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There Is No Bank Lending Channel!

By Luka Bajec and Johann Graf Lambsdorff[1]

Abstract

The bank lending channel (BLC) has found entrance into standard economic textbooks. But the approach, as presented by Bernanke and Blinder [1988] operates with lopsided loan demand, money demand and money supply functions. This invalidates the idea that potential changes in the supply of loans may impact on aggregate demand for goods and services. Above, a reduction of loans may restrict an individual investors, but the macroeconomic logic of the IS curve suggests that such a constraint is not binding.

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I. Introduction

How monetary policy impacts on real aggregates is still a hotly debated issue. Economists have identified several channels of monetary transmission. The bank lending channel (BLC) has found its place in standard economic textbooks – but it does not exist.

In the credit view two channels are central. Here, we neglect the balance sheet channel, which we consider to be plausible and well accepted in the literature, and focus our analysis on the BLC, which was developed by Bernanke and Blinder in 1988. The BLC, as discussed in the literature, stresses the importance of potential changes in the supply of loans as a result of monetary policy and a subsequent impact on aggregate demand for goods and services, in particular business and residential investments as well as consumer durables, [Mishkin 2006: 621]. That is, a tightening monetary policy such as an open market sale reduces nonbanks' deposits at depository institutions ("banks") and banks' reserves at the central bank. Therefore, banks have fewer funds available to supply loans and cut back lending. With borrowers depending on bank loans, investment spending is reduced.

In this paper we aim at highlighting seven theoretical facets concerning the BLC that we find implausible. In section II we start by setting the theoretical framework of the BLC – mainly according to Bernanke and Blinder. In section III we formulate the critique of the BLC. Section IV concludes.

II. Bernanke and Blinder's Bank Lending Channel

Bernanke and Blinder [1988] suggest a simple formal model for illustrating the BLC. The private sector allocates its wealth between money and (publicly issued as well as corporate) bonds as assets. The private sector's liabilities consist of bank loans. Due to this, banks contribute to the creation of money by issuing deposits and by buying bonds from the private sector or issuing loans.

The loan demand is $L^d \equiv L(\rho, i, y)$, where ρ is the interest rate on loans, i is the interest
$\;{}_{-\;\;+\;\;+}$

rate on bonds and y denotes GDP. Ignoring net worth, commercial banks' balance sheet
is $R + B^b + L^s = D$. Thereby, R consists of banks' reserve requirements, τD, and E, the
excess reserves at the central bank. B^b stands for the bank's holding of bonds and L^s for
loans. On the liabilities side of the balance sheet D denotes deposits. Bernanke and
Blinder disregard currency and central bank loans to commercial banks. Banks' adding
up constraint can be rewritten as: $B^b + L^s + E = D(1-\tau)$. The loan supply is
$L^s = \lambda(\rho, i)D(1-\tau)$, assuming that structural changes of the portfolio are driven by
$\;\;\;\;\;\;\;{}_{+\;\;-}$

variations in interest rates of assets. The equilibrium on the loan market is

(1) $L^d = L(\rho, i, y) = L^s = \lambda(\rho, i)D(1-\tau)$.
$\;\;\;\;\;\;\;\;\;\;\;\;\;\;{}_{-\;\;+\;\;+}\;\;\;\;\;\;\;\;\;\;{}_{+\;\;-}$

Bernanke and Blinder implicitly assume that banks hold excess reserves equal to
$E = \varepsilon(\rho, i)D(1-\tau)$, and bonds according to $B^b = b(\rho, i)D(1-\tau)$. Assuming that the
$\;{}_{-\;\;+}$

positive impact of ρ on L^s is as large as its negative impact on B^b, the adding up
constraint suggests that the loan rate has no influence on excess reserves:
$E = \varepsilon(i)D(1-\tau)$.
$\;\;\;\;{}_{-}$

