanced budget amendments to their state constitutions, or instituting other legal provisions in state law demanding state governments run (at least partly or partly) balanced budgets. This was true even of financially solid states that had not defaulted and their adoption continued over the course of subsequent decades, so that eventually essentially all states had by the time of the Civil War adopted some sort of such balanced budget restriction.

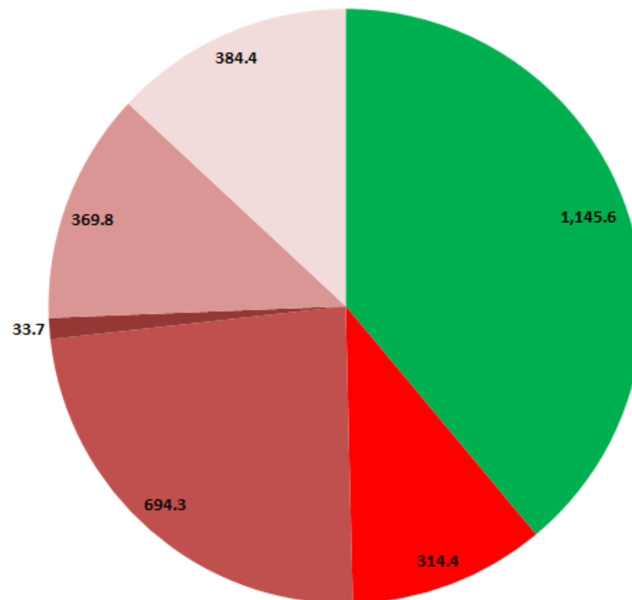
3.4 Issuance of Government Debt at State and Local Level in the United States

Figure 13 shows developments in state and local government debts since 1949, while figure 14 breaks out the total outstanding debt by individual governmental layer.

[35] Substantial U.S. state government default and debt repudiation, however, took place later among the Southern states in the United States, as these were reintegrated into the United States following the end of the Civil War in 1865.

[36] This applies only to U.S. states, while arguably an exception was made in the 1995 federal government bailout of the District of Columbia. In this case, Congress did indeed in true "Troika fashion" take control of the District's finances, injected federal government funds, and managed the budget for four years though the District of Columbia Financial Control Board. This was possible because of a special clause in the Constitution giving Congress authority over the administration of the District—authority that does not extend to the "sovereign" states.





State and local government debt presently stands at about $3tr, or about 17 percent of U.S. GDP, down from about 20 percent in 2009. About 40 percent of the total debt is carried by state governments, while

the rest is distributed among U.S. local governments and with municipalities carrying the largest – about a quarter of total – local government debt burden. While long established U.S. state level balanced budget amendments have therefore clearly not managed to eliminate the need or desire for states and local governmental entities to issue debts, figure 13 and 14 shows how states and local government debts remain a relatively minor share of total U.S. general government debts – 18 percent of total debt held by the public and 14 percent of total general government debt issued in early 2015.

Considering how figure 10 illustrated that the economic weight of state and local governments in the U.S. general government is around 40 percent to total expenditures, it is clear that state and local governments in the United States tend to run more fiscally conservative policies than the U.S. federal government. As such, balanced budget requirements at the state (and local) level does not compel these governmental levels to always avoid any deficits and debts, but have had the – intended and wholly politically accepted across the U.S. political system – consequence of ensuring that the main debt burden in the United States is carried at the federal government level.

Reflecting the very large number of different particularly local government bond issuers in the United States, substantial variation exists among the types of marketable debt issued by individual state and local government entities. The state and local government bond market in the United States, also known as the municipal bond market (or "munis" for short), consists of debt securities issued by states, cities, counties and other governmental entities to fund day-to-day obligations and to finance capital projects such as building schools, highways or sewer systems.

To secure a stable investor base, the interest on municipal bonds is exempt from federal income tax. This makes municipal bonds an often sought after investment for affluent older Americans looking to reduce their taxable income, and typically seek a steady stream of income payments and, compared to stock investors, may be more risk-averse and more focused on preserving, rather than increasing, their financial wealth.

This federal tax exemption provides a further implicit transfer payment from the federal government to state and local governments in the form of foregone federal tax income. The interest on municipal bonds may also be exempt from state and local taxes, if you reside in the state where the bond is issued. Given these tax benefits, the interest rate for municipal bonds is usually lower than on taxable fixed-income securities such as corporate bonds, offering state and local government entities generally favorable market conditions for placing their debt.

The two most common types of municipal bonds are[37]:

General obligation bonds: issued by states, cities, counties or other governmental entities with direct taxing powers and not secured by any assets. Instead, general obligation bonds are backed by the "full faith and credit" of the issuer, which has the power to tax residents to pay bondholders. It will vary from issuer to issuer whether bondholders' claim on tax proceeds have legal priority over financial claims on the government from other stakeholders.

Revenue bonds: issued by states, cities or counties or other governmental entities with or without direct taxing powers and not backed by government's taxing power, but instead by revenues from a specific project or source, such as highway tolls or lease fees. Some revenue bonds are "non-recourse," meaning that if the revenue stream dries up, the bondholders do not have a claim on the underlying revenue source.

[37] In addition, municipal borrowers sometimes issue bonds on behalf of private entities such as non-profit colleges or hospitals. These "conduit" borrowers typically agree to repay the issuer, who pays the interest and principal on the bonds. In cases where the conduit borrower fails to make a payment, the issuer usually is not required to pay the bondholders.

A very important distinction exists between bonds issued by U.S. state governments and those issued by any local government entity. As **U.S. states are legally sovereign entities, they cannot declare bankruptcy** under federal law, as this would by definition violate their sovereign status under the U.S. Constitution. Unlike U.S. local governments, which as legal corporations may under some circumstances file for federal bankruptcy protection (see below), state governments possess sovereign and, in principle, constitutionally uninhibited taxing powers[38], and do not have the legal and constitutional option to file for bankruptcy. As such, U.S. states – wishing to retain their access to financial markets – in the case of difficulties in making bond payments face no other option than to reach a negotiated settlement with its creditors. This is a predictably tortuous political process, as bondholders invariably demand states' raise taxes to repay their debts – which are in the case of "general obligation bonds" after all backed by the full faith and credit of the state government. As a result, only one U.S. state has since the 1840s chosen to go down this route, namely Arkansas at the height of the Great Depression in 1933[39]. Only an agreement to raise the state's automobile and gasoline taxes and earmark all proceeds to highway maintenance and debt service eventually saw the Arkansas state government reach an agreement with its creditors and return to a state of normal service provision and governmental function.

The situation is very different for **U.S. local governmental entities, as these have the opportunity to seek the protection from their creditors in U.S. federal bankruptcy court under Chapter 9** of the U.S. federal bankruptcy code. With about $1.8tr in outstanding U.S. local government debt (figure 14), this implies that roughly 11 percent of all U.S. general government debt held by the public (and 8 percent of all issued debt) is in theory subject to debt restructuring through a formal federal bankruptcy procedure, though the actual level of debt subject to bankruptcy procedures is lower, due to state level restrictions.

The access to Chapter 9 bankruptcy is not open to all local governments, as the option to file for bankruptcy under federal law and Chapter 9 is conditional. Chapter 9 lists four main criteria for any such filing (CBO 2010);

1) The entity must be a political sub-division, public agency, or instrumentality of a state. Ipso facto, states themselves are not allowed to file. Nor are U.S. dependent territories, like for instance Puerto Rico, which is currently facing severe economic difficulties. As with regular states, Puerto Rico therefore today has no alternative other than to negotiate a settlement with its creditors.
2) State law must authorize that its governmental entities rely on Chapter 9 and federal bankruptcy law. This is a major restriction, as only 26 U.S. states allow their local government entities to file under Chapter 9, and of these 14 demand that a local government seek the explicit consent of a state authority before proceeding. Georgia outright prohibits its local government entities from filing under Chapter 9, while the remaining 23 states have no laws addressing this issue. That though means that municipalities here would only be able to file under Chapter 9 if a new state law explicitly permitted them to. Or in other words, seek the approval of not only a state executive officer, but from a majority of the legislative branch through the passing of new state law.
3) The filing local government entity must be insolvent; and
4) The local government entity must first, to the extent practical, negotiate in good faith with its creditors to restructure its debts outside bankruptcy, which can therefore only be an ultima ratio option for any local government entity.

[38] As was illustrated above, in reality there are limits to how far an individual state can diverge from other states in terms of its taxation levels without creating severe economic disruptions and the loss of economic activity to neighboring states.

[39] For details of the Arkansas default, see Mysak (2010). California's well published reliance on IOUs (I Owe You) to pay some budget items (like state tax refunds) in 2009 was not strictly speaking a legal default. The delay was temporary (only a few months), all IOUs were redeemed by the state government, plus interest, and did de facto function as a temporary cash equivalent in California with most large banks accepting them as regular payments. At the same time, it seems clear that had California not as a U.S. state been constitutionally barred from declaring bankruptcy, some private creditors would have taken the state to court.

It is straightforward to see from these four criteria that a degree of political and legal discretion exists, when determining whether a local government bankruptcy is possible under Chapter 9. What for instance constitutes an entity's prior "good faith negotiations" with creditors is almost invariably – as bondholders will seek to block bankruptcy filings to get all their money back – the subject of separate and often lengthy legal battles, concerning whether a particular bankruptcy petition is admissible to the federal court system and Chapter 9.

It should also be noted that given how the U.S. municipal bond market is integrated across the entire United States, there is – despite attempts by some state governments to lure their domestic in-state investors towards their bonds by exempting interests also from state income tax – generally not a high degree of local in-state ownership of U.S. local government debt. Rather this debt is widely distributed across investors geographically located throughout the United States. This has the political implication that there is generally no compelling bond market reason for state governments to come to the financial rescue of any defaulting local governmental entities in the state, as local in-state bond investors will generally not suffer particular concentrated financial losses. There may of course be other good reasons of reputation and short-term political concerns for a state government to offer assistance to a local governmental entity in financial trouble.

3.5 Bankruptcy Procedures for U.S. Local Governments (under Chapter 9)

A federal bankruptcy code for local governments were first enacted in 1934 and finally upheld as constitutional by the U.S. Supreme Court in 1937. This was in response to the large wave of defaults by local governments and the last default to be recorded by a U.S. state (see above for details of Arkansas' default) during the Great Depression. Between 1920 and 1930 capital investment by local governments doubled, financed by general obligation bonds backed mostly by property taxes. Owing to the crisis period collapse in property prices and this tax base, over 3,200 local governments defaulted on $2.4billion (3.2 percent of U.S. GDP) of these debts by December 1935.

In contrast to earlier default waves, this debt was owed to domestic U.S. rather than foreign investors, and the lack of state or federal government bailouts precipitated the need for a debt workout procedure for these indebted governmental entities and their creditors. Without such expedited debt workouts, sizable parts of the United States' population would risk being without local governmental services for prolonged periods of time. Depression era local government defaults and the introduction of Chapter 9 bankruptcies further had the broader effect of contributing to the large governmental fiscal shift away from lower levels of government towards the states and especially the federal government visible during the 1930s in figure 10. Washington (and some state governments) adopted new programs, taking over functions from local governments, and provided direct assistance to the American population, as local governments were forced to cut spending.

