Managing the Public Debt

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As the Clinton administration and Congress wrestle with government spending and deficit reduction, the size of the public debt and interest payments on it are much in the news. The administration, in its 1993 budget plan "A Vision of Change for America," claimed that the government could save about $11.5 billion over the next four years if it issued less long-term debt and more short-term debt to finance deficits, because short-term debt generally has a lower interest rate than long-term debt. In May 1993, the Treasury Department announced that it would begin reducing the amount of long-term debt that it issued. As a result, the Treasury now offers 30-year bonds semiannually (instead of quarterly) and has eliminated issues of seven-year notes. The Treasury is moving toward borrowing primarily at maturities of less than three years.

By altering the average maturity of the debt the government hopes to save money on interest payments. Does the average maturity of the debt really matter? Should governments issue short-term debt or long-term debt or maintain a balance between the two? Are there other considerations besides interest costs that are important to consider in choosing an average maturity of the debt?

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THE PUBLIC DEBT IN THE U.S.

The deficit, or the excess of government expenditures over its revenues, is the amount of new borrowing the government must undertake in a year; the debt is the accumulation of all past deficits. At the end of 1993, the interest-bearing portion of federal government debt held by the public stood at slightly over $2.9 trillion. The federal government ran a deficit of $254.7 billion in 1993, a number much smaller than the size of the public debt. If the government persistently runs deficits, the public debt accumulates. If the government runs budget surpluses, the public debt declines.

Most of the government debt is in the form of Treasury securities such as Treasury bills, Treasury notes, and Treasury bonds. In 1992, for example, such securities accounted for about 86 percent of private-sector holdings of interest-bearing public debt. The remaining 14 percent was composed of private-sector holdings of savings bonds and holdings of certain types of securities issued by agencies of the U.S. government such as the Federal Housing Administration and the Federal Deposit Insurance Corporation.

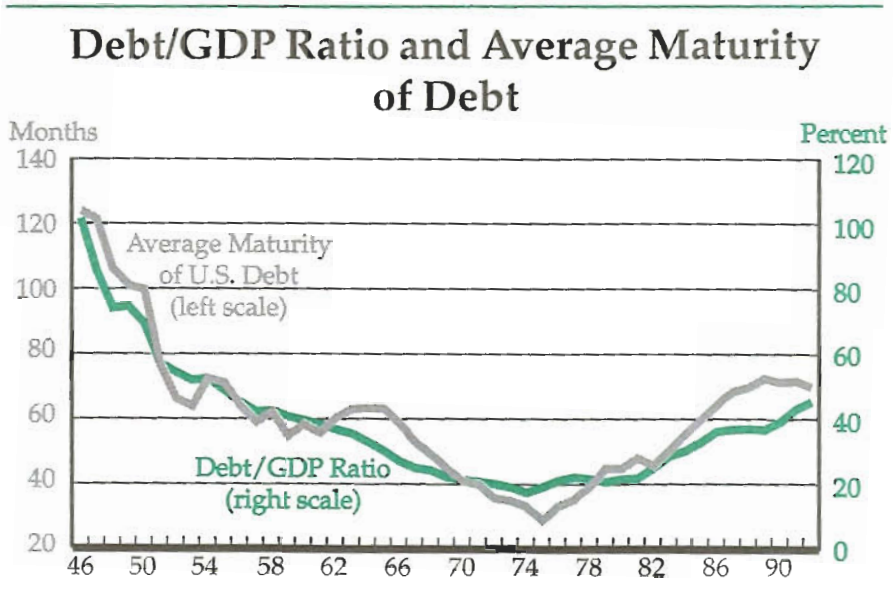
The size of the public debt relative to the size of the U.S. economy has shown fairly dramatic movement since World War II. If we look at the public debt relative to Gross Domestic Product (GDP), the ratio has varied from less than 20 percent to over 100 percent (Figure 1).

