
The Impact of Monetary Policy on Bank Lending: The Role of Securities and Large CDs

By William R. Keeton

The seemingly small impact of easier monetary policy on bank lending during the recent recovery has added to the controversy over the lending view of monetary policy. According to the lending view, easier monetary policy stimulates the economy by increasing bank lending. But critics claim that bank lending may fail to rise because banks may use the deposits generated by the easier policy to buy securities or retire large CDs. The weak response of bank lending to the recent easing seems to support the critics. Proponents of the lending view dismiss this charge. Instead, they blame the weakness in bank lending on the balance sheet concerns of banks and borrowers.

The controversy over the lending view has focused only on the *direct* effect of monetary policy—both sides have largely ignored the *indirect* effect. Easier monetary policy not only increases bank lending directly by increasing deposits, but also indirectly by lowering open-market rates. Specifically, lower open-market rates stimulate lending by encouraging banks to fund new loans

through security sales or large CDs.

This article analyzes the implications of bank security holdings and large CDs for the direct and indirect effects of monetary policy on bank lending. The article argues that when both the direct and indirect effects are taken into account, banks' ability to fund loans by selling securities and issuing large CDs may strengthen monetary policy rather than weaken it. The first section describes the direct effect of monetary policy on bank lending and explains why critics believe banks' ability to fund loans from nondeposit sources has diminished this effect. The second section describes the indirect effect and argues that banks' access to nondeposit funds increases this effect. The last section shows that the increase in the indirect effect can outweigh the decrease in the direct effect, so that monetary policy is more effective on balance.

HOW NONDEPOSIT SOURCES OF FUNDS DECREASE THE DIRECT EFFECT

Critics of the lending view argue that bank security holdings and CD issuance have reduced the direct effect of monetary policy on bank lend-

William R. Keeton is a senior economist at the Federal Reserve Bank of Kansas City. Kenneth Heinecke, a research associate at the bank, helped prepare the article.

ing. This section describes the direct effect of monetary policy and explains why critics believe this effect has been diminished.

What is the direct effect?

A key tenet of the lending view is that monetary policy affects economic activity largely through the direct effect of changes in bank reserves on bank lending. Consider, for example, an open-market purchase by the Federal Reserve. Reserves and transactions deposits first increase by equal amounts. Banks, finding themselves with more reserves than they need to meet the reserve requirement on transactions deposits, then increase their lending and investment, leading to a further rise in transactions deposits and required reserves. This process continues until banks' required reserves have risen enough to eliminate the surplus of reserves.

According to the lending view, the rise in bank lending permitted by the increase in transactions deposits stimulates private spending, thereby boosting the economy. To make additional loans, banks must lower loan rates and relax credit standards. Large borrowers who can borrow on the open market may respond by substituting bank credit for open-market credit, leaving their total spending unchanged. However, small and medium-size borrowers who cannot easily borrow on the open market will use the additional credit to finance new spending.

Why banks' willingness to use nondeposit funds reduces the direct effect

The argument that bank security holdings and CD issuance have reduced the direct effect of monetary policy on bank lending is based on two claims. First, banks' increased willingness to fund loans from nondeposit sources has made the supply of bank loans highly elastic with respect to the return on loans. Second, when loan supply is highly elastic, changes in deposits have little effect

on bank lending.

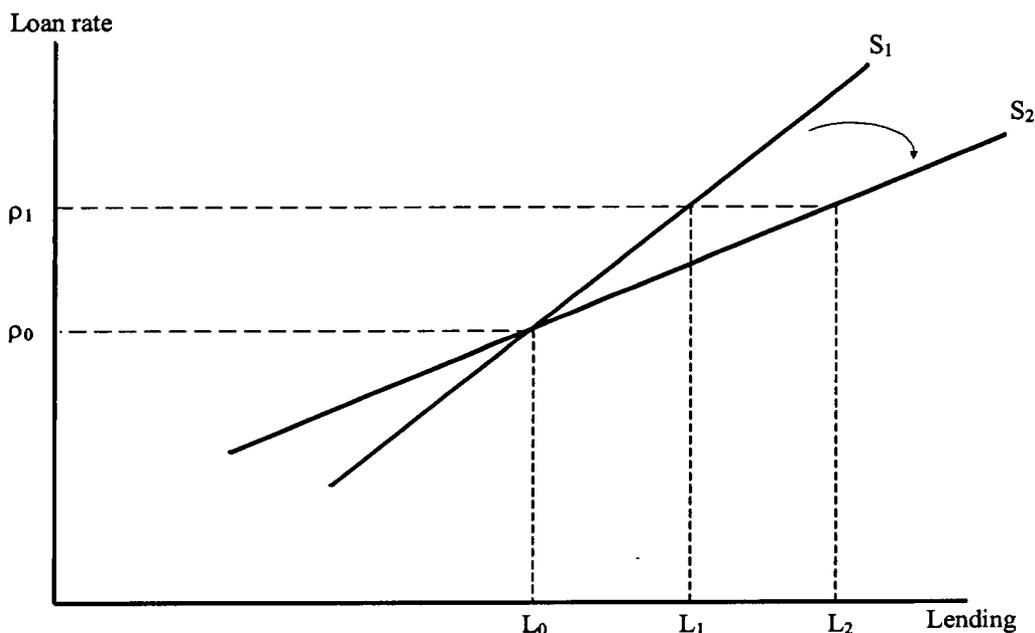
Willingness to use nondeposit funds makes loan supply more elastic. Critics of the lending view argue that banks have become more willing than in the past to fund loans by selling securities or issuing large CDs. The main factor that used to deter a bank from funding loans from such nondeposit sources was the risk of illiquidity. Loans could not be liquidated as quickly as securities to meet unanticipated deposit withdrawals. Thus, if a bank shifted too heavily from securities to loans, it might have to meet subsequent deposit withdrawals by borrowing on an emergency basis at above normal rates.¹ Similarly, liabilities like large CDs were viewed as a more volatile source of funds than core deposits because the liabilities were uninsured and held by large investors who were highly sensitive to relative yields. Thus, if a bank financed too many new loans with large CDs, the likelihood of a liquidity crisis would increase.