The purpose of Chapter 9 has since its creation been to provide a financially-distressed local government entity protection from its creditors, while it develops and negotiates a plan for adjusting its debts. Although similar to other U.S. federal bankruptcy code chapters for private companies in some respects, Chapter 9 is significantly different in that there is no provision in the law for liquidation of the assets of the local government and distribution of the proceeds to creditors. Such a liquidation or dissolution would undoubtedly violate the Tenth Amendment to the U.S. Constitution and the reservation to the states of sovereignty over their internal affairs. Indeed, due to the limitations placed upon the power of the bankruptcy court in Chapter 9 cases, the bankruptcy court generally is not as active in managing a municipal bankruptcy case as often witnessed in corporate reorganizations under Chapter 11. The functions of the bankruptcy court in Chapter 9 cases are generally limited to approving the petition and confirming a plan of debt adjustment agreed by the debtor with the creditors, and ensuring implementation of the plan.

As a practical matter, however, the local government may consent to have the court exercise jurisdiction in many of the traditional areas of court oversight in bankruptcy, in order to obtain the protection of the federal court from potential state governmental actions and the competing claims of individual creditors pressed in state courts.

Different types of bonds receive different treatment in Chapter 9 bankruptcy cases. General obligation bonds are treated as general debt. The local government is not required to make payments of either principal or interest on account of such bonds during the case. The obligations created by general obligation bonds are subject to negotiation and possible restructuring under the plan of adjustment.

Revenue bonds, by contrast, will continue to be secured and serviced during the pendency of the Chapter 9 case through continuing application and payment of ongoing special revenues. Holders of special revenue bonds can expect to receive payment on such bonds during the Chapter 9 case if special revenues are available.

3.6 State and Local Government Pension Benefits under Chapter 9 Bankruptcy Procedures

A particular debt related issue exists among U.S. state and local government pension funds for retired employees, which are typically managed very locally. Hence for instance a small U.S. municipality may have independent pre-funded pension funds for each group of retired government workers, such as teachers, fire fighters or police men. Unlike in the U.S. private sector, where most firms have in recent years shifted their corporate pension plans from defined benefit to defined contribution systems, the vast majority of state and local government pension plans remain defined benefit plans. This, combined with the fact that U.S. state and local governments on average have older workforces than the U.S. private sector, exposes them to significant risks of rapidly rising retirement costs.

A host of accounting rules have over the years been utilized by U.S. state and local governments to reduce the level of required contributions to their employee pension plans. As a result **today on average U.S. state and local government pension funds face significant underfunding problems**, even if they hold a total of $3.2trillion in assets earmarked towards covering the costs of the retirement of state and local government workers[40]. Depending on the discount rate used to estimate projected future pension liabilities[41], U.S. state and local government pension funds on average today are only between 45 percent (using a risk free rate of 4 percent) and 75 percent (using a discount rate of 7.6 percent) pre-funded. In the former case, U.S. state and local governments today have unfunded pension liabilities of $3.9trillion (or more than $12,000 for each American), while in the latter "only" $1.1trillion (or about $3,400 for each American). It is in other words evident that whichever financial assumptions are made about the future pension burden cost faced by U.S. state and local government, it is large and rising.

Even the optimistic 75 percent average funding rate for state and local government pension plans moreover masks very significant variation in the funding situation among individual plans. Private estimates from Wilshire (2015) hence suggests that 8 percent of state and local government pension plans – even in this optimistic scenario – were less than 50 percent funded in 2014, and almost a quarter merely up to 60 percent funded. Combined with also largely unfunded future state and local government healthcare liabilities (promises made to government workers about healthcare provision in their retirement) of an estimated up to another $1trillion[42], this category of state and local government

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[40] See details in Munnell and Aubry (2015).
[41] The use of a discount rate for pension liabilities is necessary to estimate today's present value of all the future pension benefit payments a fund is liable for. The lower the discount rate, e.g. the lower the rate at which future payments can be discounted at, the higher the present value of a pension fund's liabilities. For solvency purposes of a pension fund, it is generally assumed that the future discount rate is the riskless rate, as today's available assets must be considered free of default risk to be available in full to make pension benefit payments in the future.
[42] See Lutz and Sheiner (2014).

expenses are the single biggest reason for acute fiscal stress – and in some cases even bankruptcy (see box 3) – in U.S. state and local governments today.

Many state and local governments now face the unenviable political choice of either raising taxes to pay for these retirement costs – a tough sell to a general public often benefitting from less generous private sector retirement schemes than those enjoyed by public sector retirees. Or slash spending on other items to pay for it, which though per table 1 will almost invariably mean state and local governments cutting education or infrastructure investment spending to pay for retirees. Or of course reduce the retirement benefits of this group of retirees. In many U.S. states, however, the legal protections of these retirement benefits are very strong and enshrined in the state Constitutions, and of course retired public sector workers are an important and reliably voting group in what is often relatively low participation local government political races.

Significant reforms of state and local government pension and healthcare benefits therefore always involve contentious political battles, and in a number of cases even a bankruptcy filing by the local government.

Box 3: The 2013 Local Government Bankruptcy of the City of Detroit

About 700 local governmental entities in the United States have filed for federal bankruptcy protection under chapter 9 since the law's enactment in 1937. Most of these, however, have been independent local governmental entities, such as utilities, hospitals, school districts or mass transit providers. The bankruptcy filing of entire cities, municipalities or counties account for only a small share of the total, and especially the bankruptcy of larger such entities are rare. Until the 2013 filing by Detroit on $18bn of liabilities, the two largest local government bankruptcy filings in U.S. history were Orange County, California in 1994 on debts of $1.7bn and Jefferson County, Alabama in 2011, which defaulted on $4bn of debt.

As with earlier U.S. local government bankruptcy processes, Detroit is essentially a localized political and financial issue affecting just the defaulting entity itself and the state in which it is located. No federal government emergency funds have been provided to either Detroit or the state of Michigan as part of the process, apart from the federal government benefit payments going directly to the eligible U.S. residents in Detroit and Michigan. Due to lack of data, any fluctuation in the level of overall federal government resources flowing into Detroit during the crisis cannot by be estimated[43]. However, as the overwhelming majority of federal government benefits consist of payments made directly to individuals, even if unemployment and poverty have risen in Detroit during its crisis, the associated dramatic decline in city population in all probability caused total federal resource inflows to Detroit to decline.

The final extent of the financial losses from Detroit's bankruptcy remains unknown, but it is clear that even this, the largest such bankruptcy filing in U.S. history, will not have any financial market contagion effects. The reasons are the above mentioned widespread geographic distribution of municipal debt ownership across the United States, which, especially in a long-ago flagged problem case like Detroit, ensures that no individual local investor holds excessive financial exposures. Moreover, municipal bond ownership among U.S. banks is very limited, due to the interest tax exemption available to only individual investors (not banks) holding such debt. No banking institution insured by the FDIC can therefore expect to face any material losses from the Detroit bankruptcy filing.

In July 2013, the city of Detroit filed for chapter 9 protection from creditors in the largest local government bankruptcy in U.S. history covering about $18bn in city liabilities. This concluded a longer "Troika like" process, where in April 2012, Detroit Mayor Dave Bing and the nine-member City Council

[43] The U.S. Census Consolidated Federal Funds Report, which until 2010 provided such data, is no longer available due to the termination of the Federal Financial Statistics Program. See details and historical data at http://www.census.gov/govs/cffr/.

entered into an agreement with the Michigan state government that initially gave the state greater fiscal oversight in exchange for the state's providing Detroit help with its finances. A financial review team was subsequently appointed in December 2012 by the state of Michigan to conduct a 60-day review of the state of Detroit's finances.

In February 2013, Governor Rick Snyder announced that the Michigan state government was taking financial control of the city of Detroit, as it viewed that Detroit failed to meet the financial deadlines set by the state government. In accordance with state law, the Michigan's Local Emergency Financial Assistance Loan Board appointed an emergency financial manager of Detroit following a declaration of financial emergency. Under state law, this emergency manager, Kevin Orr, was granted far reaching emergency executive powers to rewrite Detroit's contracts and to liquidate city assets.

A dire report on the financial health of Detroit was released by Orr in May 2013. The report stated that Detroit was "clearly insolvent on a cash flow basis" and that the city would finish its current fiscal year with a $162 million cash-flow shortfall and that the city's budget deficit would reach $386 million in less than two months with one-third of the city's total budget going toward paying city retiree pension and healthcare benefits. In June 2013, the city of Detroit stopped making payments on some of its unsecured debts, including pension obligations. In a last gap effort to avoid bankruptcy, Orr in the following weeks offered some of Detroit's creditors an up to 90 percent haircut (i.e. he sought to get them to accept just 10 percent of what they were owed), an offer quickly turned down by creditors. In mid-July, Detroit's two largest municipal pension funds filed suit in a Michigan state court to prevent the emergency manager from cutting retiree benefits, as part of his efforts to cut the city's budget deficit. This action made the bankruptcy filing inevitable.

The city estimated at the time that it had more than 100,000 different creditors and more than $18bn in outstanding debts[44]. As required under Michigan state law, the state governor was required to give his permission for Detroit to file for what would have to be an unavoidable bankruptcy in a federal government court. This decision the governor reached based on four conclusions[45].

The City of Detroit could no longer meet its basic obligations to its residents; with for instance an unemployment rate at double the national U.S. rate, a murder rate at the highest level in 40y, only 1/3 of ambulances in working order, 78,000 abandoned city structured from the approximate 28 percent decline in population since 2000, the city of Detroit was failing its more than 700,000 residents.

The City of Detroit could no longer meet its obligations to its creditors; with more than $18bn in debts, a deficit of several hundred million dollars, a junk credit rating and city tax rates already at the maximum allowed in the state of Michigan, meeting all creditor claims would no longer be possible.

The City of Detroit no longer had the capacity to meet all commitments made in the past; with a (still accelerating due to the collapse in city provided services) population drop of more than 63 percent since the peak in the 1950s, Detroit simply would no longer be able to service all the commitments entered into by previous leaders, when the city was much larger than today.

The City of Detroit had no alternative to filing for chapter 9 bankruptcy; with creditors unwilling to reach a negotiated settlement for a reduced debt burden, bankruptcy was the only path forward.

A major reason for the filing for bankruptcy was the unwillingness of pension funds to contemplate any reductions in city retiree benefits, despite this category of liabilities accounting for a very large part of Detroit's total liabilities. Partly, this unwillingness was founded on the very strong legal protections of existing pension benefits in the Michigan Constitution. It states that neither the state nor any of its

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[44] See Detroit financial report of May 2013 at http://archive.freep.com/assets/freep/pdf/C4205233512.PDF
[45] See City of Detroit bankruptcy filing at http://archive.freep.com/assets/freep/pdf/C4208687718.PDF

"political subdivisions" are permitted to default on the accrued financial benefits of their pension plans or retirement systems. This is a legal view point rendering Michigan public pension benefits for existing retirees virtually untouchable.