The maturity of a security is defined as the length of time until payments from the security expire. The average maturity of the public debt has varied a great deal in the postwar period, ranging from a high of 124 months in 1946 to a low of 29 months in 1975 (Figure 1). Also, during this period the average maturity of the debt declined when the debt-to-GDP ratio declined and rose when the debt-to-GDP ratio rose. In 1992 average maturity was about 70 months. The Treasury's recent changes will shorten the average maturity of the debt some 12 months (to 58 months) by 1998. So, even though the Treasury is reducing the average maturity of the debt, it will still be about twice as high as the postwar low in 1975.

DOES DEBT MATURITY MATTER?

How does a change in the average maturity of the public debt affect the economy? Economic theory says that under certain circumstances the average maturity of the debt is irrelevant for economic welfare. In this case debt management policy is neutral with respect to the economy.

FIGURE 1



Note: The public debt used in computing debt/GDP ratio is the total interest-bearing public securities held by private investors.
Source: *Treasury Bulletin*, various issues, Department of the Treasury.

This debt neutrality proposition depends on whether households and investors can trade in securities in such a way as to completely offset any actions that the government takes regarding the mix of debt and taxes that it uses to finance its expenditures. If households can trade in securities so as to undo the financing mix put in place by the government, any particular financing mix will be irrelevant in the sense that household consumption and savings decisions are unaffected by how the government finances its spending. (See *A Case of Debt Neutrality* for an example of this neutrality proposition.)

However, this strong neutrality result relies primarily on three assumptions, some of which clearly do not hold in reality: (1) households correctly recognize the link between the government budget constraint and household budget constraints as well as the relationship between current debt and future taxes, (2) tax rates do not affect the relative prices that households face (such taxes are called nondistortionary), and (3) the set of investment portfolio choices available to households is unaffected by the government action.

If these assumptions are violated, a change in the way government spending is financed will change relative prices in the economy and hence redirect resources. In this case the financing mix is not neutral, and a change in the average maturity of the debt can affect the economy. Nonetheless, the neutrality proposition is a useful starting point from which to consider debt maturity policies. The extent to which departures from neutrality occur is an empirical matter.[1]

[1]The empirical results on the effects of debt management policies are mixed. Two representative studies are presented in the 1992 volume by Agell, Persson, and Friedman. The study by Agell and Persson finds that debt management policies have little consequence for relative asset yields. The study by Friedman finds a much more significant impact of debt management on asset yields.

A Case of Debt Neutrality

Assume that the three assumptions for debt neutrality hold. Suppose the government issues debt in the form of one-year and two-year discount bonds, each of which pays $1 at maturity. Assume further that the current price of the one-year bonds is $0.95 and the current price of two-year bonds is $0.90. For simplicity we will allow fractions of a bond to be bought and sold. If the government issues one additional one-year bond and uses the proceeds ($0.95) to buy back 1.055 units of two-year bonds (since $0.90 times 1.055 is $0.95), there is now more one-year debt and less two-year debt, and government spending and taxes are unchanged.

Households, in aggregate, have purchased one additional unit of one-year debt for $0.90 and financed that purchase by selling back to the government 1.055 units of two-year debt (which raises the $0.90 needed to buy the one-year debt). Aggregate consumption by the households is unchanged initially. At the end of the first year, the government has to raise $1 in taxes to pay off the new one-year debt that it issued. But households can use the proceeds ($1) of their purchase of one-year debt to pay the higher taxes. Hence, at the end of the first year households can maintain the same level of consumption as before the average maturity of government debt was shortened. At the end of the second year, households have $1.055 less coming in because of their sale of two-year bonds back to the government. But government liabilities have fallen by $1.055 because less two-year debt is outstanding. The government could thus lower taxes by $1.055, and again, household consumption at the end of the second year would be no different than it was prior to the government action.

Since households are able to undo the change in government financing, any particular mix of debt and taxes the government uses to finance its spending will not affect household consumption and savings decisions. Households will merely readjust their portfolios in response to the government action. In this situation the debt structure is neutral; it has no real effects.