As can be easily derived, the supply of deposits (money) is equal to bank reserves times
the money multiplier: $D^s = m(i)R$.[2] The demand for deposits is equal to the demand for
$\;{}_{+}$

money in a cashless economy. It is defined as $D^d \equiv D(i, y)$. Equating the demand for
$\;{}_{-\;\;+}$

money and the money supply gives

(2) $D(i, y) = m(i)R$.
$\;\;\;\;\;\;\;{}_{-\;\;+}\;\;\;\;\;\;{}_{+}$

The equilibrium on the money market in equation (2) is graphically represented by the
conventional LM curve. Bernanke and Blinder insert (2) into (1) to obtain an equation for
the loan market equilibrium

(3) $L^d = L(\rho, i, y) = L^s = \lambda(\rho, i)m(i)R(1-\tau)$.
$\;\;\;\;\;\;\;\;\;\;\;\;\;\;{}_{-\;\;+\;\;+}\;\;\;\;\;\;\;\;\;\;{}_{+\;\;-\;\;+}$

In words, the equilibrium on the money market in (2) is used to rewrite the loan supply L^s
and, hence, the equilibrium on the loan market in (3). Bernanke and Blinder make use of

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[2] From $R = \tau D + \varepsilon D$ we obtain $D = R/(\varepsilon + \tau)$. However, Bernanke and Blinder claim the money supplier to be $[\varepsilon(1-\tau)+\tau]^{-1}$. We assume Bernanke and Blinder made a simple error that is immaterial to the core hypothesis of the paper.

(3) to construct a substitute for the conventional IS curve that includes the loan market equilibrium. On the market for goods, the IS curve is rewritten as

(4) $\quad y = Y(\underset{-}{i}, \underset{-}{\rho})^{3}$.

Assuming that dm/di is not too large, (3) can be solved for ρ as an implicit function of i, y, and R

(5) $\quad \rho = \phi(\underset{+}{i}, \underset{+}{y}, \underset{-}{R})$.

Substituting (5) into (4), we obtain

(6) $\quad y = Y(i, \phi(i, y, R))$,

which Bernanke and Blinder label the CC (commodities and credit) curve. Apparently, the CC curve is negatively sloped such as the IS curve (see Figure 1).
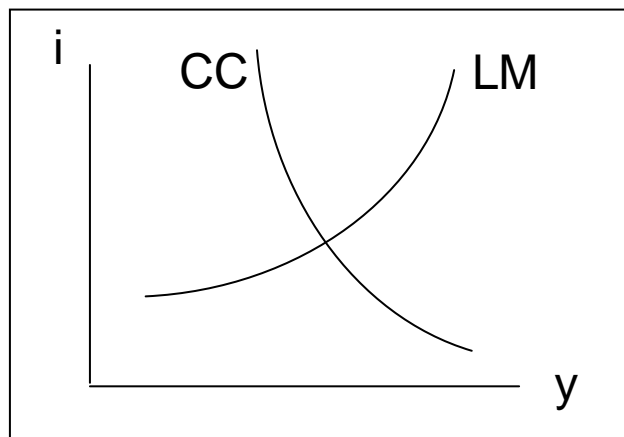
Figure 1: The BLC

The important point is that monetary policy shifts R in (2) and, hence, not only the LM curve but also the CC curve represented in (6). We disagree with the latter statement, but we will present our critique in the next section. As a consequence of the policy induced shift of the CC curve, expansionary monetary policy affects y twice because the curves shift in the same direction, i.e. outward. The effect on the interest rate is not easy to depict. Hence, Bernanke and Blinder [1988: 437] state *"[…] that the existence of the credit channel makes monetary policy more expansionary than in IS/LM […]"*. Consequently, contractionary monetary policy impacts on the LM and CC curve, pushing the curves inward and, thus, reducing y more than in IS/LM. Figure 2 illustrates this aspect. A tight monetary policy operation shifts the CC_0 curve to CC_1 and the LM_0 curve to LM_1. The resulting equilibrium brings about y_{CC}. In the textbook IS/LM model,