On the other hand, under federal bankruptcy law, relatively wide availability exists to renegotiate also existing local government collective bargaining agreements, including covering issues of retirement benefits. A key legal issue in the Detroit case therefore was whether restrictive state courts, or more permissive federal bankruptcy courts, had jurisdiction of the Detroit case. Ultimately, Michigan state courts, with the political support of the governor, decided that jurisdiction over the Detroit bankruptcy filing lay fully with federal bankruptcy courts.

Following a lengthy bankruptcy process overseen by a federal bankruptcy judge, a final settlement was reached in late 2014. The settlement reduced Detroit's total unsecured liabilities by more than $7bn, or a roughly 74 percent haircut, and included significant financial contributions accepted by labor unions for reductions in city workers' retirement benefits. General pensioners faced a 4.5 percent cuts to their monthly checks, the elimination of annual cost-of-living-adjustment increases and a clawback in excessive interest from annuity savings. Meanwhile, Detroit police and fire pensioners would get a reduction in their cost-of-living increases.

The state of Michigan agreed to contribute an almost $200mn lump-sum contribution to Detroit's pension system in return for establishing a largely state-appointed Financial Review Commission to act as a fiscal watchdog over the city, with broad powers to reject city contracts, spending, borrowing and labor agreements. If Detroit meets terms of the bankruptcy and stays within budget for three years in a row, the Financial Review Commission could decide to dissolve itself.

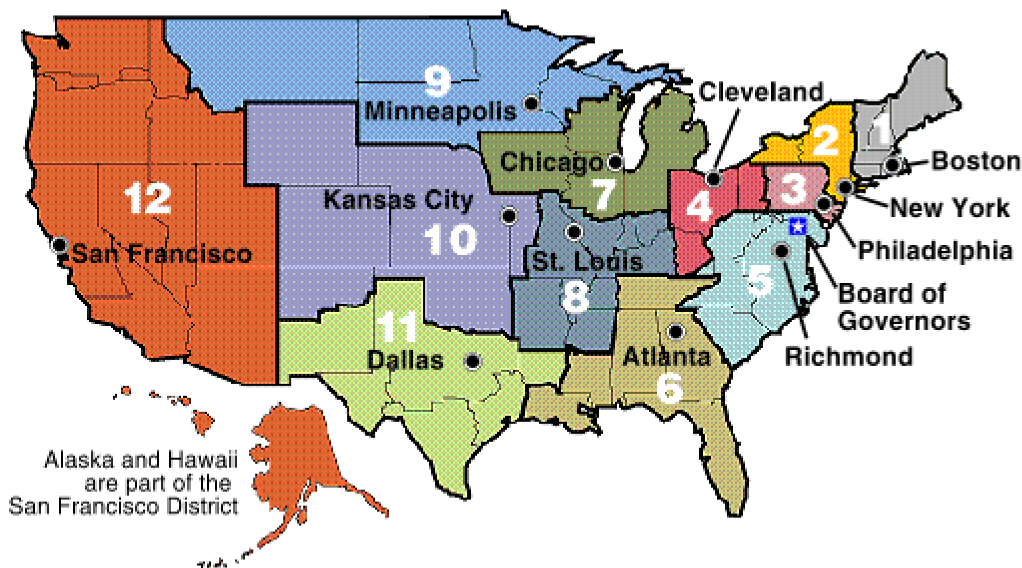
Many commentators have opined that the entry into federal bankruptcy of a local government as large as Detroit will have significant precedent-setting effects for the future, as many other large local governments continue to wrestle with their debts and especially retirement related liabilities. More large local government entities may either follow Detroit's path into bankruptcy, or at least now - in the form of this potential option – have a more potent negotiating argument with many of their recalcitrant creditors so reach a voluntary settlement before bankruptcy becomes necessary.

4. THE FEDERAL RESERVE SYSTEM OF THE UNITED STATES

4.1. Institutional Set-Up

The Federal Reserve System was created by Congress in late 1913 to serve at the central bank of the United States. The System consists of a seven member Board of Governors with headquarters in Washington, D.C., and 12 Reserve Banks located in major cities throughout the United States. The 12 Federal Reserve districts do not correspond to particular geographic criteria, but rather largely reflect the political realities at the time of their creation (e.g. a number of then important cities in Eastern United States were able to secure their own Reserve Bank, while all of Western United States only got one). The district boundaries are periodically updated (last in 1996), but have never due to local political opposition been dramatically altered. Figure 15 shows the geographic distribution of the 12 Districts today.

Figure 15 The 12 Federal Reserve Districts



The Federal Reserve officially identifies Districts by number and Reserve Bank city. In the 12th District, the Seattle Branch serves Alaska, and the San Francisco Bank serves Hawaii. The System serves commonwealths and territories as follows: the New York Bank serves the Commonwealth of Puerto Rico and the U.S. Virgin Islands; the San Francisco Bank serves American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands. *Source: Federal Reserve Board.*

The Federal Reserve System, led by the Federal Reserve Board in Washington, has as primary responsibility the formulation of U.S. monetary policy, with the objectives laid down by Congress in Section 2A of the Federal Reserve Act stating:

> *The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.*

In addition to monetary policy responsibilities, the Federal Reserve Board has regulatory and supervisory responsibilities over commercial banks that are members of the System, bank holding companies, international banking facilities in the United States, Edge Act and agreement corporations, foreign activities of member banks, and the U.S. activities of foreign-owned banks. The Federal Reserve Board also sets margin and collateral requirements, which limit the use of credit for purchasing or carrying securities. In addition, the Board plays a key role in assuring the smooth functioning and continued development of America’s payments systems. Another area of Board responsibility, together with the recently after the financial crisis established Consumer Financial Protection Bureau (CFPB), is the development and administration of regulations that implement major federal laws governing consumer credit protection, including overseeing the Truth in Lending Act, the Equal Credit Opportunity Act, the Home Mortgage Disclosure Act and the Truth in Savings Act.

The Federal Reserve System is organized along both geographical and functional organizational lines, maintaining for instance a clear separation of monetary policy and banking supervision functions. Monetary policy is generally set by the Washington, D.C.-based Federal Open Markets Committee (FOMC), while the majority of day-to-day banking supervisory, operational and liquidity provision functions for depository institutions reside with the regional Federal Reserve banks.

4.2 Appointment Procedures for the Federal Reserve System

At the top of the Federal Reserve System sits the Board of Governors in Washington, D.C. The seven members of the Board of Governors are appointed by the president and confirmed by the Senate to serve 14-year terms of office. Members may serve only one full term, but a member who has been appointed to complete an unexpired term may be reappointed to a full term, so could in principle serve up to 27 years. The president designates, and the Senate confirms, two members of the Board to be Chairman and Vice Chairman, for four-year (usually renewed until the member leaves the Board) terms. Only one member of the Board may be selected from any one of the twelve Federal Reserve Districts. In making appointments, the president must in line with the Federal Reserve Act Section 10 select a "fair representation of the financial, agricultural, industrial, and commercial interests and geographical divisions of the country." These aspects of selection are intended to ensure representation of regional interests and the interests of various sectors of the public, though in reality it is up to the Senate to decide whether a given candidate is fit to serve.

The seven Board members constitute a majority of the 12-member Federal Open Market Committee (FOMC), the group that makes the key decisions affecting the cost and availability of money and credit in the U.S. economy. The other five voting members of the FOMC are regional Reserve Bank presidents, one of whom is always the president of the Federal Reserve Bank of New York. The other regional Bank presidents serve one-year terms on a rotating basis on the FOMC.

The rotating seats are filled from the following four groups of Banks, one Bank president from each group: Boston, Philadelphia, and Richmond; Cleveland and Chicago; Atlanta, St. Louis, and Dallas; and Minneapolis, Kansas City, and San Francisco. Non-voting Reserve Bank presidents attend the meetings of the FOMC, participate in the discussions, and contribute to the Committee's assessment of the economy and policy options.

The appointment of regional Reserve Bank Presidents is the sole responsibility of regional Reserve Banks without any direct involvement (or veto power) of the federal government. Each regional Reserve Bank is a separate legal entity with its own management and locally appointed board of directors. Regional commercial bank members of the Federal Reserve System own the stock of their district's Reserve Bank, and select the majority of regional bank board members, with only the minority appointed by the Federal Reserve Board in Washington.

4.3 Accountability and Democratic Oversight of the Federal Reserve System

The Federal Reserve System, and especially the Federal Reserve Board is under the oversight of and directly accountable to the relevant committees in the two houses of the U.S. Congress, the U.S. Senate Committee on Banking, Housing, and Urban Affairs and to the U.S. House Committee on Financial Services. Twice a year, the Federal Reserve Act Section 2B requires the Federal Reserve Board to submit written reports to Congress containing discussions of "the conduct of monetary policy and economic developments and prospects for the future." This report, called the Monetary Policy Report[46], is presented

[46] The most recent Monetary Policy Report from February 2015 is available here - http://www.federalreserve.gov/monetarypolicy/mpr_20150224_summary.htm

to Congress along with oral testimony in front of the respective congressional committee's by the chair of the Federal Reserve Board.

In addition, the Federal Reserve Board vice chair for banking supervision must appear before the Committee on Banking, Housing, and Urban Affairs of the Senate and the Committee on Financial Services of the House of Representatives at semi-annual hearings regarding the efforts, activities, objectives, and plans of the Board with respect to the conduct of supervision and regulation of depository institution holding companies and other financial firms supervised by the Board.

All members of the Federal Reserve Board, and the chair in particular, are further subject to being summoned to appear for additional congressional testimony on any subject deemed necessary by the relevant congressional committees.

The most powerful congressional oversight over the Federal Reserve System, however, is the explicit congressional right to amend the Federal Reserve Act expressed in the Act's final Section 31:

> *Reservation of right to amend:*
> *The right to amend, alter, or repeal this Act is hereby expressly reserved.*

While the Federal Reserve System is independent in the day-to-day conduct of its policy responsibilities, Congress may at any given moment choose to revoke this independence. Such congressional policy actions would surely be associated with significant economic costs to the U.S. economy, as the loss of day-to-day central bank independence would not be welcomed by private financial market participants. However, their latent existence invariably grants Congress the kind of full control over the Federal Reserve System commensurate with Congress's democratically legitimized sovereign status in the United States. Appointments to the Federal Reserve Board are made by the president, and only confirmed by the Senate, and by tradition once confirmed Congress may only in cases of abject negligence seek the direct dismissal of a sitting member of the Federal Reserve. In extremis, Congress could of course change the Federal Reserve Act to force the dismissal of a given official.

