



Rethinking Federal Debt: What Do We Really Owe?

Thomas R. Saving

Private Enterprise Research Center
Texas A&M University

August 2016
No. 1607

Summary

Ever since the Federal Reserve began its series of Quantitative Easing Federal Reserve assets have increased fourfold. During this same period federal deficits have increased the level of publicly held debt by 260%. There is an important relation between these two seemingly independent events because increases in Federal Reserve asset holdings have a direct impact on the cost of servicing the federal debt as all Federal Reserve profits belong to the Treasury.

The measured publicly held federal debt nets out debt held by government agencies. In these calculations the Federal Reserve is not considered a government agency even though all profits of the Federal Reserve, \$97.7 billion in 2015, are transferred to the Treasury. The Federal Reserve is in a very important in sense owned by the United States Treasury, and this ownership must be accounted in the debt burden.

There are two ways to account for this Treasury Federal Reserve connection as it applies to measuring the taxpayer burden of federal debt: (i) a flow or income statement approach and (ii) a stock or balance sheet approach.

From an income statement perspective the Federal Reserve's 2015 transfer to the Treasury of \$97.7 Billion reduces federal debt by just over 43%. From a balance sheet perspective, using all assets and liabilities of the Federal Reserve, the publicly held federal debt is reduced by 11%.

Rethinking Federal Debt: What Do We Really Owe?

Thomas R. Saving

Introduction

Ever since the Federal Reserve began its series of Quantitative Easing its assets have increased fivefold. During this same period federal deficits have increased the level of publicly held debt by 260%. Traditionally the connection between increases in government debt and central bank asset growth would indicate that the central bank was providing financing for the increased federal debt. But in fact because the Federal Reserve increased its liabilities by paying interest on bank reserves the actual increase in its net assets were much smaller with the result that less than 10% of the increased federal debt was financed by the Federal Reserve.¹

But there is another important relation between Federal Reserve and the federal debt because the Federal Reserve balance sheet has a direct impact on the cost of servicing the federal debt. This direct connection between the Treasury and the Federal Reserve suggests that measures of publicly held federal debt should account for the Federal Reserve in some form or another.

The publicly held federal debt as reported by the Congressional Budget Office (CBO) is gross of Federal Reserve holdings of Treasury debt. This treatment is based on the Financial Report of the United States Government. Specifically the report states:

“A number of entities and organizations are excluded due to the nature of their operations, including The Federal Reserve System (considered to be an independent central bank under the general oversight of Congress) ...”²

Effectively the Report’s treatment of the Federal Reserve is based on the interpretation that the Federal Reserve is an independent central bank means that there is no financial connection between the Treasury and the Federal Reserve.

The absence of a financial connection between the Federal Reserve and the Treasury would be appropriate if the Federal Reserve was a privately owned central bank. In this case the earnings of the Federal Reserve would belong to its shareholders. These shareholders would then be the indirect holders of any federal debt held by the Federal Reserve and it would be appropriate to ignore Federal Reserve holdings of federal debt in reporting publicly held federal debt.

¹ See Saving *The Federal Reserve, the Great Recession and the Lost Inflation*, PERC Study, July 2016 http://perc.tamu.edu/perc/Publication/policybrief/report_7_20162.pdf.

² See Financial Report of the United States Government, Fiscal Year 2015, Department of Treasury, Washington, District of Columbia.

Rethinking Federal Debt: What Do We Really Owe?

But the Federal Reserve is not privately held central bank. As a result from a financial perspective the Federal Reserve and Treasury are connected in a very real way. Indeed, current law requires that all Federal Reserve earnings after costs and payments to preferred stock held by district banks must be transferred to the Treasury. This financial connection makes the Treasury the residual income recipient of Federal Reserve earnings.