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[3] In (3) Bernanke and Blinder refer to real interest rates but assume expected inflation to be zero.

contractionary monetary policy shifts only the LM curve inward and the IS curve remains unchanged. We may assume that CC_0 is shaped similarly to the IS curve. Thus, in comparison to IS/LM, y_{CC} is more reduced than y_{IS}.
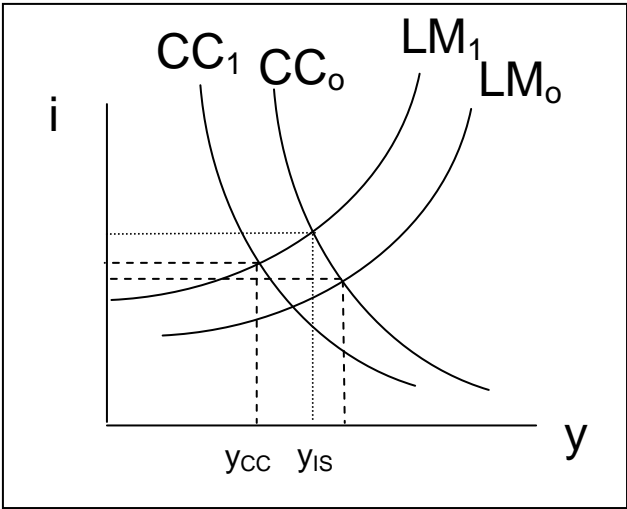

Figure 2: Contractionary Monetary Policy

In a less formal approach proponents of the BLC seek to establish a direct link between investment and consumption and the availability of bank loans, [Hubbard 1995: 65]. Overly high fixed costs to direct financial market participation (as an alternative source of funds) are an argument for the existence of bank-dependent borrowers. Thus, small and mid-sized enterprises (SMEs) have difficulties in issuing securities directly to the financial market. In line with Diamond [1984: 393], intermediaries of the financial system such as banks are capable of reducing the fixed costs of monitoring and therefore provide external financial means particularly to SMEs. Hence, any change in banks' willingness to lend will influence debtors directly. The bigger the pool of bank-dependent borrowers the more severe is the reduction of spending, e.g. investment spending, and income.[4]

The proponents of the BLC also describe circumstances where the suggested transmission mechanism is less on work. If a central bank conducts an open market sale, banks are

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[4] Bernanke and Blinder claim that the BLC becomes particularly visible in a liquidity trap, where the interest rate channel is inactive and the LM curve horizontal. We agree with their argument that monetary policy remains effective if the interest rate on loans, ρ, is responding to open market operations. But the crucial reason for this monetary effectiveness relates to changing relative prices and is difficult to formally relate to changes in the loan supply, as often urged by representatives of the BLC.

affected because they are financed with demand deposits as a reservable form of finance. Freixas and Rochet [1997: 165] argue that other intermediaries financed by non-reservable forms, e.g. certificates of deposits, commercial papers and long-term debt, cannot be affected by the central banks' operation although they provide comparable services. Therefore, Kashyap and Stein [1993: 14] argue that the BLC is significantly weakened if the share of loans provided by banks is small relative to the portion of credit supplied by nonbank intermediaries. These could act as "margin lenders", i.e. provide credit when central banks restrict liquidity. This would undermine the central assumption of the BLC that central banks have an impact on credit volumes by changing banking reserves. We disagree with this argument, but we shall formulate the critique below.

In a nutshell, Mishkin [2006: 621] sums up the BLC:

"Expansionary monetary policy, which increases bank reserves and bank deposits, increases the quantity of bank loans available. Because many borrowers are dependent on bank loans to finance their activities, this increase in loans will cause investment (and possibly consumer) spending to rise."

III. Critique of the Bank Lending Channel

The following hypotheses are part of the BLC:

1. Bernanke and Blinder formulate a model that derives from the IS/LM. It includes the bank loan market. Bernanke and Blinder [1988: 437] state that *"[…] the credit channel makes monetary policy more expansionary than in IS/LM […]"*. This conclusion is essentially based on the constructed substitute for the IS curve, the CC curve. We posit that the tricky construction of this curve obfuscates more than it reveals.