INTEREST RATES AND DEBT MATURITY

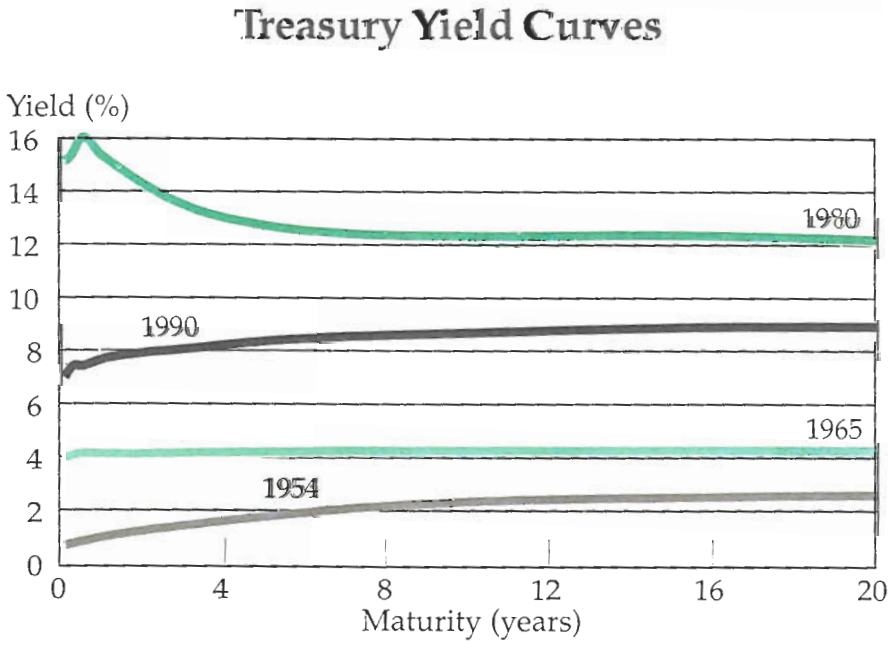
Bearing in mind the debt neutrality proposition, why might the government try to lower the interest costs of its debt? If taxes distort economic activity, lower interest costs mean less distortion, since tax revenues are used in part to pay interest on the debt. The interest rate that the government must pay on its bonds often changes with the time to maturity of the bonds. If the government's objective in managing the public debt is to minimize interest costs, perhaps altering the average maturity of the debt can achieve it.

Term Structure of Interest Rates. The yield curve conveniently summarizes the relationship between the term to maturity of government debt and the interest rate (Figure 2). This relationship between yield and maturity is called the term structure of interest rates. The horizontal axis shows the time to maturity of the security, and the vertical axis shows the interest rate, which is measured by yield to maturity.[2] Notice that the relationship between yields and maturities changes over time. For one thing, when comparing the yields for 1954, 1965, and 1980, we see that the yield curves shifted up over time, reflecting a general trend of rising interest rates. Next, we see that the slope of the yield curve changes over time. In 1954 and 1990 the yield curve had an upward slope, indicating that the interest rate on long-term debt exceeded that on short-term debt. In 1965 the yield curve was approximately flat: long-term debt paid about the same interest rate as short-term debt. In 1980 the yield curve was downward sloping, indicating that the interest rate on long-term debt was lower than that on short-term debt.

Is there a "normal" shape, or slope, to the yield curve? If we compare short-term and long-term interest rates over time, we see that generally long-term rates exceed short-term rates, suggesting that the normal shape of the yield curve is upward sloping. The steepness of the yield curve, which is measured by the gap between the two lines in Figure 3, varies quite a bit, but there are few episodes in which the yield on short-term government bonds exceeds that on long-term government bonds.

A Theory of the Term Structure. Econo-

FIGURE 2



Source: J.H. McCulloch and Heon-Chul Kwon, "U.S. Term Structure Data, 1947 - 1991," Ohio State University Working Paper 93-6.

[2]Yield to maturity is defined as the interest rate that answers the following question: if an investor were to buy a bond and hold it until it matured, what average annualized return would he get over the life of the bond? For example, if an investor were to pay $100 for a bond that pays $121 in two years, the yield to maturity would be 10 percent. This follows from the fact that $100 x 1.10 x 1.10 = $121.