This connection between the Federal Reserve and the Treasury is direct in that all earnings from Federal Reserve assets, Treasury securities, agency securities and Mortgage Backed Securities, affect the taxpayer cost of the federal debt. Any measure of the burden of the federal debt must account for this Federal Reserve-Treasury connection. Below we suggest measures of the net effect of the Federal Reserve on the taxpayer burden associated with the federal debt.

The Federal Reserve and Federal Debt

The Congressional Budget Office (CBO) estimates that the publicly held federal debt as a share of GDP was 74.6% at the end of 2015 and will rise to 85.6% by 2026, just a decade from now. But as indicated above these estimates ignore that the Federal Reserve must transfer all after cost earnings to the Treasury. These earnings are equivalent to the seigniorage a nation's mint charged to mint coinage because the central bank supplies currency by taking assets from the private sector or in effect by negating Treasury debt.

No matter the source of these transfers the total directly affects the cost of servicing Treasury debt. The first, increasing private sector assets provides revenue to the Treasury that offsets the cost of servicing the debt. The second, increasing Federal Reserve holdings of Treasury debt, means the Federal Reserve receives interest payments from the Treasury and then returns them to the Treasury. In a hard to imagine world of no federal debt this seigniorage provides revenue to the Treasury that could reduce the taxation necessary to support government.³

To the extent that the Treasury receives revenue from the Federal Reserve the burden to the taxpayers is reduced. The Treasury has debts that require interest payments and has the equivalent of assets that yield interest. The burden of Treasury debt should be considered in the same way we think about our own debt. Consider the cost of servicing our debt, and by cost I mean the servicing cost net of any interest income on earning assets. That is certainly the way we would view our own burden of debt.

One simple way to calculate the level of debt net of asset holdings is based on the difference between the flow of interest payments on the debt and the interest receipts on the assets, essentially an income statement approach. For example, if the interest payments on all our debt, (credit card, auto loans, etc.,) totaled \$1,000, and our interest earnings on our assets totaled

³ Importantly the currency used to purchase assets is not convertible into anything other than currency. As such it does not represent a liability of the issuer. For an extended discussion of this idea the reader to encourage to search on the topic of "inside versus outside" money.

\$500, what is a correct measure of our net debt? The net of these two flows is a servicing cost of \$500 not \$1,000 so by this way of thinking our net debt is half our gross debt.

For an individual that has consumer debt and a CD, the net debt is the ratio of the net interest paid to the consumer debt interest times the consumer debt. In the numerical example above an individual's net debt is one-half the level of consumer debt. This calculation works even if the CD was in the form of a trust that could not be accessed by the individual.

Alternatively, we can look at our balance sheet. Here our net debt is the difference between the liabilities that require interest payments and the assets that generate interest. With this approach our net debt is the difference between the market value of income earning assets and market value of liabilities that require interest payments.

The debt burden approach that compares the difference between interest paid and interest received is income statement based. The alternative approach that compares market value of interest paying liabilities and interest receiving assets is balance sheet based.

Does any of this discussion have anything to do with the CBO estimates of publicly held federal debt? The answer to this question is yes on both debt measure concepts and for the same reason.

The Financial Connection between the Federal Reserve and the Treasury

On the pure asset measure the CBO considers the Federal Reserve as part of the public and not as a government agency. The question discussed here is: Is this treatment of Federal Reserve treasury holdings appropriate when measuring the burden of publicly held debt? An extension of that question involves all income earning assets of the Federal Reserve. The answer to the determination of the relevant measure of the federal debt burden depends on who owns the interest earnings of Federal Reserve assets, including Treasury securities.

The two measures of consumer debt discussed above apply both to private debt and federal debt. The first approach is based on the Treasury's servicing cost of the debt. Consider the publicly held debt as measured by the CBO and compare the Treasury's net debt servicing costs to its interest income. Given the requirement that the Federal Reserve remit all profits from operations to the Treasury these remittances are the equivalent of interest income.