2. The BLC as presented by Bernanke and Blinder [1988] is based on a special form of the loan demand function. Once employing an alternative version, the development of loans is ambiguous, in line with the work of Brunner and Meltzer in the late sixties.

3. Bernanke and Blinder suggest functions of money demand and money supply which are lopsided. We show that a plausible inclusion of the loan rate in the functions brings about the textbook IS/LM results. This conclusion is based on the condition that $((i + \rho)/2)$ is on the ordinate.

4. The BLC dismisses the logic of the IS curve by claiming that loans constrain investments. While this argument appears convincing for an individual investor, the macroeconomic logic of the IS curve suggests that such a constraint is not binding.

5. We see some stock-flow problems with deposits, loans and investment Bernanke and Blinder use in their explanation of the BLC. Bernanke and Gertler [1995: 40] give following explanation: *"Bernanke and Blinder's (1988) model of the bank lending channel suggested that open market sales by the Fed, which drain reserves and hence deposits from the banking system, would limit the supply of bank loans by reducing banks' access to loanable funds. [...] [A] reduction in the supply of bank credit [...] is likely [...] to reduce real activity. "*
   While we admit that the stocks of loanable funds deteriorate this cannot be easily linked to the flow of annual investments. Particularly in a liquidity trap, the proponents of the BLC accentuate the impact on the real economy only by taking stock adjustments into consideration.
   Additionally, even in the liquidity trap, spending is not affected. Once the real economy is stuck in a liquidity trap, our next critique implies that even in case of an active BLC, which would enable central banks to influence banks' loan supply, monetary policy is impotent in affecting the investment demand. Only if one takes relative prices into consideration, investment spending decreases with respect to the lifted interest rate.

6. If a central bank conducts an open market sale, banks are affected because they are financed with demand deposits. Kashyap and Stein [1993: 14] argue that the BLC might be significantly weakened because nonbank intermediaries, who are financed by non-reservable forms such as certificates of deposits or commercial papers, could act as "margin lenders". We deviate from this view because nonbanks intermediaries cannot act as "margin lenders" due to the fact that they are also affected by an open market sale, perhaps even more than banks.

7. Bernanke and Gertler [1995: 41] explain that the BLC is weaker if banks find alternative sources for funding and this is the reason for the recent weakening of the BLC. From the macroeconomic point of view, we find this argument implausible.

Subsequent to the presented hypotheses, we formulate our critique on the model.

1. The CC Curve is Not an Adequate Representation of the IS Curve

In the presented model of Bernanke and Blinder, equation (3) is the starting point of our critique. When Bernanke and Blinder replace D for $m(i)R$, they insert elements from the money market equilibrium into the loan market equilibrium. The CC curve thus does not solely refer to the loan market. A simpler version for constructing the CC curve would arise by inserting money demand into equation (1):

(1') $L^d = L(\rho, i, y) = L^s = \lambda(\rho, i) D(i, y)(1-\tau)$.

Equation (1') represents the equilibrium on the loan market, including the condition that banks can only supply loans proportional to the deposits that are demanded by the private sector. Given that the interest rate negatively impacts on D (instead of a positive impact on $m(i)R$) the implicit impact of i on ρ is larger than that in equation (5). We obtain instead:

(5') $\rho = \phi'(i, y)$, with $\dfrac{d\phi'}{di} > \dfrac{d\phi}{di}$.

Inserting (5') into (4) we obtain

(6') $y = Y(i, \phi'(i, y))$.