It should also be noted that the Federal Reserve Act is very clear in adjudicating any potential overlapping policy powers between the Federal Reserve System and the executive branch in the U.S. Treasury in favor of the latter. Section 10, #6 of the Act states specifically how:

> *Nothing in this Act contained shall be construed as taking away any powers heretofore vested by law in the Secretary of the Treasury which relate to the supervision, management, and control of the Treasury Department and bureaus under such department, and wherever any power vested by this Act in the Board of Governors of the Federal Reserve System or the Federal reserve agent appears to conflict with the powers of the Secretary of the Treasury, such powers shall be exercised subject to the supervision and control of the Secretary.*

4.4 Federal Reserve System Intervention Powers

As part of fulfilling its primary monetary policy mandate, Federal Reserve controls the three tools of monetary policy: open market operations, the discount rate, and bank reserve requirements. The Board of Governors of the Federal Reserve System is responsible for the discount rate and reserve requirements, and the Federal Open Market Committee (FOMC) is responsible for open market operations.

The Federal Reserve System relies on a **series of instruments to implement its dual policy mandate to maximize employment and maintain price stability**[47]. As the U.S. financial system is overwhelmingly market-based, the principal means of intervention to ensure that the main U.S. monetary policy interest rate – the short-term Federal Funds rate – is in line with the target set by the FOMC are so-called open market operations in American domestic financial markets. Open market operations with a host of bank and non-bank financial counterparties are used to adjust the U.S. money supply to achieve this interest

[47] See Federal Reserve (2005: Chapter 2) for details.

rate target. They may be permanent and involve outright financial asset purchases, including the buying and selling of U.S. federal government Treasury securities, government-sponsored enterprise (GSE) bonds, and federal agency and GSE mortgage-backed securities (MBS). Or they may be temporary, and consist of purchase of financial securities under agreements to resell in the future (repos), and the sale of these securities under agreements to repurchase (reverse repos). Functionally, this kind of Federal Reserve repo transactions is the equivalent of the Federal Reserve offering private market participants a collateralized loan with the difference between the buying and selling price amounting for the interest on the loan (e.g. the targeted federal funds rate). Conversely, a reverse repo is the equivalent of the Federal Reserve engaging in collateralized borrowing from market participants[48].

Under the Federal Reserve Act Section 14 permanent **open market operations by the Federal Reserve System may include any type of federal government debt, as well as state and local government debt and mortgage debt guaranteed by the federal government up to a maturity of 6 months**. The Federal Reserve is generally not permitted to purchase private sector debts, though it may in emergencies inject capital and liquidity into private systemically important entities (see box 4). In other words, the Federal Reserve System is allowed to buy predominantly federal government debt, and only to a very limited degree the short-term debts of state and local governments. To date, as part of its quantitative easing program, the Federal Reserve has only purchased federal government bonds and federal government guaranteed mortgage bonds.

A less important – at least in times of normally functioning financial markets – channel for Federal Reserve conduct of monetary policy is lending directly to eligible banking institutions through the so-called Federal Reserve Discount Window. When the Federal Reserve was originally established in 1913 the Discount Window was intended to be the main conduit for central banking operations. Yet given the shift from bank-centric to a market-based financial system in the United States, the Discount Window today mainly functions as a safety "backup stabilizer" for relieving specific liquidity pressures particularly among individual banks and in the entire banking system in times of crisis. The Federal Reserve may extend four different types of credit to eligible banks though the discount window:

1) Primary Credit: Primary credit can be tapped by sound depository institutions on a very short-term basis, typically overnight, though at an interest rate higher than the FOMC target rate for federal funds[49]. Banks are not required to provide a reason for tapping primary credit, though given its higher costs than market financing, banks are only rationally expected to use this source of funding as a back-up.
2) Secondary Credit: Secondary credit is available to banks not immediately eligible for primary credit. Availability is on a very short-term basis, typically overnight, at a rate higher than the primary credit rate[50]. Reserve Banks may only extend secondary credit to a bank, if it has sufficient information about its financial circumstances and reasons for borrowing.
3) Seasonal Credit: The Federal Reserve's seasonal credit program is to help small banks manage significant seasonal swings in their loans and deposits. It is available to banks with a clear pattern of repeated intra-year variation in funding requirements. Eligible banks are typically based in agricultural or tourist areas. Seasonal credit is available based on market interest rates (e.g. the Federal Funds Rate).
4) Emergency Credit: In a crisis, the Federal Reserve Board of Governors may authorize a Reserve Bank to provide emergency credit to any eligible individual institution. Such credit programs and facilities must be approved by the Secretary of the Treasury, and lending Reserve Banks must be certain that the institution in question cannot obtain market financing. Loans must be secured by U.S. government (or guaranteed) bonds, or they require the support of at least five members of the Board of Governors of the Federal Reserve System.

[48] See Federal Reserve (2005, page 39f) for details.
[49] The spread between the target Federal Funds Rate and the Primary Credit Rate is set by the FOMC, but may vary over time.
[50] The spread between the Primary and Secondary Credit Rate is set by the FOMC, but may vary over time.

Eligibility for primary and secondary credit through the Discount Window is generally open to financially sound banks, including foreign banks with operations in the United States. FDIC-insured banks with a low capital standard, however, face restrictions on both the amounts and maturity at which they may tap the Discount Window.

All Discount Window credit must be verified by the providing Reserve Bank to be backed by acceptable quality collateral. Generally currently serviced or investment grade assets will be appropriate collateral. Accepted collateral assets are given "a lendable value" (e.g. market value, or face value times a margin/hair-cut for illiquid assets) by the lending Reserve bank, and it may include consideration of the financial health of the borrower when deciding on the "lendable value".

Assets commonly pledged as collateral for access to the short-term Federal Reserve Discount Window include: commercial, industrial, or agricultural loans; consumer loans; residential and commercial real estate loans; corporate bonds and money market instruments; obligations of U.S. government agencies and government-sponsored enterprises; asset-backed securities; collateralized mortgage obligations; U.S. Treasury obligations; and state or local government obligations. Assets pledged are not subject to any specific maturity restrictions.

Box 4: Main Crisis Interventions of the Federal Reserve System 2007-2014[51]

As the central bank of the United States, the country at the heart of the global financial crisis, the U.S. Federal Reserve engaged in a variety of unprecedented crisis stabilization measures from 2007-2014. The measures taken can broadly be divided into four different categories;

Expansion of the Lender of Last Resort for Banks to Function:
This category of measures is closely tied to the central bank's traditional role as the lender of last resort, and involves the provision of short-term liquidity to banks and other financial institutions. The traditional Federal Reserve Discount Window falls into this category, as the channel through which the central bank can provide liquidity to traditional banks, albeit at an interest rate above the FOMC target rate.

As part of the crisis response, the Primary Dealer Credit Facility (PDCF) in March 2008 enabled investment banks (as primary dealers) to access central bank liquidity in the same manner as (more heavily regulated) deposit-taking banks though the Discount Window. The Term Auction Facility (TAF), in a manner similar to the ECB's longer-term liquidity provision to euro area banks, from August 2008 offered solvent regular U.S. banks loans of up to 84 days in return for sound collateral.

The Term Securities Lending Facility (TSLF) saw the Federal Reserve provide the functionally similar liquidity, in the form of U.S. Treasury securities, to investment banks in return for collateral in the form of other sound, but less liquid securities and a fee. Lastly, due to the global role of the US$ and because bank funding markets are global in scope, the Federal Reserve also from December 2007 onwards approved bilateral currency swap agreements with several major foreign central banks, including the ECB, Bank of England, Swiss National Bank, Bank of Japan and the Bank of Canada. These swap arrangements assisted these central banks in their provision of dollar liquidity to local banks in their jurisdictions.

Establishing the Federal Reserve as Guarantor of Liquidity in Credit Markets:
As the United States, unlike the bank-centric European financial systems, relies heavily on capital markets to directly allocate credit between savers and investors, it was of imperative importance for the Federal Reserve to ensure that also key credit markets in the United States continued to operate during the

[51] This box draws heavily on the Federal Reserve Board's official description of its crisis measures, described on its website at http://www.federalreserve.gov/monetarypolicy/bst_crisisresponse.htm

crisis. For this purpose, the Federal Reserve established a series of facilities to inject liquidity directly to market-based investors in the main U.S. credit markets. Through the Commercial Paper Funding Facility (CPFF), the Federal Reserve in October 2008 began providing three-month loans to the CPFF LLC (a specially created limited liability company (LLC) relied upon to get around the general prohibition for the Federal Reserve to purchase private securities), that used the funds to purchase commercial paper directly from eligible issuers against a fee. The CPFF expired in April 2010.

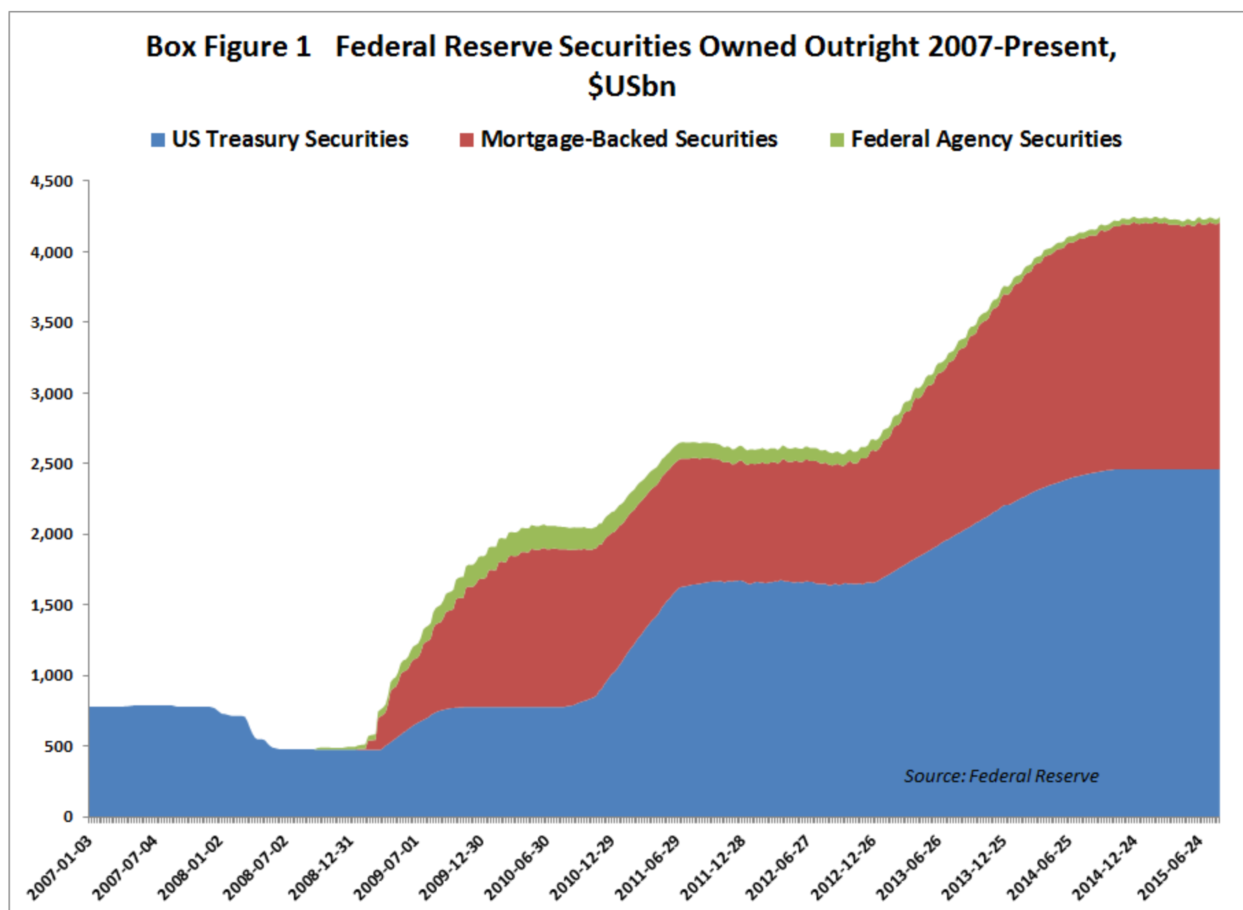
The Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) was introduced in the fall of 2008 to help short-term and generally regarded as risk-free money-market-mutual-funds (MMMFs) that held asset-backed commercial paper (ABCP) meet investors' demands for redemptions, and to foster liquidity in the ABCP market and money markets more generally. The AMLF was designed to provide a market for ABCP that MMMFs sought to sell. Under the program, the Federal Reserve provided non-recourse loans to U.S. depository institutions, U.S. bank holding companies, U.S. broker-dealer subsidiaries of such holding companies, and U.S. branches and agencies of foreign banks. These institutions used the funding to purchase eligible ABCP from MMMFs. Borrowers under the AMLF, therefore, served as conduits in providing liquidity to MMMFs, and the MMMFs were the primary beneficiaries of the AMLF. AMLF loans were fully collateralized by the ABCP purchased by the AMLF borrower and the program expired in February 2010[52].