In the simplest sense because the Federal Reserve is an independent central bank it has the authority to add to or dispose of its assets at any time. On the other hand, consider a case where you are entitled to the flow from an asset but cannot sell the asset. Do you still own the asset? You can't get your money now, but you do get the flows from it as long as the asset is held by the entity that is required to transfer earnings to you.

Rethinking Federal Debt: What Do We Really Owe?

By law the profits of the Federal Reserve must be sent to the Treasury. What is the source of these profits? They come from the Federal Reserve earnings on its asset portfolio and other income.⁴ The net amount that gets transferred to the Treasury is the total of Federal Reserve income less dividends to bank owners and all costs.

The fact that the Treasury has title to all Federal Reserve net income makes the Treasury the residual income recipient of Federal Reserve income and thus in some sense at least gives it an ownership position in the Federal Reserve. This ownership attenuated in that the Treasury cannot sell the underlying assets that generate the income nor can it prevent the Federal Reserve from divesting itself of these assets. Indeed so long as the Federal Reserve is independent of the Treasury its asset decisions are made to control the money supply and not to fund the federal government.

Federal Reserve Transfers to the Treasury

As a result of the three Federal Reserve Quantitative Easings, transfers from the Federal Reserve to the Treasury have grown significantly. Figure 1 below shows the level of Federal Reserve assets and transfers to the Treasury for the period from 2005 through 2015. Both Federal Reserve assets and Treasury transfers have quadrupled in the last decade. Transfers from the Federal Reserve are now nearly \$100 billion, \$98.7 billion in 2014 and \$97.7 billion in 2015.⁵

It is clear when these transfers began to rise, that the rise coincided with the rise of federal deficits and Federal Reserve assets purchases. The purchased assets, whether or not they were Treasuries, increased the earnings of the Federal Reserve. All of the increased earnings less any increased bank costs accrued to the Treasury. The transfers as a share of Federal Reserve assets averaged 2.87% and ranged from 2.27% to 3.96% over the decade depicted above.

Figure 1 compared the total assets of the Federal Reserve and the level of transfers to the Treasury. However, since the beginning of fiscal year 2009 the Federal Reserve has been paying interest on member bank reserves, essentially making these reserves short term liabilities of the Federal Reserve. Because of the financial relation between the Federal Reserve and the Treasury, the interest payments on member bank reserves reduce the transfer to the Treasury dollar for dollar.

⁴ Federal Reserve check clearing income has all but disappeared as a significant component of Federal Reserve income.

⁵ A significant portion of these transfers are generated by Federal Reserve holdings of MBSs. The MBSs while issued by GSE's are not liabilities of the GSE's since all revenues come from the underlying mortgages. The Federal Reserve also holds some agency securities, issued by privately owned GSE's. These securities are not guaranteed by the Treasury and should be considered in the same way as MBSs. Thus, it is appropriate to treat Federal Reserve holdings of MBSs and agency debt as assets not offset by a liability of another government entity. As such the flows transferred to the Treasury represent net income.