This IS-type of curve is flatter than the CC-curve. In Figure 4 this curve is shown. Since it is closer to the original IS-curve, we keep this notation here. Evidently, central bank policy has no direct impact on this curve.
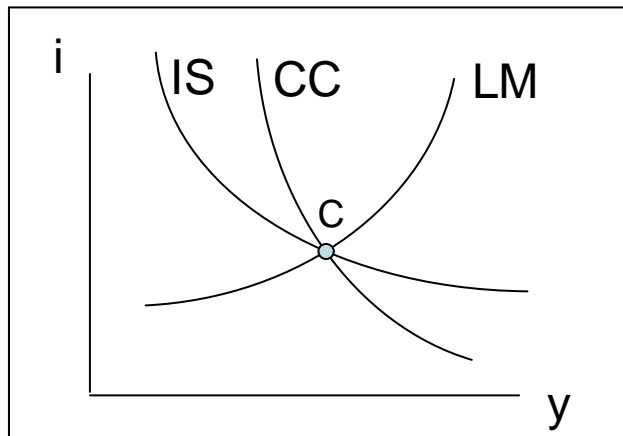
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Figure 4: Avoiding the Tricky CC Curve

Therefore, contractionary monetary policy changes R and shifts only the LM curve inwards as depicted by equation (2). The outcome is the well-known result. There is no additional shift of the IS curve; monetary policy is not more contractionary than in IS/LM.

2. Testing an Alternative Form of the Loan Demand Function

Bernanke and Blinder [1988] operate with the bank loan demand function $L^d \equiv L(\underset{-}{\rho}, \underset{+}{i}, \underset{+}{y})$. What is problematic about this specification? Due to the nonbanks budget constraint, money demand and loan demand implicitly determine the bond demand, B^p: The demand function for bonds plus that for money minus loan demand must equal total financial wealth, [Bernanke and Blinder 1988: 436]. But open market sales by the central bank are missing in this constraint. The central bank is not assumed to provide lending facilities to banks (note that such a position is missing in the bank's adding up constraint). The only possibility to carry out central bank policy is by selling and buying bonds from nonbanks, [Abel and Bernanke 2004: 544]. An open market purchase is similar to a loan by the central bank to nonbanks. The private sector therefore regards such a purchase as a substitute to bank's loans. Likewise, an open market sale is similar to a reduction of central bank loans to the private sector. Nonbanks may substitute this by increasing loans demanded from banks.

If we add up the constraints of the central bank ($R = \tau D + \varepsilon D$) and private banks ($B^b + L^s + E = D(1-\tau)$), we obtain: $B^b + L^s + R = D$. Assuming that the amount of

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bonds is given by the treasury, $\bar{B} = B^b + B^p$, and accepting that all sector's constraints must add up to zero, we observe that the nonbanks adding up constraint must be: $\bar{B} + L^d = D - R + B^p$. Thus, implicitly Bernanke and Blinder must assume that the nonbank's bond demand is:

(7) $\qquad B^p = \bar{B} - D(\underset{-\ +}{i, y}) + L(\underset{-\ +\ +}{\rho, i, y}) + R$.

Such a demand function is unusual. It requires that the private sector absorbs any open market operations by simply adding financial resources offered by the central bank, R, to its desired holdings of bonds. But financial resources provided by the central bank may rather be regarded as a substitute to loans. This may be particular convincing if central bank operations include repurchase agreements. In this case, bond demand should be taken as the starting point for modeling the demand side. We may defined bond demand as

(8) $\qquad B^p \equiv B(\underset{-\ +\ +}{\rho, i, y})$ and determine loan demand from the adding-up constraint:

(9) $\qquad L^d \equiv D(\underset{-\ +}{i, y}) + B(\underset{-\ +\ +}{\rho, i, y}) - R - \bar{B}$; with $\dfrac{dD}{di} + \dfrac{dB}{di} > 0$ [5].

A reduction of reserves R then raises the loan demand L^d. Indeed, this is the version of a loan demand function portrayed in Jarchow [2003: 133] instead of $L^d \equiv L(\underset{-\ +\ +}{\rho, i, y})$ in equation (1).[6]

An open market sale (*R* decreases) leads to an increase in loan demand. At the same time, loan supply decreases due to an upward shift of *i*. The reaction of loans to a reduction of *R* would thus be ambiguous. Interestingly, Brunner and Meltzer came to the same conclusion, [Brunner and Meltzer 1966: 163; Brunner 1974 and Brunner and Meltzer 1968]. The equilibrium level of loans increases only if money demand reacts sufficiently strong to the increasing interest rate.