Recent developments may have reduced this risk of illiquidity, making banks more willing to use their securities and large CDs as a source of funds for loans. The growth of interstate banking and the trend toward consolidation have made deposits more predictable for many banks, reducing the risk of unanticipated withdrawals. Also, the removal of deposit rate ceilings, the growth of brokered deposits, and the development of secondary loan markets have made it easier for banks to meet deposit withdrawals or runoffs of CDs by attracting new funds or selling loans. Thus, banks may be more willing to sell securities and issue large CDs when lending becomes more profitable, and more willing to buy securities or retire large CDs when lending becomes less profitable.

The effect on loan supply of banks' increased willingness to use nondeposit sources of funds is shown in Figure 1. Total bank lending is measured on the horizontal axis and the loan rate on the vertical axis.²

The loan supply curve, *S*, shows how much banks would like to lend at each loan rate, given the rate of return on open-market assets and the

Figure 1
Loan Supply Becomes More Elastic



volume of transactions deposits. In deciding how much to lend for a given volume of transactions deposits, banks must weigh the benefit and cost of using nondeposit funds to finance additional lending. The benefit is the interest income on the new loans. The cost includes both the increased risk of illiquidity and the interest expense from using more nondeposit funds—the interest lost on the securities that are sold or the interest paid on the CDs that are issued. If the loan rate rises, the benefit from additional lending will increase. Thus, banks will expand their lending until the benefit and cost of additional lending are again equal.

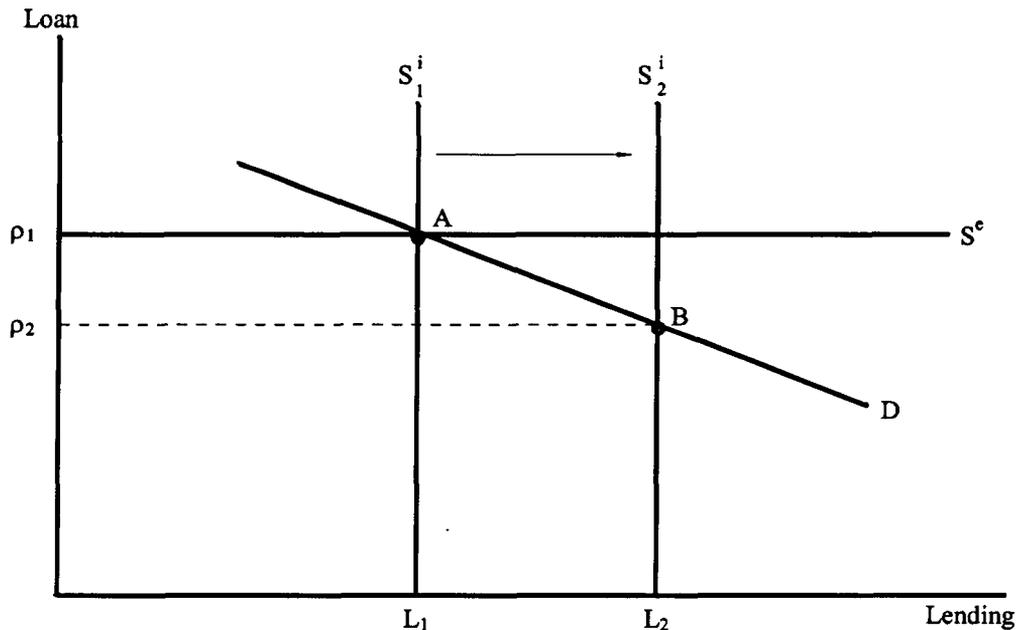
An increased willingness on the part of banks to fund loans from nondeposit sources flattens the

loan supply curve, causing it to rotate from S_1 to S_2 in Figure 1. Suppose, for example, that due to fundamental changes in the banking industry, increases in lending funded from nondeposit sources have less tendency to increase illiquidity risk. Then when the loan rate rises, banks will be able to expand their lending by a greater amount before the benefit of additional lending is outweighed by the cost—that is, before the extra interest income from loans is offset by the extra illiquidity risk and the extra interest cost of nondeposit funds. Thus, if the loan rate rises from ρ_0 to ρ_1 in Figure 1, the amount banks want to lend will increase from L_0 to L_2 rather than from L_0 to L_1 .