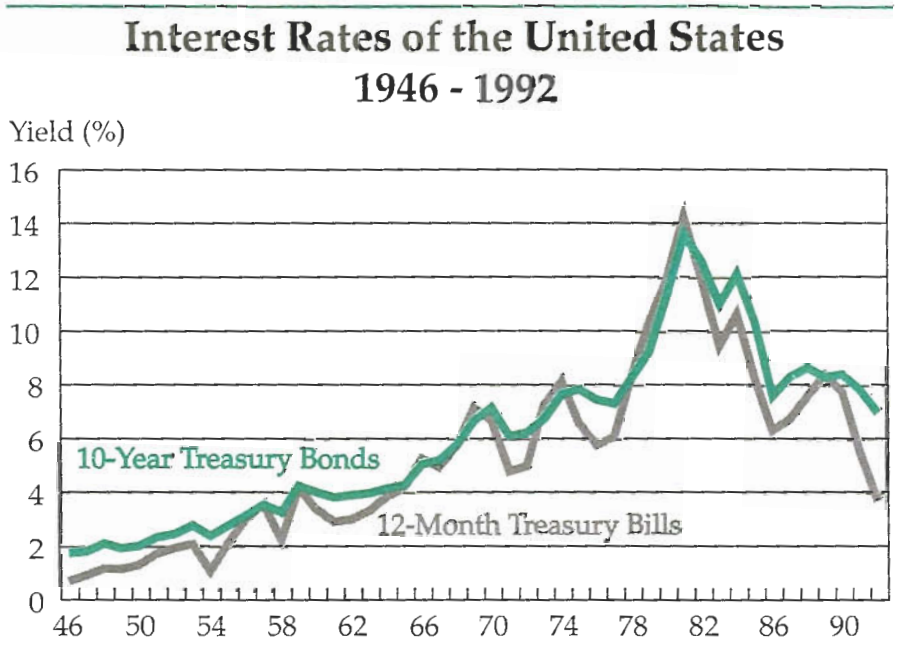
mists have developed and tested several theories to explain why the term structure of interest rates behaves as it does over time.[3] One such theory is called the expectations theory of the term structure, which states that the yield to maturity on a long-term bond is equal to a weighted average of expected future short-term interest rates plus a risk premium. It seems reasonable to suppose that the yield on long-term bonds is related to expected future short-term interest rates. Suppose investors know that the interest rate on one-year bonds will average 5 percent a year over the next 10 years. In this case the risk premium would be zero, and investors will buy and sell 10-year bonds until their yield to maturity equals the average of those expected one-year rates, or 5 percent. Absent a risk premium, the same conclusion follows if investors expect the yield on one-year bonds to average 5 percent per year, but don't know for sure. If investors know that one-year interest rates will rise above 5 percent per year in the future, the yield to maturity on the 10-year bond should be above 5 percent. Absent a risk premium, an upward-sloping yield curve means that investors believe future short-term interest rates will rise, while a downward-sloping yield curve suggests that traders believe future short-term interest rates will fall.

The risk premium can arise because investors typically do not like bearing risk. Long-term bonds are risky because future interest rates are uncertain and because uncertainty about future interest rates translates into uncertainty about future bond prices. That uncertainty could work in investors' favor, or it could work against them.

The manner in which long-term bonds act as a hedge against future income uncertainty determines whether the risk premium is positive or negative. For example, suppose investors could hold a bond whose price is high when income is unexpectedly low and whose price is low when income is unexpectedly high. Investors would be willing to pay a premium for such a bond because it offers them some insurance against their uncertain income: in a year when income is low, the investor could cash in the bond and receive a capital gain (since the price at which he sells the bond is higher than the price at which the bond was purchased), helping him to maintain his level of con-

[3] An excellent survey of theories of the term structure is the 1990 article by Robert Shiller.