The impact of *R* on ρ in equation (5') becomes even stronger now. In reaction to a decreasing *R* the downward drop of the IS curve in an *(i/Y)*-diagram is therefore more

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[5] We assume $\dfrac{dD}{di} + \dfrac{dB}{di} > 0$ to preserve the original logic of $\dfrac{dL^d}{di} > 0$ by Bernanke and Blinder.

[6] As argued, this loan demand function assumes that loans and central bank open market purchases are perfect substitutes. If we assume that the resources provided by the central bank imperfectly substitute bonds and loans, the resulting loan demand function will be some mixture of equation (9) and the loan demand in equation (1).

pronounced. An increase in ρ results due to an increased loan demand. This argument seems to strengthen the point by Bernanke and Blinder, but it is in contrast to the description of the BLC. Bernanke and Blinder [1988: 437] state, in contrast to Brunner and Meltzer, that the inclusion of the credit market makes monetary policy more powerful because a central bank affects the real economy by changing the interest rate *and* the loan volume. The second line of argument, however, is now no longer warranted. Thus, Bernanke and Blinder's shift of the IS curve is not well related to their argument of changes in *R*.

3. Money Demand and Money Supply are Lopsided

Having observed that ρ increases in response to an open market sale, we must now address the particular form of the money demand function employed, $D^d \equiv D(\underset{-}{i}, \underset{+}{y})$. The standard argument for an influence of the interest rate relates to the opportunity costs of holding money and to portfolio considerations. But these arguments would relate not only to the interest rate on bonds, *i*, but equally to the interest rate on loans, ρ. Nonbanks' costs of holding money increase with dearer bank loan. Thus, ρ reduces money demand financed by credit. Put differently, an increase in ρ enhances net credit $(B^p - L^d)$ provided by nonbanks and reduces money demand. An adequate modification would thus include the influence of ρ: $D^d \equiv D(\underset{-}{i}, \underset{-}{\rho}, \underset{+}{y})$. The same argument relates to the money multiplier. Banks have reason to reduce their reserves when loans are profitable. Thus, money supply is positively related to the interest rate on loans, ρ: $D^s = m(\underset{+}{i}, \underset{+}{\rho})R$.

The money market equilibrium is represented by:

(2') $D(\underset{-}{i}, \underset{-}{\rho}, \underset{+}{y}) = m(\underset{+}{i}, \underset{+}{\rho})R$.

Apparently, a reduction of *R* may not only be balanced by an increase in *i* but also by a higher ρ. In an (*i/Y*)-diagram a higher ρ would shift the *LM* curve downward.

With the many additional shifts of curves as a result of the modifications it becomes arduous to draw straightforward conclusions from the model. A core reason is the choice of the graphical presentation with the interest rate on bonds, *i*, on the ordinate. The IS

curve in its conventional logic represents the goods market's reaction to overall finance conditions as determined by the money market. These conditions embrace both interest rates, i and ρ. Assuming for simplicity that loans and bonds are equally important for the goods market, equation (4) could be written as $y = Y\big((i+\rho)/2\big)$. This would allow to portray the model in a $(i+\rho)/Y$-diagram. Assuming also that interest rates for loans and bonds are equally important for the money market, we can simplify the money market equilibrium:

$$(2'') \quad D\big((i+\rho)/2, y\big) = m\big((i+\rho)/2\big)R.$$

The LM curve obtains the standard positive slope with only R having an impact on its position. In essence, we end up with a simple IS/LM-model in a $(i+\rho)/Y$-diagram. Equilibrium on the loan and bond market are automatically obtained once IS and LM intersect. To see this, it suffices to insert the bond demand (8) and the loan demand function (9), corrected for $D = D\big((i+\rho)/2, y\big)$, into the nonbank's adding up constraint:

$$\bar{B} + L^d - B^p + R = D = m(i, \rho)R \quad \text{to see that this results in the money market equilibrium.}$$

Therefore, once the IS/LM-equilibirium has been achieved with an equilibrium value for $(i+\rho)/2$, the individual values for i and ρ are determined so as to balance the loan and the bond market.