Figure 1: Federal Reserve Total Assets and Transfers to Treasury

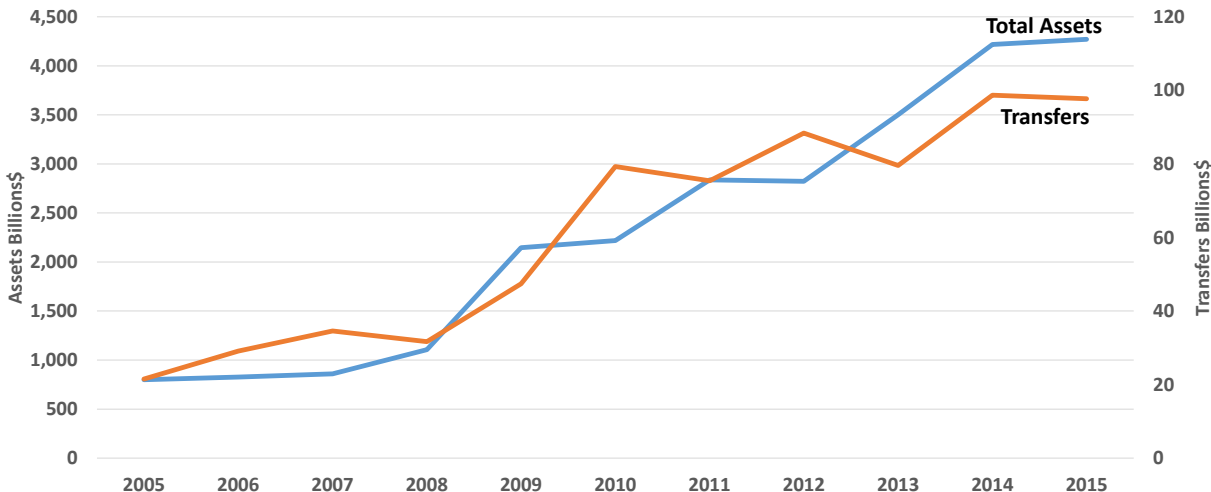
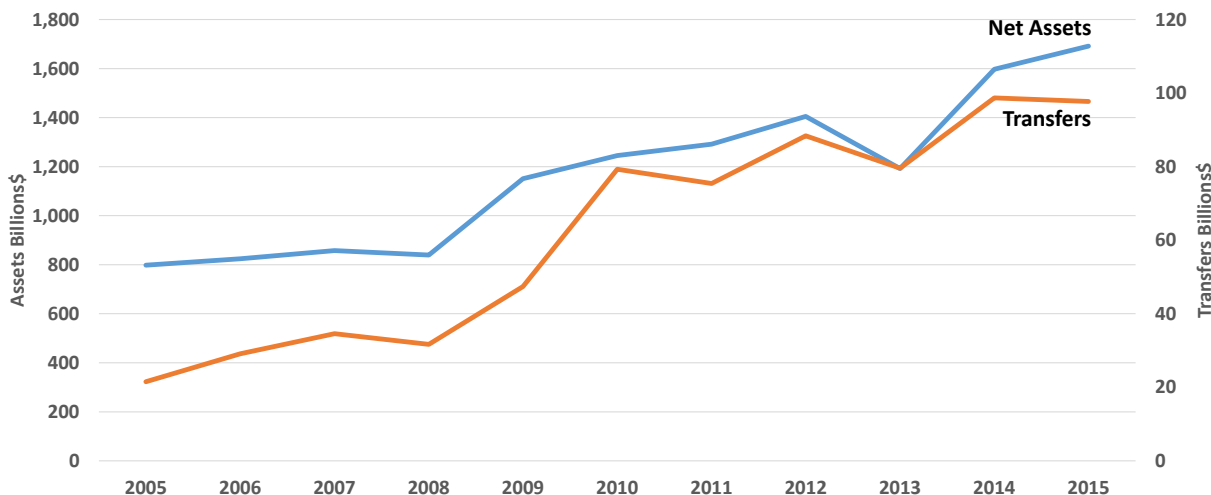


Figure 2 below is an adjusted Figure 1 that shows Federal Reserve net assets and transfers to the Treasury. The rate of return to the Treasury based on Federal Reserve net assets rose from the pre-Mortgage Backed Securities (MBSs) Federal Reserve of between 2.69% and 4.03% to the post MBS Federal Reserve of between 4.12% and 6.67%.