A more elastic loan supply reduces the direct effect. The simplest way to show that a more

Figure 2

Effect of a Change in Deposits
(with open-market rate held constant)



elastic loan supply curve reduces the direct effect of monetary policy on bank lending is to compare two extreme cases—a perfectly inelastic supply curve and a perfectly elastic one. Figure 2 shows the effects of an increase in reserves in these two cases. As before, open-market rates are held constant and each supply curve is drawn for a fixed volume of transactions deposits.

The vertical curve S^i represents the case of a perfectly inelastic loan supply. In this case, banks desire a fixed ratio of loans to transactions deposits no matter how high the loan rate. For example, if the costs of illiquidity are very high, banks may prefer a loan-deposit ratio just low enough to avoid any risk of illiquidity.³ Thus, when the loan rate rises and deposits remain unchanged, banks refuse

to supply more loans.

The horizontal curve S^e shows the opposite extreme of a perfectly elastic loan supply. In this case, there exists a minimum loan rate at which banks are willing to lend, given the rate of return on open-market assets. If the loan rate rises even slightly above this level, banks want to fund an unlimited amount of loans by selling securities or issuing large CDs—for example, because illiquidity costs are negligible.⁴ Conversely, if the loan rate falls even slightly below the critical level, banks refuse to supply any loans. At a loan rate this low, banks are unwilling to fund loans with large CDs and would rather invest their transactions deposits in securities than in loans.

Finally, the downward-sloping demand curve

D shows how much businesses and households wish to borrow from banks at each loan rate. As the loan rate rises, the demand for loans falls for two reasons. First, for large well-known businesses, higher loan rates make bank loans less attractive than other methods of financing spending, such as borrowing on the open market or drawing down liquid assets. Second, as the loan rate increases, borrowers reduce spending, decreasing their demand for bank loans.

Consider now the effects of an open-market purchase in the two cases, starting from the same initial equilibrium (point A) and holding open-market rates constant.⁵ As noted earlier, the open-market purchase will cause transaction deposits to rise. However, as shown in Figure 2, this increase in deposits will have very different effects on the two loan supply curves and thus on the volume of bank lending.

The increase in deposits causes the perfectly inelastic supply curve to shift from S_1^i to S_2^i . Because banks desire a constant loan-deposit ratio, they increase lending by the same proportion as deposits. At the initial loan rate, ρ_1 , banks now supply more credit than borrowers desire. As a result, borrowers bid down the loan rate and banks move down the new vertical supply curve until the excess supply of credit is eliminated. In Figure 2, the new equilibrium is at point B , with a higher level of lending, L_2 , and a lower loan rate, ρ_2 .

In contrast, the increase in deposits has no effect on the perfectly elastic supply curve, S^e . With open-market rates held constant, the loan rate at which banks are just willing to lend remains at ρ_1 . Thus, total lending remains at L_1 , with banks using all their new transactions deposits in excess of reserve requirements to buy securities or retire CDs. To see why this case differs from the previous one, suppose banks increase their lending above L_1 as their deposits rise. As before, borrowers will bid down the loan rate. Now, however, even the slightest decrease in the loan rate will cause banks to shift heavily out of loans into

securities or slash the amount of loans funded with large CDs. As a result, lending will contract until the initial equilibrium is restored.

The fact that lending does not increase when loan supply is perfectly elastic confirms that banks' willingness to fund loans by selling securities or issuing CDs decreases the direct effect of monetary policy on bank lending. Critics of the lending view argue that this decrease in the direct effect significantly reduces the importance of the lending channel in the monetary transmission mechanism.⁶