The Term Asset-Backed Securities Loan Facility (TALF) was created by the Federal Reserve, in cooperation with the U.S. Department of the Treasury, in November 2008 to encourage the issuance of asset-backed securities (ABS) backed by privately originated loans to consumers and businesses and to improve market conditions for ABS more generally. Under the program, the Federal Reserve issued nonrecourse loans with a term of up to five years to holders of eligible ABS. TALF loans are fully collateralized by the ABS purchased by the TALF borrower. The amount of each TALF loan was less than the market value of the pledged collateral by a margin, e.g. a haircut was charged to provide a buffer in the event that the collateral declines in value, and thereby help protect the Federal Reserve against a loss. In addition, the U.S. Treasury's Troubled Asset Relief Program (TARP) (e.g. fiscal resources appropriated by the U.S. Congress) providing $20 billion in first-loss credit protection to the Federal Reserve, a sum amounting to 10 percent of the $200bn the TALF Program was authorized to lend. No more loans were made under TALF after June 30th, 2010.

<u>Quantitative Easing (QE)</u>:
Beginning in early 2009, the Federal Reserve expanded its traditional tool of open market operations to support economic growth and make broader financial conditions more accommodative by putting downward pressure on longer-term interest rates through large-scale purchases of longer-term securities for the Federal Reserve's portfolio. The purchases included U.S. Treasury securities and agency-guaranteed mortgage-backed securities (MBS).

Box Figure 1 shows the QE-related development in the holdings for Federal Reserve securities, as total holdings grew by more than 400 percent to over $4tr.

[52] A complementary Money Market Investor Funding Facility (MMIFF) was also created in October 2008, but never used by private market participants, so was closed down again in October 2009.



Emergency Loans to Specific Financial Institutions:
As part of the U.S. crisis management, in several instances utmost speed was required for a government bailout of specific systemically important institutions to be successful. This in several instances necessitated that the Federal Reserve under its emergency powers extend substantial loans to crisis-stricken financial institutions. Four particular instances should be mentioned:

- *Loans to Bear Stearns and JPMorgan Chase in March 2008*: In order to facilitate the take-over of Bear Stearns by JPMorgan Chase, the Federal Reserve on Friday March 14th 2008 gave Bear Stearns an overnight $12.9bn bridge loan repaid on Monday March 17th. In addition, the Federal Reserve through the special purpose vehicle Maiden Lane LLC provided a loan of $29bn to purchase $30bn worth of Bear Stearns assets, with the remaining $1bn in subordinate loans to Maiden Lane coming from JPMorgan Chase.
- *Financial Assistance to AIG from September 2008*: In order to avoid the bankruptcy of AIG in September 2008, the Federal Reserve on September 16th gave the company an $85bn credit facility in return for a 79.9 percent equity stake in the company. The fact that AIG was an insurance company, rather than a bank, was a major legal headache for the Federal Reserve, as it has no jurisdiction as a supervisor or lender of last resort for companies in this industry. In the end though, the systemic nature of AIG meant that such legal concerns were overridden. Gradually in the following weeks, the Federal Reserve's interest in AIG was transferred to the U.S. Treasury through a series of new equity issuances to the Treasury and corresponding reductions in the Federal Reserve credit issued to AIG. In November 2008, the Federal Reserve created two special purpose vehicles – Maiden Lane II and Maiden Lane III – and provided loan funding for them to purchase securities from AIG. Maiden Lane received a $19.5bn senior loan (and $1bn from AIG itself) to fund purchases of AIG residential mortgage-backed securities, and Maiden Lane III received a $24.3bn senior loan (and $5bn from AIG itself) towards purchases of multi-sector collateralized debt obligations (CDOs).
- *Credit Guarantees to Bank of America*: On January 16, 2009, the U.S. Department of the Treasury, the Federal Reserve, and the Federal Deposit Insurance Corporation (FDIC) jointly

announced that the U.S. government would provide support to Bank of America to contribute to financial market stability. Treasury and the Federal Deposit Insurance Corporation provided protection against the possibility of unusually large losses on an asset pool of approximately $118 billion of loans, securities backed by residential and commercial real estate loans, and other such assets, the large majority of these assets were assumed by Bank of America as a result of its acquisition of Merrill Lynch. The Federal Reserve ultimately did not extend credit to Bank of America under this arrangement, and in September 2009, Bank of America paid an exit fee in order to terminate it[53].

- *Credit Guarantees to Citigroup:* On November 23, 2008, the U.S. Department of the Treasury, the Federal Reserve, and the Federal Deposit Insurance Corporation (FDIC) jointly announced that the U.S. government would provide support to Citigroup to contribute to financial market stability. This included the government parties providing capital and agreed to provide certain loss protections and liquidity supports to Citigroup with respect to a designated pool of $301 billion of assets. The Federal Reserve ultimately did not extend credit to Citigroup under this arrangement, and on December 23, 2009, the Treasury, the Federal Reserve, and the FDIC agreed to terminate their agreement with Citigroup.

The crisis management actions of the Federal Reserve from 2007 were often taken in direct collaboration with the U.S. Treasury and the FDIC. U.S. authorities thus benefitted greatly from the response flexibility granted by the existence of multiple institutions at the beginning of the crisis, and the fact that in the U.S. Treasury one possessed direct democratic legitimacy and a fiscal capacity. The central bank would in general provide (often unlimited) liquidity, whereas the fiscal authorities in the U.S. Treasury and to a lesser extent the FDIC would provide the necessary risk capital to stabilize private markets. Fiscal resources from the federal government all originated with the (up to) $700bn Troubled Asset Relief Program (TARP), which was passed by Congress in October 2008 and allowed the U.S. Treasury to acquire or guarantee up to $700bn worth of assets in the U.S. financial system. FDIC resources originated in the temporary increase to $500bn in the Corporation's ability to borrow directly from the U.S. Treasury from May 2009.

As suggested by figure 2 in chapter 2 in this report, the Federal Reserve's crisis interventions have generally proven both successful at restoring stability to U.S. and global financial markets, and extraordinarily lucrative for the U.S. taxpayer.

[53] For details of the Bank of America transaction, see http://www.federalreserve.gov/monetarypolicy/bst_supportspecific.htm.

5. THE FEDERAL DEPOSIT INSURANCE CORPORATION (FDIC)

5.1 Institutional Set-Up

The FDIC was established by the Banking Act of 1933 at the height of the Great Depression in response to the more than 4,000 U.S. commercial banks and 1,700 Savings and Loan Institutions that had failed since 1929 resulting in more than $1bn in direct losses for depositors and numerous bank runs[54].

The establishment of the FDIC introduced several important changes to the hitherto extremely decentralized U.S. banking system. The FDIC for the first time began to offer deposit insurance to U.S. banks for deposits up to $2,500 and the FDIC for the first time extended federal oversight to all commercial banks, including state (e.g. most) banks, which were not already members of the Federal Reserve Board.

The FDIC deposit insurance fund was initially set up by a $289mn loan from the federal government and Federal Reserve Board, though the corporation is otherwise fully funded by the – initially statutorily mandated flat – deposit insurance fees paid by participating banks. Despite numerous failures among insured banks and associated FDIC losses in the years immediately after 1934, the Corporation was gradually able to build up its privately funded deposit insurance fund. In 1948 – 14 years after its establishment – the FDIC was able to fully repay the U.S. Treasury and the Federal Reserve Board its initial funding loan and begin to operate as a fully contribution-based (flat fee) deposit insurer.

The management of the FDIC is today in the hands of a Board of Directors consisting of 5 members, of which one must be the Comptroller of the Currency (e.g. a senior U.S. Treasury official), one must be the director of the federal government's Consumer Financial Protection Bureau, and three of whom shall be appointed by the president, by and with the advice and consent of the Senate for a (renewable) term of 6 years. At least one of the presidential appointees must have state bank supervisory experience and no more than three of the members of the Board of Directors may be members of the same political party. One of the presidential appointees is designated chair for a term of 5years, while another is designated vice chair with an open ended term.

The FDIC is an independent U.S. regulatory agency, as laid down by Congress in the Federal Deposit Insurance Act and prior legislation. Its top management is appointed by the president and confirmed by the Senate, and Congress of course at any time may choose to reform the relevant laws affecting the FDIC. As discussed below, the FDIC has a sizable explicit fiscal backstop in the form of an up to $100bn (and potentially much more in a crisis) drawing right with the U.S. Treasury, which is only subject to congressional scrutiny after the money has been sent by the U.S. Treasury to the FDIC. As all other top U.S. appointed officials, the FDIC management may at any time be called to testify before relevant congressional committees, just as the Congress may seek the removal of a given official at any time. Appointments to the FDIC are made by the President, and only confirmed by the Senate, and by tradition once confirmed Congress only in cases of abject negligence may seek the direct dismissal of a sitting member of the FDIC.

5.2 Main Operations, Responsibilities and Procedures of the FDIC

In the decades following its creation, the role of the FDIC was gradually expanded to cover deposits up to $10,000 and lend to any insured bank in danger of closing, if the operation of the bank is essential to the local community. In this manner, the FDIC essentially became the lender of last resort for small U.S. banks not members of the Federal Reserve. The FDIC moreover though the Federal Deposit Insurance Act of 1950 got the authority to explicitly examine national and state chartered member banks to determine their insurance risk.