FIGURE 3



Source: J.H. McCulloch and Heon-Chul Kwon, "U.S. Term Structure Data, 1947 - 1991," Ohio State University Working Paper 93-6, and the Federal Reserve System.

sumption. Such a bond would have a negative risk premium. A bond with a positive risk premium would be one whose price is low when income is unexpectedly low. In this case, when the investor receives low income and cashes in the bond, he will take a capital loss. Thus, an investor would have to receive some compensation, in the form of a higher return, for investing in such a security. In this case the risk premium would be positive.[4]

Although theory suggests that the risk premium on long-term bonds can be either positive or negative, the normal, upward-sloping shape of the yield curve suggests that the premium is positive.[5]

Minimizing Interest Costs. If the yield curve is upward sloping, should the government borrow long or short to minimize interest costs? First, suppose there's no uncertainty about future short-term interest rates (which implies that the risk premium will be zero). The expectations theory implies that future short-term interest rates will be higher than current short-term interest rates. In this case, even though short-term rates will be higher in the future, it does not matter whether the government borrows short or long—the interest cost will be the same.

A simple example will help to make this clear. Suppose the one-year interest rate today is 5 percent, and the one-year interest rate one year from today will be 10 percent. The government decides to borrow $1000 and repay the borrowing at the end of the second year. If the government borrows using one-year debt, at the end of the first year it must repay $1050. If the government rolls over the debt, at the end of the second year it will have to pay interest on the $1050, so that total interest and principal due at the end of the second year is $1155.

What would the government's cost be if it used two-year debt instead? Since there is no risk, investors would demand the same return on the two-year bond as on the sequence of one-year bonds. Using the expectations theory, the yield to maturity on the two-year bond is the average of the one-year interest rates, which is 7.5 percent. At the end of two years, the total cost of borrowing for two years is the same ($1155), regardless of whether the government borrows short or long.[6]

If we introduce uncertainty, the picture becomes more complicated. Now bond-market traders form expectations of future interest rates. Further, the introduction of uncertainty brings the risk premium into the picture. If the risk premium is positive, on average the government will have a lower interest cost by

[4]An alternative theory about why the yield to maturity on a long-term bond may differ from the average of expected one-year interest rates is called the preferred habitat theory. This theory, which was developed by Franco Modigliani and Robert Sutch (1966), states that investors have preferred maturities that correspond to their investment horizons. For example, if you were investing for a child's college education, you may choose to invest in a long-term bond rather than a series of short-term bonds. The premium (negative or positive) associated with a particular maturity then depends on the supply and demand for funds at that maturity. Suppose that lenders prefer to lend with a short-term commitment and borrowers want to borrow long term. Then there would need to be a positive premium on long-term debt to get lenders to loan funds for a longer period than they would otherwise want to.

[5]In the absence of a risk premium, the usual upward slope of the yield curve suggests that short-term interest rates are expected to rise. In actual practice, short-term interest rates are usually just as likely to rise as to fall. If the risk premium were indeed zero, this suggests that bond-market traders are making persistent errors in forecasting interest rates, which seems unlikely. On the other hand, if the risk premium is positive, the yield curve would tend to have a normal upward slope, and persistent errors in forecasting future interest rates need not occur.

[6]The exact formula for the two-year rate gives an interest rate slightly lower than 7.5 percent because of the effects of compounding interest. In an environment with no risk the formula for the implied two-year rate is given by $(1+i_{2yr})^2 = (1+.05)(1+.10)$.

borrowing short term. But the lower average interest cost comes at the price of higher uncertainty concerning the final payment.

Suppose again that the government borrows $1000 today. The one-year interest rate today is known to be 5 percent, but the one-year interest rate one year from today is not known. Suppose bond traders believe that there's a 25 percent chance that the interest rate next year will be 8 percent, a 50 percent chance that it will be 10 percent, and a 25 percent chance that it will be 12 percent.

Consider first the strategy of borrowing short term. At the end of the first year the government will owe $1050 with certainty. If it rolls over the debt, at the end of the second year, there's a 25 percent chance that the government will owe $1134, a 50 percent chance that it will owe $1155, and a 25 percent chance that it will owe $1176. On average, the government will owe $1155.