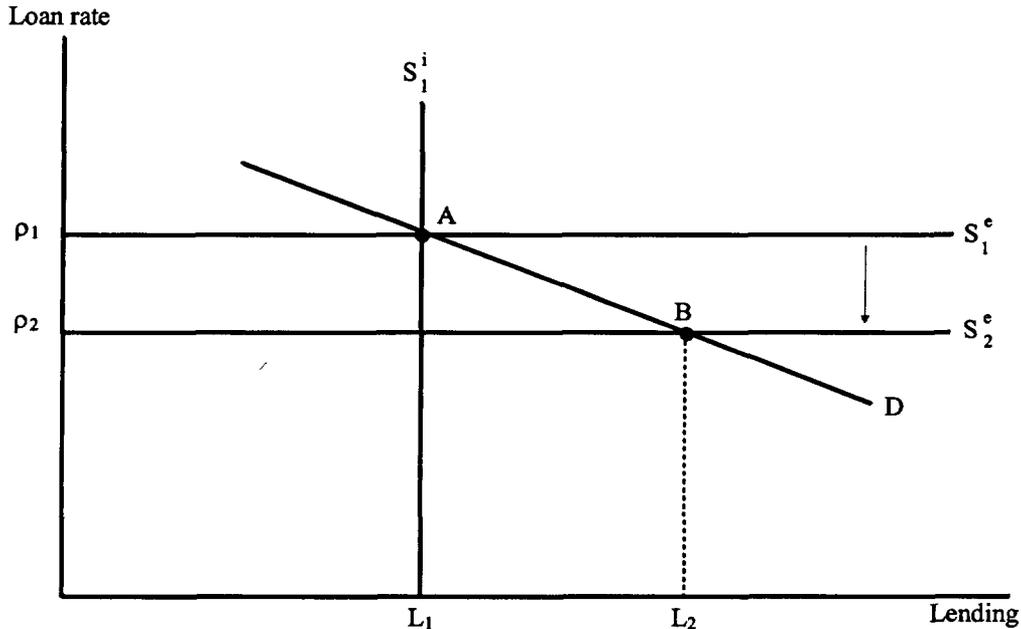
HOW NONDEPOSIT SOURCES OF FUNDS INCREASE THE INDIRECT EFFECT

To the extent bank security holdings and CD issuance have reduced the direct impact of monetary policy on bank lending, it is tempting to conclude that monetary policy will be less effective. Such a conclusion would be unwarranted, however, because it ignores the indirect effect of monetary policy on bank lending via changes in open-market rates.

What is the indirect effect?

The indirect effect consists of two steps—easier monetary policy lowers open-market rates, and lower open-market rates stimulate bank lending. To illustrate the first step, suppose the Fed increases the supply of bank reserves through an open-market purchase. As in the discussion of the direct effect, transactions deposits will rise until banks' required reserves just equal the new, higher supply of reserves. What the discussion of the direct effect ignored is that the public will use their excess transactions deposits to bid for open-market assets, driving the prices of such assets up and their rates of return down. At the same time, deposit rates will fall because banks will find it hard to invest the new transactions deposits prof-

Figure 3
Effect of a Change in Open-Market Rate
(with deposits held constant)



itably. Equilibrium will be restored when open-market rates fall enough relative to deposit rates to make the public content to hold the new, higher level of transactions deposits.

In the second step of the indirect effect, lower open-market rates make it more attractive for banks to use securities and large CDs to fund loans. As open-market rates fall, so will the rate of return on securities and the interest rate banks have to pay on large CDs. Thus, at the initial loan rate, banks will find it profitable to shift out of securities into loans and to finance new loans with large CDs. In other words, the fall in open-market rates will increase banks' desired ratio of loans to transactions deposits, reinforcing the direct effect of higher transactions deposits on bank lending.

Why banks' willingness to use nondeposit funds increases the indirect effect

As noted earlier, critics of the lending view believe banks' willingness to use nondeposit funds has made the supply of bank loans more responsive to changes in the loan rate. But if the supply of bank loans is more responsive to changes in the return on loans, it should also be more responsive to changes in the cost of using nondeposit funds to make loans. Thus, a decrease in open-market rates caused by easier monetary policy should lead to a bigger shift out of securities into loans and a bigger increase in the amount of new loans financed with CDs.

Figure 3 illustrates this point by comparing the effect of a decrease in the open-market rate under

Table 1
Effects of Easier Monetary Policy on Bank Lending

	Direct effect (via changes in deposits)	Indirect effect (via changes in open-market rate)
Perfectly inelastic loan supply	Positive	Zero
Perfectly elastic loan supply	Zero	Positive

the two extremes of a perfectly inelastic loan supply curve and a perfectly elastic supply curve. The loan supply curves and the loan demand curve in this diagram are defined as in Figure 2. Recall that Figure 2 isolated the direct effect by showing the impact of an increase in transactions deposits with the open-market rate held constant. In contrast, Figure 3 focuses on the indirect effect by showing the impact of a decrease in the open-market rate with transactions deposits held constant. For convenience, Figure 3 also assumes that bank borrowers have no access to the open market, so that the loan demand curve is unaffected by changes in the open-market rate.⁷

