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THE EFFECTS OF RESTRICTING CREDIT

Restricting credit means restricting the amount of borrowing and lending in an economy. If we ignore deals that go across national boundaries, the total amount of borrowing must equal the total amount of lending. So you can restrict credit by restricting borrowing, or by restricting lending, or by some combination of the two.

Even government debt involves an equal amount of borrowing and lending. The government, acting as agent for individual taxpayers, is the borrower, and those who hold government securities are the lenders. Ultimately, all borrowing and lending is between individuals, because we can look through governments and firms to the individuals they represent. Even bank deposits can be regarded as loans by depositors to bank stockholders, who turn around and make loans to those who borrow from the banks.

Governments give various reasons for restricting credit. They may be concerned about the effects on an individual borrower of having less income than he expected and thus being unable to pay his debts. They may be concerned about the effects on individual lenders of having much of their savings wiped out when borrowers default. Or they may be concerned that if credit is freely available, there will be a general economic problem such as runaway inflation.

Most often, governments seem concerned about borrowers, and restrictions on credit take the form of restrictions on borrowing. For example, we have margin requirements that limit the amount that an investor can borrow, using securities as collateral, to buy securities. We have laws governing real estate mortgage loans that force the borrower to repay the loan in regular installments: he is not allowed to let the loan ride, or to increase it when he has a special need for cash without completely rewriting the loan.

Interest rate ceilings act to restrict borrowing too. For example, the usury laws in many states keep people from borrowing amounts that are large relative to their assets and income, because such loans would be quite risky. A risky loan makes sense for a lender only if the interest rate is sufficiently high. Ceilings on deposit interest rates at financial institutions tend to make lending in the form of deposits unattractive, so the institutions are forced to make inefficient use of methods such as conveniently located offices to attract deposits.

Governments don't often do things that are mainly intended to restrict lending rather than to restrict borrowing. They rarely set a limit on the amount that an individual can lend. But government tax policy often has the effect of restricting lending. A tax on interest income that is not fully offset by a subsidy on interest expense will have the effect of restricting lending, and thereby restricting both borrowing and total credit.

Note that a tax on interest income that is matched by an equal subsidy on interest expense will change the nominal interest rate but will not affect the amount of borrowing and lending. (One way to subsidize interest expense for individuals with enough taxable income is to allow them to deduct interest expense from their income for tax purposes.)

Suppose, for example, that we start at a point where the interest rate on short term riskless borrowing and lending is 5%, and where there are no taxes or subsidies on interest income or interest expense. Ignore the expenses that normally create a spread between the borrowing rate and the lending rate.

Now suppose that the government puts on a tax of 20% of interest income and a subsidy of 20% of interest expense. What will happen?

If the interest rate goes to 6%, the after-tax borrowing and lending rates will be the same as they were before. Thus everyone will be happy with the amount of borrowing or lending he was doing before. So that's what will

happen. The interest rate will go to 6% and nothing else will change. Note that even government revenue will stay the same, because the subsidy on interest expense will use up all the revenue from the tax on interest income.

If the government puts a tax on interest income without a subsidy on interest expense, then the nominal interest rate will go up, but by a smaller amount. In our example, if the interest rate starts at 5%, and the government puts a 20% tax on interest income, then the nominal interest rate might go to 5.5%. This would mean that lenders would receive 4.4% after taxes, while borrowers would pay 5.5%. Thus lenders would cut back on lending, and borrowers would cut back on borrowing.

The effect of a tax on interest income is to increase the nominal interest rate and to restrict credit. This will be true even if some credit is given for interest expense, so long as it's not a subsidy equal to the tax on interest income. The tax also generates income for the government.

Thus most ways of restricting credit have the effect of reducing nominal interest rates. Taxes on interest income, however, restrict credit but increase nominal interest rates.

The Pricing Of Securities

Restricting credit will not have any obvious effect on the pricing of securities other than those used for borrowing and lending. People who are unable to borrow as much as they would like at reasonable rates will often buy high risk securities instead. It might seem that this will force up the prices of high risk securities. But it may not.