Now suppose the government decides to borrow using two-year debt. What will its cost be in this case? If we assume that the expectations hypothesis is true and that there's a positive risk premium, the yield to maturity on a two-year bond will be the average of today's one-year interest rate and the expected one-year interest rate in the second year, plus the risk premium. The average of the short-term rates is 7.5 percent (the average of 5 percent and the expected 10 percent). Thus, the yield to maturity on the two-year bond is 7.5 percent plus the risk premium. Let's assume the risk premium is 0.2 percent, so the yield to maturity is 7.7 percent. Then, the interest and principal that has to be repaid at the end of two years is $1159.93 ($1000 x (1.077) x (1.077)) = $1159.93).

Should the government borrow long term or short term? In the example, the expected interest cost to the government of borrowing short term is $155. If the government borrows using two-year debt, the interest cost will exceed $155. This result seems to favor short-term borrowing. However, by borrowing short-term the government faces a risky outcome. In the example, there's a 25 percent chance that borrowing short term will cost $176, which exceeds the cost of borrowing using two-year debt. On average, the cost of borrowing short term will be lower than the cost of borrowing long term, but the lower interest cost comes at the price of a risky outcome.[7]

BENEFITS OF LONG-TERM DEBT

We have seen that if the government tries to manage the public debt to minimize interest costs, it can lower its interest cost, on average, by borrowing short term rather than long term, but at the price of bearing greater risk. Aside from this interest rate minimization issue, are there other factors that the government should consider when planning the average maturity of its debt?

Debt Maturity and Insuring Against Risk. Economic theory suggests that debt of different maturities may offer investors different opportunities to insure against economic uncertainty. We will frame this discussion in terms of a simple economic model in which consumers live for two periods.[8] We can think of the first period of life as the working years and the second period of life as retirement. In the first period, consumers work and invest in an asset that is risky in the sense that the return is unknown to investors at the time of investment.

Investing in the risky asset is like buying corporate stocks to save for retirement. How-

[7]We have neglected to mention transactions costs. By having a shorter average maturity of debt, the government rolls over the debt more frequently and thus pays more in transactions costs. For example, if the government borrowed for 10 years, it could make one transaction by issuing one 10-year bond, or it could make 10 transactions by issuing 10 one-year bonds. The higher transactions costs must also be considered in assessing the extent to which the government saves money by issuing short-term debt.

[8]This argument is based on an article by Douglas Gale.

ever, in any period only one of the two generations alive at that date bears the risk of the investing, namely the retirees. Everyone would be happier if some of the asset risk could be transferred from the retirees to the workers.

This intergenerational risk-sharing can be accomplished by introducing government debt into the economy. Suppose the government introduces one-period debt into the economy. This debt offers young investors a safe asset to invest in. Since investing in public debt carries no risk, it allows the young to attain, with certainty, some amount of consumption when they retire. If investors don't like risk, they may be better off if they have the opportunity to guarantee some amount of consumption when they retire, compared with investing all of their savings in the risky asset.

By issuing one-period bonds, the government allows intergenerational risk-sharing in the following sense. Buying a one-period government bond is like buying a claim on the next generation. When the young buy bonds, they hold them until they retire; the bonds are then paid off by the government. But the government pays off the bonds by transferring resources from the new young generation of workers to the retirees. Thus, by transferring resources from the young to the old, the debt serves to guarantee retirees some level of consumption.

Debt of maturity longer than one period would be more risky for these investors because of capital gains and losses that can occur when economy-wide rates of return change. But under certain circumstances this riskiness of long-term debt could be advantageous to investors even if one-period debt is not. Suppose that investors observe that the return to the risky asset is high, and further, they expect the return on risky assets to be high next period. In this situation the current price of a two-period bond will be low.[9] Similarly, if the return to the risky asset is currently low, the price of two-period bonds will be high. However, if the price of bonds is high when the return to investment is low, the two-period debt is a better hedge against the risky investment.