Figure 2: Federal Reserve Net Assets and Transfers to Treasury



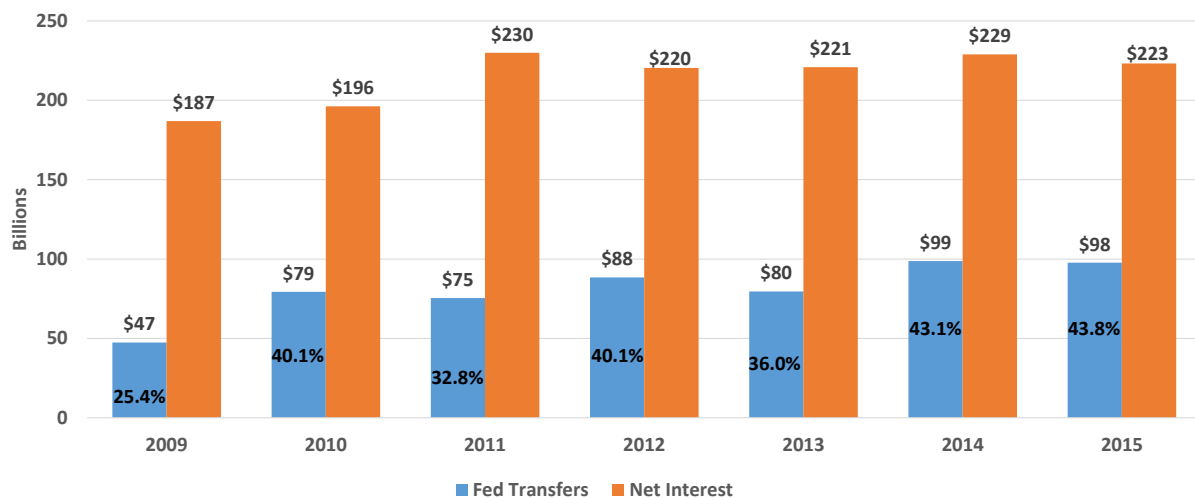
Implications for Measuring the Taxpayer Burden of Federal Debt

The usual way of reporting the scale of the federal debt is based on the amount of this debt that is held by the public. To put this measure of debt into perspective it is expressed as a share of the nation's GDP. For example, at the close of 2015 the CBO estimates that the publicly held federal debt was 73.6% of GDP.

Presumably, the ratio of debt to a nation's GDP is an indication of a nation's ability to at least pay the cost of servicing that debt. The problem with this idea is that while the debt is federal the GDP is not. The free world is not North Korea where the government owns the GDP and lets citizens have some of that GDP. In the United States the federal government does not own the nation's GDP, the public does. Further, the tax system suggests that the public owners of the GDP are allowing the government to use just some of this GDP- approximately 18.2% of it in 2015.

Since taxpayers are on the hook for servicing the federal debt, this federal debt is on the same footing as personal debt. In that sense the same logic used to value the net debt of any private citizen is also relevant to valuing federal debt. Figure 3 shows the net federal debt servicing cost as reported by the CBO and the transfers from the Federal Reserve to the Treasury for fiscal years 2009 through 2015. The transfers ranged from financing a low of 25.4% of fiscal 2009 net federal debt servicing cost to the fiscal 2015 43.8% of net federal debt servicing cost. During this same seven fiscal year period the outstanding federal debt rose more than 45% while the net cost of servicing that debt fell by just over 10%.

Figure 3. Net Debt Servicing Cost and Federal Reserve Distributions to the Treasury



As shown in Figure 3 the CBO reported net servicing cost of the federal debt in 2015 was \$223.2 billion. Given the CBO reported level of publicly held debt at the close of 2015 of \$13.11 trillion, the \$223.2 billion of net interest implies a rate of interest on the total debt of 1.70%, which is just slightly above the average yield of 1.65% 7-year Treasury notes prior to June of 2016. By way of comparison, with market interest rates the 1.70% is consistent with the duration of outstanding Treasury debt of 6.48 years. Adjusted for Federal Reserve transfers, the net debt servicing cost of federal debt for 2015 was \$125.5 billion.