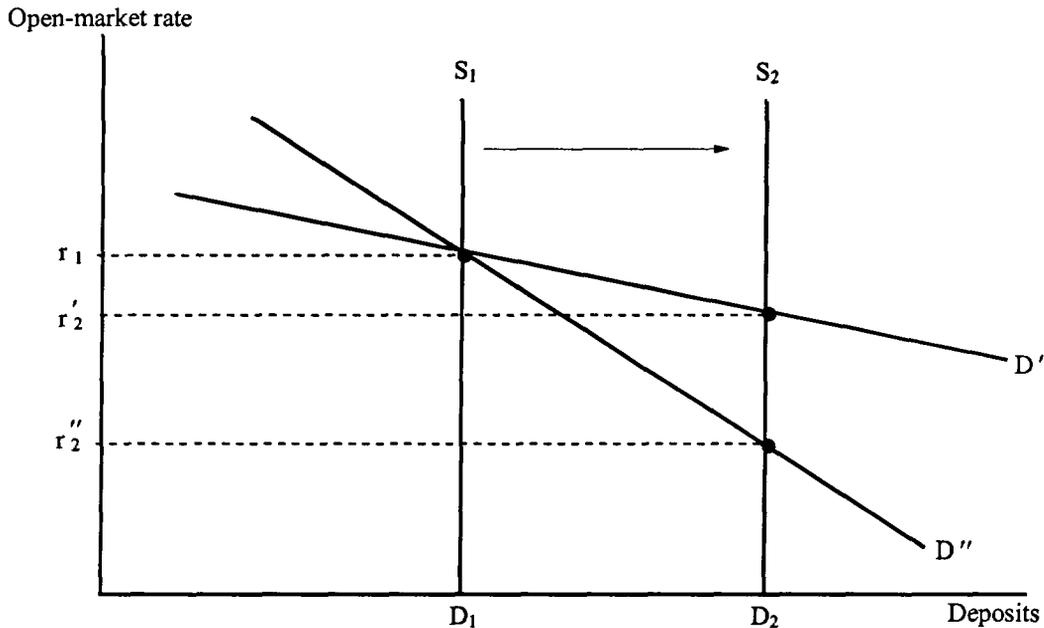
As shown in Figure 3, the fall in the open-market rate has no effect on the perfectly inelastic supply curve, S^i . The curve remains unchanged because banks desire a fixed ratio of loans to transactions deposits and transactions deposits are held constant. The decrease in the open-market rate reduces the cost to banks of funding loans by selling securities or issuing large CDs. By assumption, however, banks are unwilling to increase lending—for example, because doing so would increase their risk of illiquidity above zero. Thus, banks remain at point *A*, with the same total lending.

In contrast, the decrease in the open-market rate shifts the perfectly elastic supply curve, S^e ,

downward. As in the perfectly inelastic case, the fall in the open-market rate reduces the cost to banks of funding loans by selling securities or issuing large CDs. In this case, however, the loan supply curve shifts downward because the minimum loan rate at which banks are willing to lend falls from ρ_1 to ρ_2 . Suppose, for example, that banks require a fixed spread between the loan rate and the open-market rate to be willing to lend. Then the curve S^e will shift downward by the same amount that the open-market rate falls. At the initial loan rate, ρ_1 , banks now want to fund an unlimited amount of loans from nondeposit sources. As a result, they reduce the loan rate in an effort to attract more loan customers. This process continues until a new equilibrium is reached at point *B*, with a higher level of lending and a lower loan rate. Thus, while the fall in the open-market rate leaves lending unchanged in the perfectly inelastic case, it increases lending in the perfectly elastic case.

Table 1 summarizes the results of Figures 2 and 3 on the effects of easier monetary policy on bank lending. When loan supply is perfectly inelastic, the direct effect via changes in deposits is positive and the indirect effect via changes in open-market rates is zero (first row). On the other hand, when loan supply is perfectly elastic, the

Figure 4
Effect of Easier Monetary Policy on Open-Market Rate



direct effect is zero and the indirect effect is positive (second row). Thus, to the extent bank security holdings and CD issuance make loan supply highly elastic, they decrease the direct effect of monetary policy on bank lending but increase the indirect effect.

CAN NONDEPOSIT SOURCES OF FUNDS STRENGTHEN MONETARY POLICY?

Can the increase in the indirect effect outweigh the decrease in the direct effect, so that bank security holdings and large CDs actually increase the effectiveness of monetary policy? The answer

is yes, provided deposit demand is sufficiently insensitive to a change in interest rates or loan demand is sufficiently sensitive to such a change.

Interest sensitivity of deposit demand

Table 1 implies that monetary policy will have a bigger impact on lending with a perfectly elastic loan supply on one condition: the indirect effect in the perfectly elastic case exceeds the direct effect in the perfectly inelastic case. One way this can happen is if deposit demand is interest-insensitive, so that increases in reserves lead to large decreases in the open-market rate.

Figure 4 shows why an increase in reserves

will lead to a bigger fall in the open-market rate in the perfectly elastic case if deposit demand is interest-insensitive. This diagram measures the volume of transactions deposits on the horizontal axis and the open-market rate on the vertical axis. The vertical curves S_1 and S_2 show the supply of transactions deposits before and after the increase in reserves.⁸ The downward-sloping curves D' and D'' show two alternative demand curves for transactions deposits.