Why is this so? The argument is much the same as that in our discussion of the risk premium. Take the case of investors who purchased both two-period bonds and the risky asset to save for their retirement. At retirement, these investors will want to sell their bonds (which have become one-period maturity bonds) to the new young generation. If the return on the asset turns out to have been low, new investors, seeing that the return to the asset was low, expect a low return to their investment in the asset (remember that we are assuming a positive correlation in investment returns). Therefore, the new investors will want to buy bonds from the retirees, bidding up the price of those bonds. These retirees get a capital gain (an appreciation in the bond price) that in part compensates them for the low return on the risky asset. No such capital gain would be realized if the retirees had purchased one-period debt instead of two-period debt.

This argument is not limited to two-period bonds. Thus, the economy could be better off if investors had the opportunity to invest in long-term debt securities because long-term debt might provide better insurance against the uncertainty associated with risky assets.[10]

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[9]Returns on bonds and returns on the risky asset will be linked by investors' demand for the two alternatives. If the expected return to the asset rises, while the uncertainty associated with the asset return remains unchanged, then investors have an incentive to shift their investment funds toward the risky asset and away from bonds. As investors shift funds out of bonds, the price of bonds falls and the return on bonds rises.

[10]Referring to the discussion of debt neutrality on page 5, the reason that debt maturity matters in the example just given is that trading in government securities offers investors opportunities that they otherwise would not have and so assumption (3) is violated.

Confidence Crises. Another argument in favor of governments' issuing long-term debt can be made. Long-term debt can raise investors' confidence that the government will be able to meet its obligations in the event of a crisis. A 1990 paper by Alberto Alesina, Alessandro Prati, and Guido Tabellini develops this argument using a case study of the public debt in Italy. The Italian debt-to-GDP ratio is close to 100 percent, and the Italian government has to pay a steep premium to borrow long term. Alesina and associates show issuing long-term debt may be beneficial to the government, even though it is more costly than short-term debt, because long-term debt can help to avoid confidence crises.

A confidence crisis could occur if government bondholders thought that the government might have difficulty making payments on the debt. Suppose the government finances its borrowing by issuing only one-year debt. In that case, a large quantity of the debt comes due each year, and the government must borrow a large quantity each year, both to finance any current deficit and to roll over the existing debt. If investors thought the government might have difficulty repaying its debt obligations, they could all demand repayment of their debt holdings. The government would find itself unable to borrow to roll over existing debt. The government would have to either raise taxes substantially to pay off debt holders or default on the debt.[11]

On the other hand, if the government issued long-term debt and had an evenly concentrated amount of debt coming due each year, it could diminish the likelihood of a confidence crisis. By issuing long-term debt to finance deficits, the government has a smaller quantity of debt that comes due each year. Therefore, this strategy may raise investor confidence in the government's ability to meet its obligations, and runs on the government debt may become less likely. In the case of the Italian debt, Alesina and associates note that by issuing long-term debt and reducing the risk of a debt crisis, the government could lower the risk premium on the entire maturity structure of the debt and, therefore, lower debt-servicing costs.[12]

DEBT POLICY AND FISCAL INCENTIVES

We have examined several different theories that point out some of the costs and benefits of both short-term and long-term debt. An optimal debt maturity structure takes these factors into account, as well as the incentives that current government policy places on the policies of future governments.

Time-Consistent Policy. Economists have considered how the maturity of the public debt can be used as part of a strategy to implement a fiscal policy that is optimal *over time*. In a dynamic environment, fiscal policy takes the form of a plan for both the present and the future. If today's government forms a fiscal plan, that plan has implications for future tax rates, future government spending, and future borrowing. But can we guarantee that some future government will find it optimal to stick to the plan that we develop today? In general, the answer is no, so we say that the plans are not time-consistent.

The issue of time-consistent plans is discussed in more detail in a 1985 article by Herbert Taylor in this *Business Review*. For our purposes a simple example will help clarify the idea. The United States incurred a large debt when it

[11]If taxes are distortionary, economic theory suggests that governments should try to smooth taxes over time. Distortionary taxes and tax smoothing are the reason that the maturity structure of the government debt matters in this model.