The Adjusted Burden of Federal Debt

Because of the financial relation between the Federal Reserve and the Treasury and then indirectly to taxpayers some adjustment to measures of the burden of that debt must be made. One approach is on a purely flow basis that compares the flows from the Treasury to the holders of the debt and to the Treasury from the Federal Reserve. The second approach is to reduce the level of outstanding federal debt by the assets held by the Federal Reserve on the theory that all the flows from these assets accrue to the Treasury and therefore indirectly to taxpayers. Below we refer to these two approaches as the income statement and balance sheet based.

Income Statement Approach

An income statement approach takes the costs and income related to assets and liabilities and uses the result as an estimate of the level of debt underlying the income and cost figures. This approach measures the burden of a debt as the level of interest payments net of earnings on related assets required to satisfy debt holders.

In 2015, at current interest rates, the servicing cost of the federal debt was \$223.2 billion and the federal debt outside government (publicly held) as reported by the CBO was \$13.11 trillion. At the same time the Treasury had revenue from its ownership interest in the Federal Reserve of \$97.7 billion. Adjusted for interest revenue from the Federal Reserve the net interest payments on the federal debt in 2015 were \$125.5 billion.

In 2015 the net servicing cost of the federal debt was only 56.2% of the reported servicing cost, which implies the effective federal debt is only 56.2% of the reported gross of Federal Reserve transfers federal debt of \$13.11 trillion. The result of this calculation is an effective federal debt at the close of 2015 of \$7.37 trillion rather the CBO reported \$13.11 trillion. This measure of the effective federal debt adjusted for what is essentially interest income from the Federal Reserve is 40.1% of 2015 GDP. Considering that the close of 2007 pre-recession federal debt was just 35% of GDP, the adjusted for Federal Reserve transfers debt as a share of GDP rose by only 17.6%.

Balance Sheet Approach

Using the balance sheet approach, the reported measure of publicly held federal debt includes Treasury debt held by the Federal Reserve and, as of the end of 2015, the debt was

Rethinking Federal Debt: What Do We Really Owe?

\$13.11 trillion. If the Treasury debt and Federal Reserve holdings are consolidated, the publicly held federal is reduced by Federal Reserve holdings of \$2.5 trillion of federal debt to \$10.6 trillion.⁶

There is a further adjustment to the level of publicly held debt that is required due to the income of the Federal Reserve being the property of the Treasury. The other principle asset held by the Federal Reserve are the \$1.7 trillion in Mortgage Backed Securities (MBSs) the income of which belongs to the Treasury. In effect the Federal Reserve holdings of MBSs are Treasury assets that offset Treasury liabilities. When all Federal Reserve assets Treasuries, MBSs and other assets are subtracted from reported publicly held debt the above \$10.6 trillion becomes \$8.9 trillion.

A final adjustment is required since the introduction of paying interest on bank reserves has made these reserves short-term liabilities of the Federal Reserve. It is appropriate then in the balance sheet approach to add these liabilities and repurchase agreements together equal to \$2.8 trillion, because of their effect on the level of Federal Reserve transfers to the Treasury, to the \$8.9 trillion above. The adjusted level of the federal debt taking into account the adjusted Federal Reserve balance sheet is then \$11.7 trillion about 89% of the current measured \$13.11 trillion and 63.3% of GDP.

Some Caveats

Any evaluation of the burden of the federal debt must account for the fact that, for all practical purposes, the Treasury has an ownership position in the Federal Reserve. In any forecast of the future the revenue from this ownership must be taken into account. But there is a caveat, and a major one at that. The level of interest transfers to the Treasury are at the discretion of the Federal Reserve. Why, you ask? The answer is that while the Treasury owns Federal Reserve profits it neither owns nor controls Federal Reserve assets and liabilities.

The Federal Reserve creates money when it adds to its portfolio and destroys money when it reduces its portfolio. As a result, the Federal Reserve's portfolio is solely at the discretion of the Federal Reserve. Thus, while the Treasury owns the profits of the Federal Reserve, it does not own the assets underlying those profits. When the Federal Reserve increases its earning assets or reduces its liabilities it adds to the Treasury's net interest payments, it does so by running the printing press. On the reverse side, when the Federal Reserve reduces its earning assets or increases its liabilities it destroys the money it created when it purchased assets or reduced liabilities.