Each demand curve shows the amount of deposits the public desires to hold at different open-market rates, taking into account the response of the deposit rate to the open-market rate.⁹ When the open-market rate rises, banks will bid up the interest rate on transactions deposits. However, the deposit rate will rise less than the open-market rate, causing the public to shift out of transactions deposits into open-market assets. The flat curve D' assumes that an increase in the open-market rate leads to a large decline in demand for deposits, while the steep curve D'' assumes that an increase in the open-market rate leads to a small decline in demand for deposits. One reason the curve may be steep is that the public's demand for deposits may be unresponsive to changes in the relative returns on deposits and open-market assets. The other reason is that the relative returns on deposits and open-market assets may not change very much because deposit rates are highly flexible.

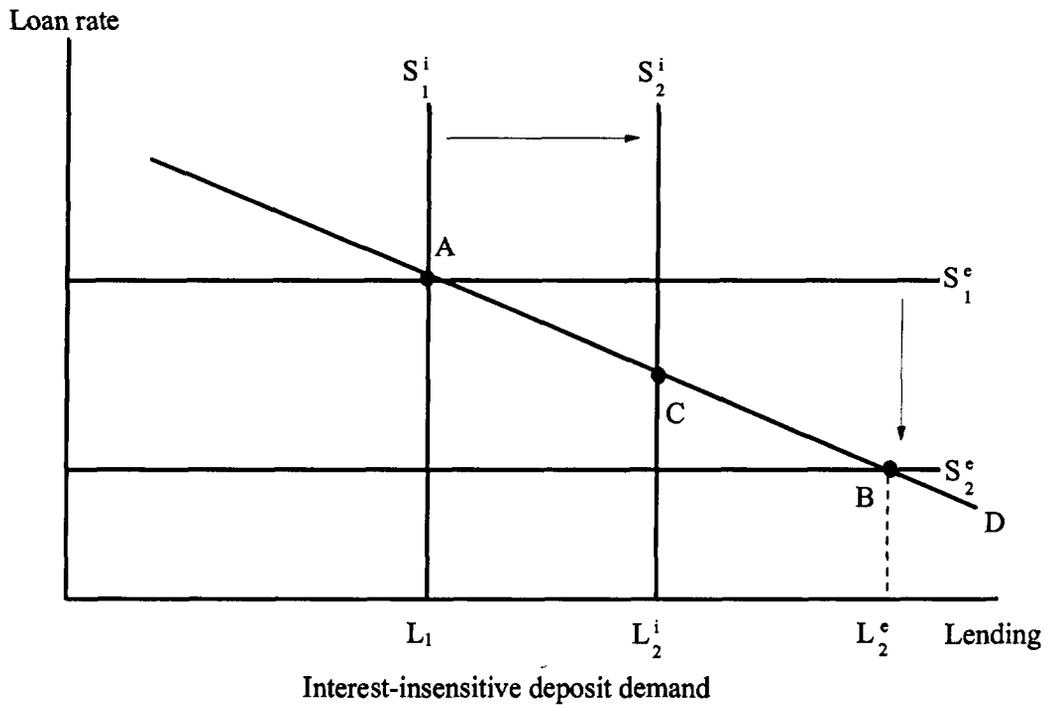
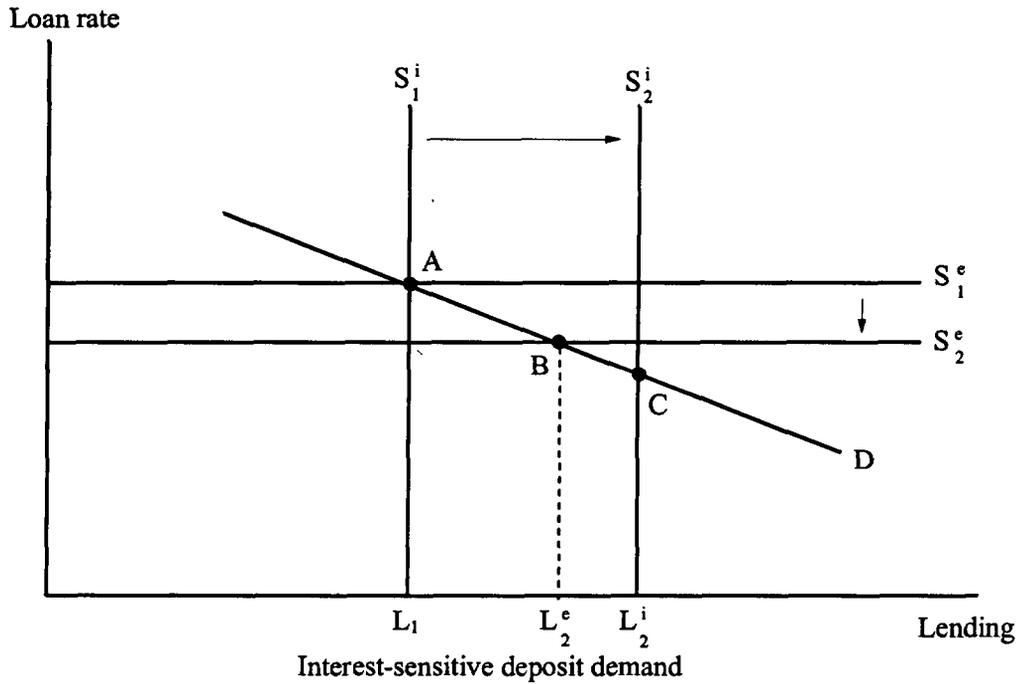
By shifting out the supply of transactions deposits, the easier policy creates an excess supply of deposits and drives down the open-market rate. If deposit demand is interest-sensitive (curve D'), only a small decline in the open-market rate is needed to induce the public to hold the higher volume of transactions deposits. As a result, the open-market rate falls only from r_1 to r_2' . However, if deposit demand is interest-insensitive (curve D''), a much larger decline in the open-market rate is needed to eliminate the public's excess supply of deposits. Thus, the open-market rate falls all the way from r_1 to r_2'' .