The extra demand for high risk securities by people who can't borrow as much as they would like is offset by reduced demand for high risk securities by

people who can't lend as much as they would like, or who aren't happy with the low interest rates they get. So the net effect is not clear. It can go either way.

The same is true of low risk securities. Restricting credit forces lenders into low risk securities, which would tend to increase the prices of low risk securities. But restricting credit also forces borrowers out of low risk securities, which would tend to decrease their prices. Restricting credit has no obvious differential effect on the prices of high and low risk securities.

The fact that credit is always restricted to some degree means that the nominal interest rate should be used with care in evaluating the returns on securities at different levels of risk. Very low risk securities whose returns are not affected by the restrictions on credit may have expected returns significantly different from the interest rate, because the interest rate is affected. For example, if restricting credit means restricting borrowing, so that the interest rate is reduced, securities whose risk can be entirely diversified away will have expected returns higher than the interest rate.

When borrowing is restricted, low risk securities generally will seem to have higher expected returns than they should, and high risk securities will seem to have lower expected returns than they should, if a model of expected return that assumes unlimited borrowing is used.

To fix this, we might use an "effective interest rate" in evaluating the expected returns on securities. The effective interest rate would be an estimate of what the interest rate would be if credit were not restricted. It will be higher than the nominal interest rate if restricting borrowing is the dominant way of restricting credit, and it will be lower than the nominal rate if taxing interest income is the dominant way of restricting credit.

Since the interest rate figures in models of option pricing, the same sort of thing applies there. The right interest rate to use is not the nominal interest rate, but an effective interest rate that reflects restrictions on borrowing and taxes.

With both options and other securities, if we take account of the effects of taxes on the interest rate, we should also take account of the effects of taxes on the net returns on securities that are not used for borrowing and lending. If we ignore taxes entirely, the dominant effect is sure to be the effect of restricted borrowing, and the effective interest rate will be higher than the nominal interest rate.

While general restrictions on borrowing will have a substantial effect on nominal interest rates, any restrictions on borrowing will have some effect. If only one person is prevented from borrowing as much as he would like at rates that reflect the cost and risk of lending to him, the interest rate will be slightly lower than it would otherwise have been. So the size of the effect depends on the number of people subject to restrictions on borrowing.

The Structure Of Individual Portfolios

When credit is restricted, investors will use high and low risk securities as a substitute for borrowing and lending. Those who are prevented from borrowing will shift toward high risk securities, while those who are prevented from lending (or who choose not to lend because the after-tax interest rate is so low) will shift toward low risk securities.

Those who can borrow freely will choose a mix of risky assets that is optimal in the light of the interest rate they face, while those who can lend freely will choose a different mix of risky assets that is optimal in the light of the different interest rate they face. The optimal portfolio for borrowers will have riskier assets than the optimal portfolio for lenders.

If there are restrictions on individual borrowing, but firms can borrow freely, then it may pay for a firm to choose a high debt-equity ratio, so it can provide the equivalent of borrowing to its shareholders.

The options market provides another outlet for frustrated borrowers and lenders. Buying call options or selling put options can be a substitute for borrowing to invest while selling call options or buying put options can be a substitute for investing less and lending the difference.

The emphasis here is rather different from the emphasis in my paper on restricted borrowing in the July, 1972, Journal of Business. There I said that given the equilibrium interest rate, the expected returns on low risk securities are higher than they should be, while the expected returns on high risk securities are lower than they should be. That's true. But what I'm saying here is that when restrictions on borrowing are imposed, it's largely the interest rate that changes, not the expected returns on securities at different levels of risk. So the investment decisions that firms make should not be affected significantly by restrictions on credit.

Restricting borrowing hurts lenders and those borrowers who want to borrow a lot. It helps those borrowers who don't want to borrow much anyway, because they now face a lower interest rate. It forces many investors to hold higher risk portfolios to get a given expected return than they would if borrowing were unlimited. But it does not have any clear effect on the composition of total investment. Every individual investment decision that a firm has to make will be evaluated in about the same way whether borrowing is restricted or not. If an interest rate is used in these evaluations, it should be an effective interest rate rather than a nominal interest rate.

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