[54] For details of the establishment of the FDIC, see https://www.fdic.gov/about/history/timeline/index.html

The 1980s Savings and Loan crisis in the United States saw the first time the FDIC recorded a financial loss (1988), as 200 FDIC insured banks failed, and the Competitive Equality Banking Act of 1987 (CEBA) for the first time made it explicit that FDIC insured bank deposits are, in addition to the FDIC insurance fund, backed by the full-faith-and-credit of the U.S. federal government. Following more failures in the U.S. banking sector in the early 1990s, the Federal Deposit Insurance Corporation Improvement Act of 1991 gave the FDIC an explicit $30bn credit line with the U.S. Treasury and shifted the FDIC contribution structure away from flat fees towards a system of risk-based insurance premiums[55]. The law further required that FDIC bailouts of "too big to fail local or regional banks" receive explicit permission from the U.S. president, and through the introduction of a creditor seniority scale demanded that the FDIC close failing banks in a manner that is least costly to the FDIC's Deposit Insurance Fund (DIF) itself[56].

Subsequent revisions of the Federal Deposit Insurance Act raised the explicit FDIC borrowing capacity from the U.S. Treasury (e.g. fiscal backstop without Congressional approval) to $100bn, and even during the height of the financial crisis from May 2009 to December 31st 2010 up to a maximum of $500bn. The latter additional increase would have to be approved by a 2/3 majority vote by both the FDIC and Federal Reserve Board, as well as have the support of the U.S. Treasury and the president[57]. At the same time, the FDIC was during the crisis explicitly forbidden to use any of its borrowing capacity to purchase or guarantee any banking sector assets side by side with the U.S. Treasury or the Federal Reserve Board.

U.S. banking failures tend to be the caused by large systemic crises, which leads to a lot of banks collapsing at the same time. Figure 16 illustrates how the United States has had three major systemic banking crises since the FDIC's creation in 1934. First immediately following its creation in the 1930s and during the Great Depression, then in the late 1980s and early 1990s during the great American savings and loans crisis, and finally during and following the global financial crisis in 2008. In the years in between only a very low number of banks in the United States fail each year "on their own".

[55] FDIC deposit insurance fees, or the so called "assessment rates" have been revised repeatedly since their introduction in the early 1990s. The current framework described in FDIC (2011) relies on a combination of FDIC applied banking institution risk categories, institution balance sheet size and balance sheet composition to calculate the cost of deposit insurance.

[56] See details of the provisions in the Federal Deposit Insurance Corporation Improvement Act of 1991 at https://www.fdic.gov/about/history/timeline/1990s.html

[57] Following an increase in the FDIC borrowing capacity above $100bn, the FDIC must submit a report of the relevant Congressional committees describing the reasons and need for the additional borrowing authority and its intended uses.

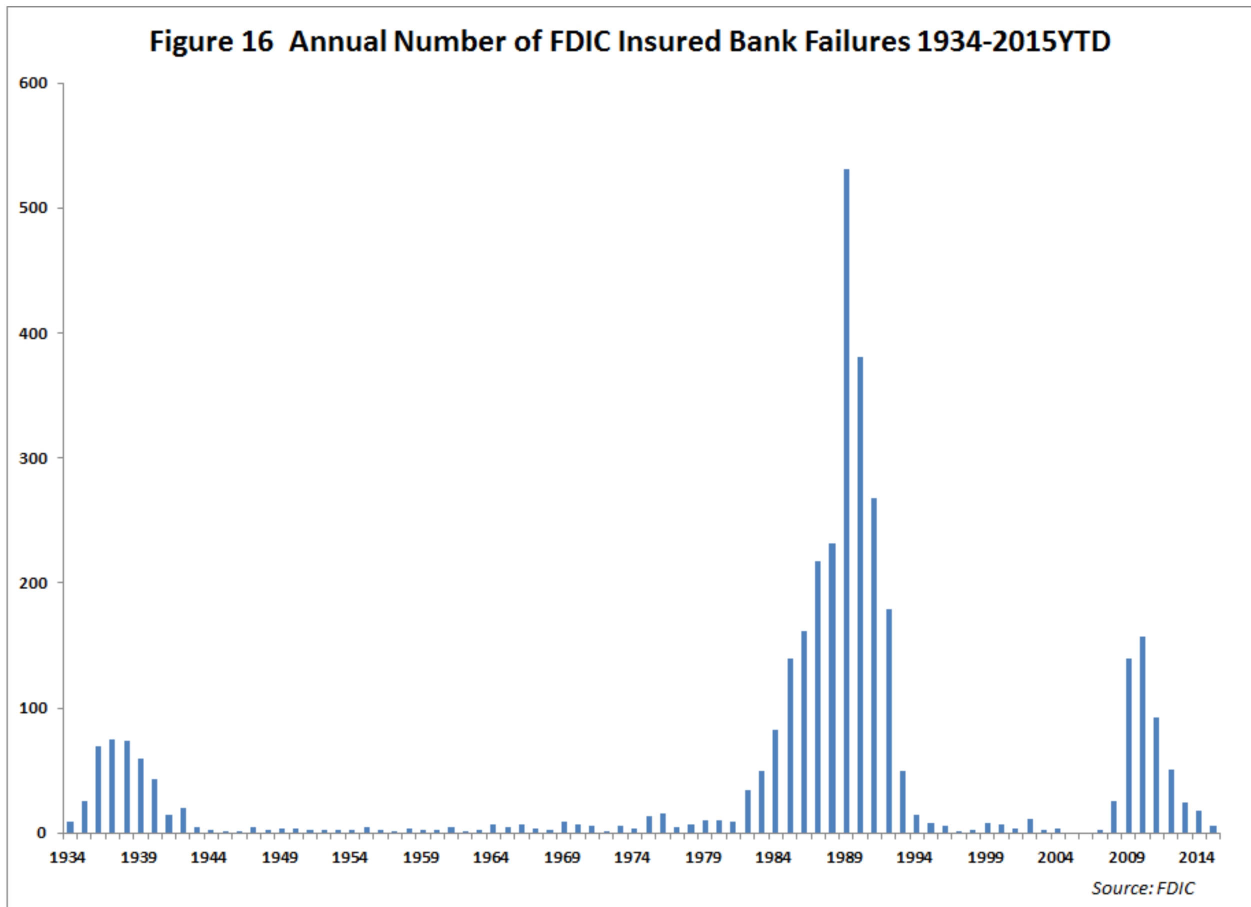


Figure 16 illustrates very clearly that the FDIC over the years have closed down in several cases hundreds of banks inside a single crisis year and a total of almost 3,500 since its creation in 1934. As such, the FDIC is unambiguously the most experienced and skilled handler of crisis banks in liquidation in the world today. At the same time, the U.S. banking market is highly diversified with the vast majority of America's thousands of banks being very small, with only a handful of U.S. banks being very large.

Almost all of the banks shut down by the FDIC over the years have been very small U.S. banks and only in a few instances have the FDIC closed very large American banks. As was discussed in box 4 above, crises in the largest American banks, which almost invariably have the Federal Reserve or the Office of the Comptroller of the Currency as their Primary Federal Regulator (PFR), are usually dealt with directly by the U.S. Treasury (often through the Office of the Comptroller of the Currency (OCC)) or the Federal Reserve, and these very large banks are generally never closed down.

Instead the U.S. authorities have over the years found creative ways to bail them out and/or merge them with other U.S. banks. There is consequently a clear distinction by size among America's banks, if they get into trouble. Smaller banks, which are often supervised by the states and have the FDIC as their PFR, can be expected to be handled by the FDIC and generally in the process be closed down, liquidated and the assets sold piecemeal to other banks. Meanwhile the U.S. historical record clearly suggests that the largest of America's banks will in some way or another be rescued by the U.S. Treasury and the Federal Reserve, even if shareholders and some creditors will generally suffer very large losses in the process. Table 2 lists the largest crisis banks the FDIC have closed down over the years.

Table 2 The Largest American FDIC Handled Banking Failures

Bank	State	Year of Failure	Assets at time of failure, $US Current bn	Assets at time of failure, $US Real bn
Washington Mutual	Washington	2008	307.0	309.3
Continental Illinois National Bank and Trust	Illinois	1984	40.0	72.1
City Federal Savings and Loan	New Jersey	1989	39.8	61.8
First Republic Bank	Texas	1988	32.5	52.4
American Savings and Loan	California	1988	30.2	48.7
IndyMac	California	2008	32.0	32.2
Bank of New England	Massachusetts	1991	21.7	31.5
MCorp	Texas	1989	18.5	28.7
Colonial Bank	Alabama	2009	25.0	25.0
Gibraltar Savings and Loan	California	1989	15.1	23.5
First City National Bank	Texas	1988	13.0	21.0
FBOP Corp banking subsidiaries	Illinois	2009	18.4	18.4
HomeFed Bank	California	1992	12.2	17.3
Southeast Bank	Florida	1991	11.0	15.9
Imperial Federal Savings Assoc.	California	1990	9.6	14.4
Goldome	New York	1991	9.9	14.3
Guaranty Bank	Texas	2009	13.0	13.0
Downey Savings and Loan	California	2008	12.8	12.9
Franklin National Bank	New York	1974	3.7	12.9
BankUnited FSB	Florida	2009	12.8	12.8
CenTrust Bank	Florida	1990	8.2	12.3
AmTrust Bank	Ohio	2009	12.0	12.0
WesternBank	Puerto Rico	2010	11.9	11.8
United Commercial Bank	California	2009	11.2	11.2
Columbia Savings & Loan Assn.	California	1991	5.4	7.8
California National Bank	California	2009	7.8	7.8
Corus Bank	Illinois	2009	7.0	7.0
First Federal Bank of California	California	2009	6.1	6.1
R-G Premier Bank of Puerto Rico	Puerto Rico	2010	5.9	5.8
Franklin Bank	Texas	2008	5.1	5.1
United States National Bank	California	1973	1.3	4.9
Silverton Bank	Georgia	2009	4.1	4.1
Imperial Capital Bank	California	2009	4.0	4.0
PFF Bank & Trust	California	2008	3.7	3.7
La Jolla Bank	California	2010	3.6	3.6
Frontier Bank	Washington	2010	3.5	3.5
First National Bank of Nevada	Nevada	2008	3.4	3.4
Amcore Bank	Illinois	2010	3.4	3.4
Riverside National Bank of Florida	Florida	2010	3.4	3.4
Midwest Bank and Trust Company	Illinois	2010	3.2	3.2
Superior Bank	Alabama	2011	3.0	2.9
First National Bank, also operating as The National Bank of El Paso	Texas	2013	3.1	2.9
TierOne Bank	Nebraska	2010	2.8	2.8
Irwin Union Bank and Trust Colorado.	Indiana	2009	2.7	2.7
Orion Bank	Florida	2009	2.7	2.7
EuroBank	Puerto Rico	2010	2.6	2.6
First Community Bank	New Mexico	2011	2.3	2.2
Integra Bank, NA	Indiana	2011	2.2	2.1
ANB Financial	Arkansas	2008	2.1	2.1
First Regional Bank	California	2010	2.1	2.1
ShoreBank	Illinois	2010	2.1	2.1
Silver State Bank	Nevada	2008	2.0	2.0
New Frontier Bank	Colorado	2009	2.0	2.0
Georgian Bank	Georgia	2009	2.0	2.0
Vineyard Bank	California	2009	1.9	1.9
Peoples First Community Bank	Florida	2009	1.8	1.8
County Bank	California	2009	1.7	1.7
Mutual Bank	Illinois	2009	1.6	1.6
Hillcrest Bank	Kansas	2010	1.6	1.6
Advanta Bank Corp.	Utah	2010	1.6	1.6
CF Bancorp	Michigan	2010	1.6	1.6
Community Bank of Nevada	Nevada	2009	1.5	1.5
First Bank of Beverly Hills	California	2009	1.5	1.5
Temecula Valley Bank	California	2009	1.5	1.5
New South Federal Savings Bank	Alabama	2009	1.5	1.5
Community Banks of Colorado	Colorado	2011	1.4	1.4
Horizon Bank	Washington	2010	1.3	1.3
Security Bank of Bibb County	Georgia	2009	1.2	1.2
Premier Bank	Missouri	2010	1.2	1.2
Broadway Bank	Illinois	2010	1.2	1.2
Charter Bank	New Mexico	2010	1.2	1.2
Integrity Bank	Georgia	2008	1.1	1.1
Alliance Bank	California	2009	1.1	1.1
City Bank	Washington	2010	1.1	1.1
Columbia River Bank	Oregon	2010	1.1	1.1
Community Bank and Trust	Georgia	2010	1.1	1.1
Affinity Bank	California	2009	1.0	1.0
Appalachian Community Bank	Georgia	2010	1.0	1.0