Figure 5 shows what this difference in the response of the open-market rate means for the bank loan market. The diagram shows the total effect of the increase in reserves on bank lending, taking into account both the direct effect via the change in deposits and the indirect effect via the change in the open-market rate. The top panel corresponds to the case of interest-sensitive deposit demand (the open-market rate falls only slightly), while the bottom panel represents the case of interest-insensitive deposit demand (the open-market rate falls sharply).¹⁰

Consider first the impact of the easier policy on bank lending with interest-sensitive deposit demand (top panel). Because the open-market rate falls only slightly, the perfectly elastic loan supply curve, S^e , shifts down by only a small amount.¹¹ Thus, in the perfectly elastic case, lending increases only from L_1 to L_2^e . In contrast, the increase in transactions deposits shifts out the perfectly inelastic supply curve, S^i , enough to increase lending all the way to L_2^i . Thus, when deposit demand is highly interest-sensitive, the critics of the lending view are correct—banks' willingness to fund loans from securities and large CDs reduces the impact of monetary policy on bank lending.

Consider next the impact of the same policy change when deposit demand is interest-insensitive (bottom panel). The increase in transactions deposits shifts the perfectly inelastic supply curve, S^i , outward by the same amount as in the top panel, leading to the same increase in lending as before. But because the open-market rate falls sharply when deposit demand is interest-insensitive, the perfectly elastic supply curve, S^e , now shifts down by a much greater amount.¹² As a result, the easier policy causes lending to increase even more in the perfectly elastic case than the perfectly inelastic case—that is, L_2^e now exceeds L_2^i instead of falling short of L_2^i . Thus, when deposit demand is interest-insensitive, banks' willingness to fund loans from securities and large CDs increases the impact of monetary policy on bank lending, the opposite of what the critics claim.¹³

Figure 5
Effect of Easier Monetary Policy on Lending



Interest sensitivity of loan demand

The reason interest-insensitive deposit demand leads to a large indirect effect in the perfectly elastic case is that increases in reserves cause large decreases in the open-market rate. Even if the decrease in the open-market rate is not large, however, the indirect effect can be large if small decreases in the open-market rate lead to large changes in lending. This will be the case if bank borrowers' demand for credit is relatively sensitive to the cost of borrowing.

In the top panel of Figure 5, for example, suppose the loan demand curve D becomes flatter, rotating counterclockwise around point A . The outward shift in the perfectly inelastic loan supply curve from S_1^i to S_2^i will lead to the same increase in lending as before. However, the downward shift in the perfectly elastic curve from S_1^e to S_2^e will now cause a bigger increase in lending than before. If the loan demand curve becomes flat enough, lending will increase more in the perfectly elastic case than in the perfectly inelastic case—that is, L_2^e will exceed L_2^i , just as it does in the bottom panel of Figure 5. Thus, if loan demand is relatively interest-sensitive, bank security holdings and CD issuance can increase the effectiveness of monetary policy.¹⁴

CONCLUSIONS

According to the lending view, monetary

policy works by increasing the supply of deposits to banks and thereby stimulating bank lending. Critics of this view sometimes argue that the willingness of banks to fund loans by selling securities or issuing large CDs insulates bank lending from changes in deposits, blocking the lending channel. It would be wrong to conclude, however, that monetary policy is less effective. Monetary policy not only affects bank lending directly, by changing deposits, but also indirectly, by changing the return on securities and the cost of CDs. Although the increased availability of nondeposit sources of funds diminishes the direct effect, it magnifies the indirect effect. If deposit demand is relatively interest-insensitive or loan demand is relatively interest-sensitive, the increase in the indirect effect may outweigh the decrease in the direct effect, rendering monetary policy more effective.