4. The Logic of the IS Curve has been Missed

Any investment automatically creates the savings that are necessary for its execution. This is the macroeconomic logic of the IS curve. Any additional investment leads to increased private income. This might be saved. If it is consumed, a multiplier effect leads to increased income elsewhere until all of the initial impact is saved. This logic remains intact if part of the incomes leads to increased taxation, because in this case public savings increase. Even in open economy the logic of the IS curve remains intact. Increased income may raise imports; these in turn increase capital imports, which are foreign savings.

The BLC dismisses this logic by claiming that loans constrain investments. While this argument appears convincing for an individual investor, the macroeconomic logic of the

IS curve suggests that such a constraint is not binding. Macroeconomically, a reduced bank loan supply is not a precondition for a reduction of investment. A firm might find itself restricted from bank credit and therefore not able to realize investment projects. On an aggregated level, investment might be affected only on condition that savings decrease. But even this sequence is not in line with the aforementioned logic of the IS curve, which explains how investment generates savings necessary for its realization.

5. Stock-Flow-Problems

Bernanke and Gertler [1995: 40] explain:

"Bernanke and Blinder's (1988) model of the bank lending channel suggested that open market sales by the Fed, which drain reserves and hence deposits from the banking system, would limit the supply of bank loans by reducing banks' access to loanable funds. […] [A] reduction in the supply of bank credit […] is likely […] to reduce real activity. "

Deposits are a stock variable: Reducing deposits by conducting tight monetary policy means reducing a stock, a variable expressed at a certain moment in time. In contrast, a flow variable is defined in units of time. Investment, savings and loanable funds are flow variables, but deposits and loans are stocks.

By analyzing balance sheet adjustments to an open market sale, stocks such as deposits or supply of loans reduce and complete the balance sheet adjustments. That is, an open market sale reduces nonbanks' deposits and bonds on the asset side. With deposits, banks' liabilities shrink. Then, banks reduce the supply of loans, which is also documented on the nonbanks' liabilities side. With less provided loans, nonbanks' deposits are diminished.[7] This is how the balance sheet adjusts to an open market sale. But, there is no necessity that investment as a flow variable shrinks in response to decreased loans.

If money holding is attractive in comparison with investments in other assets due to a low interest rate level, nonbanks demand loans to hold deposits and not to bind borrowed money in investment projects. Likewise, an open market sale conducted by a central bank reduces deposits and hence loans to nonbanks. Nonbanks may adjust their investments in

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[7] Here, we ignore that it remains blur how loans develop, as criticized in section III.2.

reaction to changing interest rates. But the joint reaction of reduced loans and lowered deposits has no straightforward impact on investments.

6. Open Market Sale Also Affects Nonbank Intermediaries

In less formal approaches advocates of the BLC exclude, e.g., certificates of deposits and other funding possibilities on the bank's liabilities side from the theory by assumption, [Bernanke and Gertler 1995: 41].[8] If a central bank conducts an open market sale, banks are affected because they are financed with the deteriorating demand deposits. Kashyap and Stein [1993: 14] argue that the BLC is significantly weakened if nonbank intermediaries come into play. These are not financed by demand deposits and may counteract the diminishing loans supplied by banks. Instead of deposits they are financed by non-reservable forms such as certificates of deposits or commercial papers.