[12]The confidence crisis story is less applicable to the U.S. than to countries such as Italy. In the U.S. the default premium on government debt is considered to be virtually zero.

fought the war for its independence. The government was able to borrow because it promised to repay the debt after the war. However, once the war was over, many Americans advocated defaulting on the debt because repaying creditors would require an increase in taxation; thus, the government had an incentive to deviate from the policy implemented earlier. Alexander Hamilton, the first Secretary of the Treasury, argued against this time-inconsistency, realizing that in the future the new government would likely need to borrow again. Had the government defaulted on the war debt, borrowing in the future would have been more difficult and costly.

Debt Maturity and Optimal Fiscal Policy. In general, successor governments will have an incentive to deviate from an optimal fiscal policy put in place by today's government. But economic theory suggests that the maturity structure of the public debt can help provide incentives for future governments to stick to a fiscal plan developed today. This happens because a government that inherits a public debt has reduced flexibility: it must pay interest on the inherited debt and either pay off debt coming due or roll it over.[13] If a government inherits a large quantity of public debt that comes due during its time in office, its incentives, say, with respect to taxation, may be different than if the inherited debt is long term and thus not all coming due during the government's tenure.

Suppose today's government believes higher taxes and higher inflation reduce economic welfare. The government might then form a fiscal plan that tries to set current and future taxes and inflation in a way that increases society's well-being. A strategy for the public debt could be a key part of this calculation, since debt allows governments to smooth taxes over time and to reduce the temptation for future governments to deviate from the fiscal plan.

The maturity of the public debt can be used to lessen the government's incentive to try to use inflation to reduce the value of its debt.[14] Consider the case of a government that inherits a stock of long-term, fixed-rate debt. The government recognizes that since the debt was issued in the past, the interest payments on that debt are fixed in dollar terms. This gives the government an incentive to increase the rate of inflation so that it can pay off its inherited debt in cheaper dollars. This inflation acts like a tax, and the nominal debt comprises part of the tax base. The real value of the payments that investors receive from their bond holdings declines when the price level rises.[15]

By reducing the average maturity of the debt, current governments can reduce successor governments' incentives to increase inflation. A government that inherits short-term debt will gain little by increasing the inflation rate. When the debt is short term, it is rolled over frequently, giving the government little opportunity to pay off the debt in cheaper dollars. In addition, any attempt to raise inflation will be quickly reflected in higher interest rates on short-term debt; investors will demand to be compensated for higher anticipated inflation. In effect, a greater quantity of short-

[13]We are assuming that the costs of defaulting on the debt are so high that future governments do not consider defaulting as a policy option.

[14]This discussion is based on the work of Guillermo Calvo and Pablo Guidotti.

[15]This argument applies to debt with a fixed nominal face value, which is the predominant form of debt issued by governments. The government has an incentive to raise inflation even if the gains from doing so are illusory in the sense that bondholders, at the time they purchased the bonds, demanded an inflation premium in the form of a higher interest rate.

term debt lowers the inflation tax base available to the government and, therefore, lessens the incentive to use inflation to raise revenue.

CONCLUSION

Deciding on a preferred maturity structure of the public debt involves many considerations. On the one hand, the maturity structure of the debt may be largely irrelevant for the economy if departures from the neutrality proposition are small. On the other hand, if the departures from neutrality are significant, then the choice of a debt maturity structure may be guided by factors such as interest cost minimization, risk-sharing arrangements, confidence crises, and reinforcing incentives for future policymakers. Economists have not yet reached agreement on the questions of whether there is an optimal maturity of the debt and, if so, what factors are involved.

The U.S. Treasury is engaging in a strategy to reduce the average maturity of the public debt. Our analysis suggests that on average, this strategy should reduce the costs of borrowing, but the government also takes on more risk, since future interest rates are uncertain. The shorter average maturity may also weaken the incentives future governments have to use inflation to raise tax revenue.

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