Therein lies the difference between an individual's net interest position and the Treasury's. The Federal Reserve controls the level of the assets underlying the Treasury's profits. But from an individual's standpoint the individual owns both their assets and any resulting income stream.

⁶ Federal Reserve Statistical Release, H.4.1, Factors Affecting Reserve Balances, Release Date October 1, 2015.

Conclusion

The debate continues concerning how independent the Federal Reserve should be from the Treasury and what it means to be independent. From the perspective of monetary policy that independence means that the policies conducted by the Federal Reserve are decided upon independently of the Treasury's need for deficit financing. Such policy independence does not require that there be no financial connection between the two entities.

As we have shown above the two entities are intimately connected, at least financially. All Federal Reserve revenues after costs and payment to bank owners must be transferred to the Treasury. As a result, in the usual meaning of the word "own", the Treasury owns the Federal Reserve. It is the residual income recipient of Federal Reserve revenues. Importantly, the Treasury ownership status does not give Treasury the right to vote on Federal Reserve policy in the way that corporate owners have that right.

Whether or not the Treasury and Federal Reserve are connected in a political way, the Treasury is the residual income recipient of Federal Reserve revenues. Therefore, both Federal Reserve assets and income affect the taxpayer burden of federal debt. The federal debt can be adjusted for Federal Reserve's connection to the Treasury using a balance sheet or an income statement approach.

Using the income statement approach the level of debt is determined by the net of Federal Reserve transfers debt service cost. In 2015 the transfers from the Federal Reserve were \$97.7 billion and accounted for 43.8% of the net debt service cost. By this method the reported publicly held debt burden is reduced to 66.2% of the reported \$13.11 trillion, or \$7.37 trillion.

An alternate approach to this calculation would be to offset the federal debt by the assets held at the Federal Reserve, even though the revenue from the sales of these assets would not accrue to the Treasury. This approach has merit since it is a balance sheet approach given that the flows from Federal Reserve net assets accrue to the Treasury. Essentially, the net assets of the Federal Reserve were \$1.4 trillion at the close of 2015; the difference between primary asset holdings of \$4.2 trillion less the \$2.8 trillion liability composed primarily of bank reserves on which the Federal Reserve must pay interest. This measure of an adjusted federal debt is roughly \$11.7 trillion, about 89% of the current measured \$13.11 trillion and 63.3% of GDP.

About the Author

Thomas R. Saving is the Director of the Private Enterprise Research Center at Texas A&M University. A University Distinguished Professor of Economics at Texas A&M University, he also holds the Jeff Montgomery Professorship in Economics. Dr. Saving received his Ph.D. from the University of Chicago and served on the faculty at the University of Washington at Seattle and Michigan State University before moving to Texas A&M University in 1968. Dr. Saving's research has covered the areas of antitrust economics, monetary economics, and health economics. He has served as a referee or as a member of the editorial board of the major United States economics journals, and as co-editor of *Economic Inquiry* from 1997-2006. His current research emphasis is on the benefit of markets in solving the pressing issues in health care and Social Security. He is the co-editor of *Medicare Reform: Issues and Answers*, University of Chicago Press, 1999, and the co-author of *The Economics of Medicare Reform*, W.E. Upjohn Institute, 2000, and *The Diagnosis and Treatment of Medicare*, AEI, 2007. In addition, he has many articles in professional journals and two influential books on monetary theory. Dr. Saving has been elected to the post of President of the Western Economics Association, the Southern Economics Association and the Association of Private Enterprise Education. In 2000, President Clinton appointed Dr. Saving as a Public Trustee of the Social Security and Medicare Trust Funds; he served as Trustee until 2007. He also served on President Bush's bipartisan Commission to Strengthen Social Security.