We disagree with this argument. BLC proponents disregard that nonbanks' asset side of the balance sheet contains not only deposits but also, e.g., certificates of deposits or commercial papers. Crucial is that all these assets can be brought into play to reimburse the central bank once conducting an open market sale. That is, nonbanks are able to sell not only demand deposits but also certificates of deposits or commercial papers to pay the bonds from the open market sale. Therefore, nonbank intermediaries financed by commercial papers or certificates of deposits can also be affected by a tight monetary policy operation. The central bank influences all intermediaries. The potency of central bank's influence depends on how much each intermediary financed is by the financial means which nonbanks primarily sell.

7. Banks' Alternative Funding

Bernanke and Gertler [1995: 41] explain that the BLC is weaker if banks find alternative sources for funding and this is seen to explain the alleged recent weakening of the BLC.

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[8] The Modigliani-Miller theorem, which describes the irrelevance of how firms and banks finance themselves, is not valid any more, if we follow this assumption: Since markets for certificates of deposit are not as completely shielded by deposit insurance - thereby increasing monitoring costs - and not as liquid as other public markets, Bernanke and Gertler [1995: 41] assume that banks cannot replace lost deposits at no cost. That is, Bernanke and Gertler assume that banks can compensate lost deposits with other sources of funds. Yet, the replacement of demand deposits with certificates of deposits or with issuing equities, as Greenwald and Stiglitz [2003: 33-34] argue, is associated with higher costs.

The possibility for banks to issue certificates of deposits is a prominent example. Subsequent to an open market sale, nonbanks could purchase certificates of deposits only in exchange for reducing other assets, e.g. deposits. Thus, macroeconomically there are no further sources available to banks who seek funding. Hence, all commercial banks in sum still face the same, unsolved problem. No net funding-effect results from issuing certificates of deposits.[9]

IV. Conclusion

The discussion about how central banks transmit monetary impulses to the real economy has not come to an end. This paper contributes to the ongoing debate by questioning the existence of one of the monetary transmission mechanisms, i.e. the bank lending channel, and by formulating a critique highlighting seven aspects.

First, Bernanke and Blinder [1988: 437] state that *"[…] the credit channel makes monetary policy more expansionary than in IS/LM […]"*. This conclusion is essentially based on the constructed substitute for the IS curve, the CC curve. We posit that the tricky construction of the CC curve obfuscates more than it reveals. Second, the BLC as presented by Bernanke and Blinder [1988] is based on a special form of the loan demand function. Once employing an alternative version, the impact of an open market sale on loans is ambiguous, in line with the work of Brunner and Meltzer in the late sixties. Third, we show that a plausible inclusion of the loan rate in the functions of money demand and supply brings about the textbook IS/LM results. This conclusion is based on the condition that an average of the interest rates on loans and bonds is on the ordinate. Fourth, the BLC dismisses the logic of the IS curve by claiming that loans constrain investments. While this argument appears convincing for an individual investor, the macroeconomic logic of the IS curve suggests that such a constraint is not binding. Fifth, we see some stock-flow problems with deposits, loans and investment Bernanke and Blinder use in their explanation of the BLC. While we admit that loans may deteriorate this cannot be easily linked to the flow of annual investments. Sixth, if a central bank

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[9] Certificates of deposits are not subject to the reserve requirement. Puzzling, in a cashless world, as assumed by Bernanke and Blinder [1988: 436], funding without reserve requirements could lead to an unlimited increase of money because the multiplier increases to infinity. Therefore, the central bank loses control of the money stock. But the consequences of such a money supply for the BLC remain unclear.

conducts an open market sale, banks are affected because they are financed with demand deposits. But also nonbank intermediaries are affected by an open market sale. The potency of central bank's influence depends on how much each intermediary financed is by the financial means which nonbanks primarily sell. Seventh, Bernanke and Gertler [1995: 41] explain that the BLC is weaker if banks find alternative sources for funding and this is the reason for the recent weakening of the BLC. From the macroeconomic perspective, we find this argument implausible.

Overall, much of the logic inherent in the BLC resembles that of individual actors, which evaporates once considering macroeconomic repercussions and constraints.

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