While nondeposit sources of funds can strengthen monetary policy in principle, this article has not proved that monetary policy has been strengthened in practice. In favor of the view that monetary policy has been strengthened, it could be argued that deposit rate deregulation has made deposit rates more flexible, reducing the interest sensitivity of demand for deposits. Based on theory alone, however, it is impossible to say whether deposit demand is now sufficiently interest-insensitive or loan demand sufficiently interest-sensitive for nondeposit sources of funds to strengthen monetary policy. Only direct empirical evidence on the slopes of the two demand curves can resolve the issue.

ENDNOTES

¹ A formal model of the liquidity motive for holding securities can be found in Tobin. King finds modest empirical evidence for the liquidity motive, but his study ends in 1979.

² Strictly speaking, what the vertical axis measures is not the loan rate but the expected rate of return on bank loans—the weighted sum of all possible rates of return to the bank, with each possible return weighted by its probability of occurrence. The expected rate of return on bank loans can

increase not only through higher loan rates but through stricter nonprice terms that reduce the risk of default. Whenever the term “loan rate” is used below, the reader should understand this to be shorthand for the expected rate of return on bank loans.

³ Suppose, for example, that a bank's funds consist entirely of transactions deposits and that the reserve requirement on transactions deposits is 10 percent. Suppose also that

the bank has some chance of losing half its deposits but no chance of losing more than that. Then the bank can keep its risk of illiquidity equal to zero by holding 10 percent of its deposits in the form of required reserves, 45 percent in the form of liquid securities, and 45 percent in the form of illiquid loans.

⁴ Note also that if the source of nondeposit funds is large CDs, a perfectly elastic supply curve requires that the expected rate of return demanded by investors on a bank's CDs not go up as the bank increases its lending.

⁵ As discussed at length below, changes in the supply of reserves generally lead to changes in open-market rates as well as changes in deposits, unless the public's demand for deposits is perfectly interest-elastic. The correct way to interpret Figure 2 is as a "thought experiment" to isolate the effect of changes in deposits from the effect of changes in open-market rates.

⁶ The most widely cited criticism along these lines is Romer and Romer. While disputing that the loan supply curve has become highly elastic, many proponents of the lending view appear to agree that this change would diminish the lending channel (Bernanke; Bernanke and Blinder). For further discussion of the controversy, see the surveys by Gertler and Gilchrist and by Morgan.

⁷ The only purpose of this assumption is to simplify the diagram. As shown in Keeton, the basic results require only that an equal increase in the loan rate and open-market rate reduce loan demand by decreasing borrowers' desired spending.

⁸ Figure 4 assumes for convenience that banks hold no excess reserves. In this case, the supply of transactions deposits equals the supply of reserves divided by the required reserve ratio.

⁹ Suppose, for example, that banks require a fixed spread between the loan rate and the open-market rate to cover the costs of making loans; that the cost of servicing each dollar of transactions deposits is c ; and that the required reserve ratio is k . Then, with perfect competition in the deposit market, the deposit rate will equal $(1-k)r - c$, where r is the open-market rate. Of course, market imperfections or deposit rate ceilings could prevent the deposit rate from adjusting to the perfectly competitive level.

¹⁰ As in Figure 3, bank borrowers are assumed to have no access to the open market, so that the demand curve is independent of the open-market rate. See footnote 7.

¹¹ Suppose, for example, that banks require a fixed spread between the loan rate and the open-market rate to be willing to lend. Then the curve S^e will shift down by the same amount that the open-market rate falls in Figure 4, $r_1 - r_2$.

¹² For example, if banks require a fixed spread between the loan rate and the open-market rate, the curve will shift down by the amount $r_1 - r_2$ shown in Figure 4.

¹³ The discussion has ignored two complications. The first is that the impact of an increase in reserves on economic activity depends not only on the change in bank lending but also on the change in open-market rates, since the latter influence spending by open-market borrowers. Taking this factor into account does not change the conclusions, however. The more the loan rate falls when policy is eased, the more the deposit rate will tend to fall and thus the more the open-market rate must fall for the public to hold the higher volume of transactions deposits. Thus, if the easier policy causes a bigger increase in lending and decrease in the loan rate in the perfectly elastic case than the perfectly inelastic case, it must also cause a bigger decrease in the open-market rate in the perfectly elastic case.

The second complication is that Figure 5 shows the effect of easier policy on bank lending at the initial level of GDP. If deposit demand rises significantly more than loan demand as GDP rises, the possibility cannot be ruled out that lending will end up increasing less in the perfectly elastic case than the perfectly inelastic case, even if lending initially increases more in the perfectly elastic case. However, the point remains that a perfectly elastic loan supply can strengthen monetary policy if deposit demand is sufficiently interest-insensitive. See Keeton for further details.

¹⁴ Recall that Figure 5 assumes bank borrowers have no access to the open market, so that loan demand is independent of the open-market rate. Under the more realistic assumption that loan demand depends on both the loan rate and the open-market rate, the condition for monetary policy to be more effective is that loan demand declines a large amount when the loan rate and open-market rate go up by equal amounts.

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