Source: FDIC

The 2008 closure of Washington Mutual with more than $300bn in assets is by far the largest U.S. bank ever closed down by the FDIC, and by assets was in fact larger than several of the U.S. investment banks rescued by the Federal Reserve during the crisis and the 6th largest U.S. bank at the time of its failure. Washington Mutual, however, was a relatively simple savings bank and not viewed as a systemically important bank in 2008, and no particular consideration was given to its survival.

The FDIC consequently most often is the PFR of the banking institutions' whose failures they may be called upon to handle[58], though may also have to shut down banks principally supervised by other federal entities. In the latter cases, especially when dealing with the fate of larger banks, the potential for institutional clashes between different federal financial regulatory and supervisory institutions (e.g. the FDIC, Federal Reserve, OCC and U.S. Treasury regular) exists and have in past crises materialized.

Upon the closure of a U.S. bank, either by the FDIC itself or at the instigation of the chartering entity (U.S. state authorities, the OCC for nationally chartered banks, or the Federal Reserve for members of the Federal Reserve System), the FDIC becomes the receiver of the bank, and is responsible for its resolution. **The FDIC has different ways to resolve a failed institution, but is legally required to do so in a manner least costly to its main Deposit Insurance Fund** (DIF)[59], as well as to ensure the expeditious payment of deposit insurance claims to insured depositors, and to accelerate any additional payouts to uninsured depositors and other creditors of the failed institution.

As described in FDIC (2015), the resolution of a failed U.S. bank means first assessing and pricing it, then seeking bids for its purchase by other banks at the highest possible prize. The FDIC relies on two general resolution frameworks: purchase and assumption transactions (P&A) and deposit payoffs.

The purchase and assumption (P&A) transaction is the most frequently relied upon method[60], where a sound bank acquires some or all assets and liabilities of the failed bank. Deposit payoffs are used only if all purchase bids received for a P&A transaction are more costly to the DIF than liquidation, or if no bids are received. In such instances, the FDIC proceeds to make full payments to all insured depositors of the failed bank, while liquidating remaining failed institution assets. Any proceeds from such a liquidation goes first to the FDIC itself, then to uninsured depositors, then to senior and junior bondholders and other creditors, and finally – though in practice almost never – equity holders. This process insures that the financial losses from a failing U.S. bank are overwhelmingly borne by first equity holders, then junior creditors, then senior creditors and then – in quite rare cases – uninsured depositors, and only in the last resort the FDIC's DIF. Figure 17 shows the financial performance of the DIF from 1934 to 2014.

[58] In 2014, the FDIC was the PFR of 4,138 FDUIC insured state-chartered banks, which were not members of the Federal Reserve System.
[59] As laid down in the Federal Deposit Insurance Corporation Improvement Act of 1991. For details, see https://www.fdic.gov/about/history/timeline/1990s.html
[60] See the FDIC (2015, chapter 1).

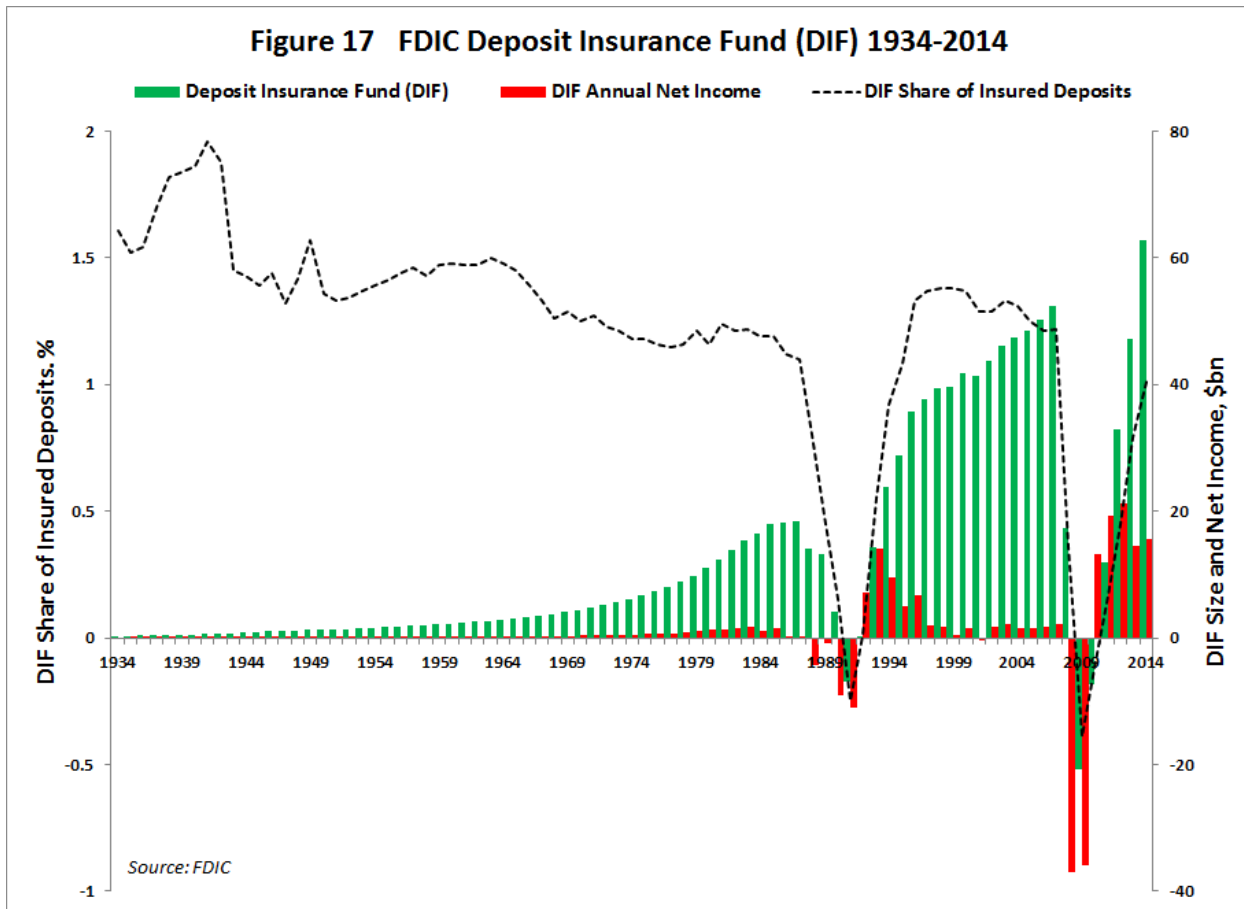


Figure 17 reveals a financial mirror image of at least the two last waves of bank failures seen in figure 16. In both the crises of the late 1980s (first ever annual loss for the DIF was recorded only in 1988, after which the FDIC received the full explicit backing of the U.S. Treasury) and after 2008, cumulative losses exceeded the financial capacity of the DIF, which briefly fell negative in 1991 and 2009-10. As discussed above, the FDIC as a result of the DIF briefly going negative has an explicit ability to borrow up to $100bn from the U.S. Treasury, or almost five times the highest ever negative value of $21bn for the DIF recorded in 2009. Any FDIC loans from the U.S. Treasury (or in principle from commercial non-FDIC insured entities), however, must (and has in the past quickly been) be repaid from the insurance fee income generated by the FDIC. As such, any federal government fiscal support provided to the FDIC is ultimately recovered from insured industry participants.

Figure 17 also shows the size of the DIF, as a share of totally insured U.S. bank deposits. Under U.S. law, this ratio must reach 1.35 percent by 2020. However, as descried in the FDIC management's description of their Long-Term Comprehensive Fund Management Plan in FDIC (2015), the corporation board has adopted a substantially more conservative long-term financial plan intended to see this ratio reach 2 percent of insured deposits, has suspended any dividend payments to insured institutions indefinitely, and will only lower deposit insurance fees once the 2 percent target is reached in order to maintain this level.

Lastly, table 2 also highlights how U.S. banking crises have generally tended to be regional in scope and hence lead to the failure of a large number of banks in a relatively small number of states. This was clearly true of Texas and California during the late 1980s crisis or Nevada, Georgia or Puerto Rico during the most recent crisis. In rescuing the financial wealth of a large number of depositors in just a few states in the midst of a deep crisis through the reliance of insurance premiums collected across the United States, the FDIC plays an important counter-cyclical crisis role as a financial shock absorber.

There is no doubt that individual state governments in the states most affected by banking crises would have been completely overwhelmed had they had to face the costs of rescuing their local banks on their own. As such, even if the FDIC is outside the regular federal government budget, it is part of the federal

government whose counter-cyclical crisis rescue economic powers and shock absorbing capacity is hence larger than implied by the federal budget itself.

It though should be noted how the extensive use (up to 70 percent of all credit offered) of capital market intermediated credit – which is nation-wide in geographic scope – in the financial system is the principal channel through which credit flows are quickly restored to regions affected by regional banking crises in the United States. Borrower choice of different sources of credit – numerous small local banks, a handful of large national banks, and very deep and liquid national capital markets – is probably the single most important element in the general resilience of the American financial system to any regional banking or economic shock.

6. OTHER RELEVANT UNITED STATES FINANCIAL REGULATORY AGENCIES

The United States' financial regulatory structure comprises, in addition to the federal and state governments, the Federal Reserve Board and FDIC, of several relevant national and state level regulatory and supervisory agencies. Often with somewhat overlapping supervisory authorities, these include:

Office of the Comptroller of the Currency (OCC)
The OCC is an independent bureau within the United States Treasury established by the National Currency Act of 1863. It serves to charter, regulate, and supervise national banks and thrift institutions and the federal branches and agencies of foreign banks in the United States. Headquartered in Washington, D.C., it has four district offices located in New York City, Chicago, Dallas and Denver. It has an additional 48 field offices throughout the United States, and a London office to supervise the international activities of American banks. The OCC is headed by the Comptroller of the Currency who is appointed to a five-year term by the president with the consent of the Senate. The OCC's main objectives are to:

- ensure the safety and soundness of the national banking system;
- foster competition by allowing banks to offer new products and services;
- improve the efficiency and effectiveness of OCC supervision to reduce the regulatory burden;
- ensure fair and equal access to financial services to all Americans;
- enforce anti-money laundering and anti-terrorism finance laws that apply to national banks and international banks;
- investigate and prosecute acts of misconduct committed by parties affiliated with national banks, such as officers, directors, employees, agents and independent contractors, appraisers, attorneys and accountants.

The OCC participates in interagency activities in order to maintain the integrity of the national banking system. By monitoring capital, asset quality, management, earnings, liquidity, sensitivity to market risk, information technology, consumer compliance, and community reinvestment, the OCC is able to determine whether or not the bank is operating safely and soundly, and meeting all regulatory requirements. The OCC was created by Abraham Lincoln to fund the American Civil War but was later transformed into a regulatory agency to instill confidence in the national banking system and protect consumers from misleading business practices. The OCC regulates and supervises about 2,000 national banks and federal savings associations and 50 federal branches of foreign banks in the U.S.

National Credit Union Administration (NCUA)
The NCUA is an independent federal agency created by the United States Congress to regulate, charter, and supervise federal credit unions. With the backing of the full faith and credit of the U.S. government, NCUA operates and manages the National Credit Union Share Insurance Fund, insuring the deposits of more than 100 million account holders in all federal credit unions and the overwhelming majority of state-chartered credit unions. As of March 2015, there were 6,206 federally insured credit unions, with assets totaling more than $1.16 trillion, and net loans of $721.9 billion.

The NCUA is governed by a three-member board appointed by the president and confirmed by the Senate. The president also chooses who will serve as NCUA chair. Board members serve six-year terms, although members often remain until their successors are confirmed and sworn in. The NCUA is administered through five regional offices, each responsible for specific states and territories.

Federal Financial Institutions Examination Council (FFIEC)
This U.S. government interagency body includes five banking regulators: the Federal Reserve Board, the Federal Deposit Insurance Corporation (FDIC), the National Credit Union Administration (NCUA), the Office of the Comptroller of the Currency (OCC), and the Consumer Financial Protection Bureau (CFPB). It is empowered to prescribe uniform principles, standards, and report forms and to promote

uniformity in the supervision of financial institutions. It also oversees real estate appraisal in the United States. FFIEC was established March 10, 1979, pursuant to Title X of the Financial Institutions Regulatory and Interest Rate Control Act of 1978 (FIRA).

President's Working Group on Financial Markets (PWG)[61]

The ad hoc PWG was first created by Executive Order 12631, signed on March 18, 1988 by President Ronald Reagan. The group was created in reaction to the global stock market crash that occurred on October 19th, 1987, also known as "Black Monday." It is a small body of department chiefs who convened to consider the major issues raised by the numerous studies on the events in the financial markets surrounding Oct 19, 1987 and subsequent large financial crises in the United States. The group considers recommendations submitted by experts in the private sector with the goals of enhancing the integrity, efficiency, orderliness, and competitiveness of the United States' financial markets and maintaining investor confidence. This informal body further considers what actions the government could take under existing laws that were appropriate to carry out such recommendations. Additionally, the PWG consults with representatives of the various exchanges, clearinghouses, self-regulatory bodies, and with major market participants to determine private sector solutions wherever possible. The PWG typically reports to the president and/or Congress initially within 60 days (and periodically thereafter) on its progress and, if appropriate, its views on any recommended legislative changes.

The Working Group consists of:

- The Secretary of the Treasury, or his/her designee (as chair of the Working Group);
- The chair of the Board of Governors of the Federal Reserve System, or his/her designee;
- The chair of the Securities and Exchange Commission, or his/her designee; and
- The chair of the Commodity Futures Trading Commission, or his/her designee.

[61] The PWG as an ad hoc group does not have its own permanent staff or dedicated website. Rather its work is available only through the publication of its occasional reports to the U.S. President or Congress. The most recent such report on terrorism risk insurance is available on the U.S. Treasury website at http://www.treasury.gov/press-center/press-releases/Pages/jl2365.aspx.

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ANNEX TABLE 1:

U.S. State-Level Taxation 2014

	Share of Total State Tax Revenue by Tax Category								State General Sales (VAT) Rates			
State	Property Taxes	Sales and Gross Receipts Taxes	Of Which:General Sales Tax (VAT)	Reliance on License Taxes	Personal Income Taxes	Of Which Individual Income Taxes	Of Which Corporation Net Income Taxes	Other Taxes	State Tax Rate	Average Local Tax Rate (2)	Combined Tax Rate	Maximum Local Tax Rate in State (If Legislated)
United States Average (1)/District of Columbia	2%	48%	31%	6%	41%	36%	5%	4%	5.75%	None	5.75%	
Alabama	4%	52%	26%	4%	39%	35%	4%	2%	4.00%	4.51%	8.51%	7.00%
Alaska	4%	8%	None	4%	12%	None	12%	72%	None	1.69%	1.69%	7.50%
Arizona	6%	59%	46%	3%	31%	26%	4%	0%	5.60%	2.57%	8.17%	7.13%
Arkansas	12%	48%	35%	4%	34%	29%	4%	2%	6.50%	2.69%	9.19%	5.50%
California	2%	36%	27%	6%	56%	49%	6%	0%	7.50%	0.91%	8.41%	2.50%
Colorado	None	38%	22%	6%	54%	48%	6%	2%	2.90%	4.49%	7.39%	7.10%
Connecticut	None	43%	25%	3%	53%	49%	4%	2%	6.35%	None	6.35%	
Delaware	None	15%	None	41%	42%	33%	9%	2%	None	None	None	
Florida	0%	82%	61%	6%	6%	None	6%	6%	6.00%	0.62%	6.62%	1.50%
Georgia	4%	39%	28%	3%	53%	48%	5%	0%	4.00%	2.97%	6.97%	4.00%
Hawaii	None	64%	47%	4%	31%	29%	2%	2%	4.00%	0.35%	4.35%	0.50%
Idaho	None	50%	37%	9%	42%	36%	5%	0%	6.00%	0.03%	6.03%	2.50%
Illinois	0%	40%	22%	7%	52%	41%	11%	1%	6.25%	1.91%	8.16%	3.75%
Indiana	0%	62%	42%	4%	34%	29%	5%	1%	7.00%	None	7.00%	
Iowa	None	46%	32%	10%	43%	39%	5%	1%	6.00%	0.78%	6.78%	1.00%
Kansas	1%	53%	41%	5%	39%	34%	5%	2%	6.15%	2.00%	8.15%	3.50%
Kentucky	5%	48%	28%	4%	40%	34%	6%	3%	6.00%	None	6.00%	
Louisiana	1%	53%	30%	4%	33%	28%	5%	9%	4.00%	4.89%	8.89%	7.00%
Maine	1%	50%	31%	7%	42%	37%	5%	1%	5.50%	None	5.50%	
Maryland	4%	42%	22%	5%	46%	41%	5%	3%	6.00%	None	6.00%	
Massachusetts	0%	31%	22%	4%	61%	52%	9%	3%	6.25%	None	6.25%	
Michigan	8%	50%	34%	6%	35%	32%	4%	1%	6.00%	None	6.00%	
Minnesota	4%	42%	24%	6%	47%	41%	6%	2%	6.88%	0.31%	7.19%	1.00%
Mississippi	0%	62%	44%	7%	29%	22%	7%	1%	7.00%	0.00%	7.00%	0.25%
Missouri	0%	44%	29%	5%	51%	48%	3%	0%	4.23%	3.36%	7.58%	5.45%
Montana	10%	21%	None	12%	46%	40%	6%	12%	None	None	None	
Nebraska	0%	47%	36%	3%	50%	44%	6%	0%	5.50%	1.29%	6.79%	2.00%
Nevada	4%	80%	54%	9%	None	None	None	8%	6.85%	1.08%	7.93%	1.25%
New Hampshire	17%	38%	None	12%	28%	4%	24%	5%	None	None	None	
New Jersey	0%	43%	30%	5%	48%	40%	8%	4%	7.00%	-0.03%	6.97%	
New Mexico	2%	49%	36%	5%	26%	23%	4%	19%	5.13%	2.14%	7.26%	3.56%
New York	None	31%	16%	2%	62%	56%	6%	5%	4.00%	4.47%	8.47%	4.88%
North Carolina	None	43%	25%	7%	50%	44%	6%	0%	4.75%	2.15%	6.90%	2.75%
North Dakota	0%	30%	22%	4%	12%	8%	4%	54%	5.00%	1.55%	6.55%	3.00%
Ohio	None	58%	38%	11%	31%	31%	None	0%	5.75%	1.36%	7.11%	2.25%
Oklahoma	None	44%	29%	12%	37%	33%	4%	8%	4.50%	4.22%	8.72%	6.50%
Oregon	0%	15%	None	10%	74%	69%	5%	1%	None	None	None	
Pennsylvania	0%	51%	28%	7%	38%	32%	7%	4%	6.00%	0.34%	6.34%	2.00%
Rhode Island	0%	53%	31%	4%	41%	37%	4%	2%	7.00%	None	7.00%	
South Carolina	0%	52%	38%	5%	42%	38%	4%	1%	6.00%	1.19%	7.19%	3.00%
South Dakota	None	81%	57%	17%	2%	None	2%	1%	4.00%	1.83%	5.83%	2.00%
Tennessee	None	74%	52%	11%	12%	2%	10%	3%	7.00%	2.45%	9.45%	2.75%
Texas	None	83%	59%	6%	None	None	None	11%	6.25%	1.90%	8.15%	2.00%
Utah	None	42%	29%	4%	51%	46%	5%	2%	5.95%	0.73%	6.68%	2.00%
Vermont	33%	34%	12%	4%	26%	23%	4%	2%	6.00%	0.14%	6.14%	1.00%
Virginia	0%	32%	19%	4%	61%	57%	4%	2%	5.30%	0.33%	5.63%	0.70%
Washington	10%	78%	61%	7%	None	None	None	4%	6.50%	2.38%	8.88%	3.10%
West Virginia	0%	48%	23%	3%	37%	33%	4%	13%	6.00%	0.07%	6.07%	1.00%
Wisconsin	1%	45%	28%	6%	47%	41%	6%	0%	5.00%	0.43%	5.43%	1.50%
Wyoming	13%	41%	34%	7%	None	None	None	39%	4.00%	1.49%	5.49%	2.00%

1) Mathematica average across 50 state levels. Note that values may differ from aggregate state-level data from other data sources. 2) Weighted by state population

Source: Tax Foundation and US Census

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