企画論文

The Credit View Revisited
— From the Viewpoint of Bank Lending Behavior

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1. Introduction

In recent years, with the rapid development of information economics, corporate finance theory, and financial intermediation theory, the investigation of the impact of financial factors on the macroeconomy has been a thriving research field, and great progress has been achieved. In the growing literature, the credit view, which is based on financial market imperfections and focuses on the role of credit in monetary transmission and economic fluctuations, has won greater appreciation.[1]

The credit view emphasizes the special role of banks and the importance of credit by taking imperfection factors, such as asymmetric information, incomplete contracting and heterogeneity among economic agents into account. According to this view, credit is not as simple as just the supply of funds. Essentially, it is information–intensive, involving information–acquiring activities performed by banks (such as *ex* ante screening and *ex* post monitoring), specialized knowledge (know–how) needed in such information–related activities, the relationship between banks and borrowers, etc. This characteristic of credit ameliorates the problems stemming from information friction and facilitates the flow of funds into macroeconomic activities. In the credit view it is, therefore, argued that credit has an important influence on the macroeconomy. I provide a schematic diagram of the credit view in Figure 1.

In this paper, by reviewing the literature concerning the credit view I illustrate the framework and implications of the credit view and point out some issues under–explored there. I also present a bank behavior model in which information–acquiring costs are incorporated, aiming to build a micro–foundation for the credit view from the viewpoint of bank lending behavior.

The rest of this paper is organized as follows. Section 2 presents a review of the role of credit in the monetary transmission mechanism. Section 3 offers a review of the links between credit and economic fluctuations. Section 4 describes the bank behavior model. Section 5 gives concluding remarks.

2. Credit and the Monetary Transmission Mechanism

In the money view, the conventional view of the monetary transmission mechanism, it has been asserted that monetary policy exerts its influence on real economic activity through changing the money supply and thus

1　In Boivin *et al*. (2011), the credit view is understood as the name of *non–neoclassical transmission mechanisms* involving market imperfections in credit markets.

affecting interest rates. With the complete–market setup, the money view ignores financial intermediation and the information–acquiring activity performed by banks.

By contrast, allowing for market imperfections, the credit view describes a different perspective of monetary transmission — the credit channel hypothesis (see Route 1 in Figure 1). According to this view, monetary shocks cause changes in the net worth of borrowers through a channel called the “balance sheet channel”. For example, borrowers’ interest expenses will increase and asset values will shrink due to an increase in interest rates. Meanwhile, monetary shocks have effects on the lending ability of commercial banks through a channel called the “bank lending channel” as well. For example, due to open market sales or an increase in the required reserve ratio, the loanable funds of banks will be drained[2]. Hence, borrowers’ external financing costs and availability of bank loans will be affected significantly by monetary policy. The credit channel hypothesis in the credit view suggests that, by affecting borrowers’ external financing costs and availability of credit through the balance sheet channel and the lending channel, monetary policy will have a far–reaching impact on aggregate economic variables such as investment, employment, and output[3].

Bernanke and Blinder (1988), one of the pioneering works of the credit channel hypothesis, illustrates theoretically that monetary policy not only affects the short–term interest rate, but also has a direct influence on credit supply, and that the effect of monetary policy including this influence is stronger than that which is implied by the conventional IS–LM model. As for the evidence supporting the credit channel hypothesis, an extensive literature has empirically identified the existence of a credit channel of monetary policy transmission (see, for example, Bernanke and Blinder [1992], Gertler and Gilchrist [1993, 1994], Kashyap *et al*. [1993], Hoshi *et al*. [1993]).

It is interesting to ask here whether the lending behavior of banks would always comply with monetary policy. I believe that this question is important because it relates to the effectiveness of monetary policy: in other words, the possibility of a malfunction of the credit channel (or more specifically, the bank lending channel).

Some studies, such as Stiglitz and Greenwald (1992), and Kashyap and Stein (1994) argue that in times of economic recession or financial uneasiness, since banks are less willing to take risks and try to maintain their financial position to clear the capital requirement, the ability of policy authorities to induce banks to increase credit supply would be very limited. Thus, it would be difficult for the effects of easing monetary policy to penetrate into the whole economy. These studies imply that on one hand, there are also other factors affecting bank lending behavior besides monetary policy, and on the other hand, the rational behavior of commercial banks could hinder the effectiveness of monetary policy.

3. Credit and the Propagation Mechanism of Economic Fluctuations

Placing emphasis on the macroeconomic role of credit, in the general spirit of the credit view, has also been done in order to explore the possible links between credit and economic fluctuations. Two hypotheses, the financial accelerator hypothesis and the capital crunch hypothesis, each of which focuses on the changes in financial

2　Bernanke and Gertler (1995) offer a detailed illustration of the balance sheet channel and the bank lending channel of the credit channel of monetary transmission.

3　It should be noted that the term "net worth" in the credit view, does not refer to the “net worth” item in a balance sheet. Instead, it is a proxy for the financial position or agency costs of a borrower. Therefore, the definition and quantification of it are somehow ambiguous in the literature. For instance, Gertler and Hubbard (1988, p.59) state, “Insiders’ net worth is, of course, unobservable in the data…and use firm cash flow as a proxy.” Bernanke and Gertler (1989, p.28) argue, “‘Borrower net worth’ should be augmented to include not just current endowments, but also the ‘most secure’ portion of expected future profits; thus, agency costs depend not only on current wealth but also on expected future conditions.” Bernanke and Gertler (1995, p.35) define the net worth as the sum of a borrower’s liquid assets and marketable collateral. Bernanke *et al*. (1996, p.2) suggest that a borrower’s net worth is the sum of his internal funds and the collateral value of his illiquid assets. In Bernanke *et al*. (1999, p.1345), the net worth is expressed as a borrower’s liquid assets plus collateral value of illiquid assets less outstanding obligations.

position of borrowers and banks caused by initial economic shocks, have been developed to explain how these changes could amplify and propagate initial small shocks into large business cycles. Both hypotheses name factors other than monetary policy that may explain bank lending behavior.

3.1. The Financial Accelerator Hypothesis

The essence of the financial accelerator hypothesis is that, with credit market imperfection, changes in borrowers' net worth due to initial real shocks will have a profound impact on the whole economy (see Route 2 in Figure 1). On one hand, negative (positive) shocks decrease (increase) borrowers' net worth and thus raise (reduce) borrowers' agency costs of borrowing through the balance sheet channel. On the other hand, negative (positive) macroeconomic shocks depress (stimulate) banks' lending willingness, leading to the "flight to QUALITY" ("flight to QUANTITY") behavior of banks through the bank lending channel. As a result, borrowers' external financing costs rise (decline), borrowing constraints become tight (loose), and thus borrowers' spending and production are reduced (expanded). Through the above financial chain–reaction, the initial small shocks are amplified and propagated to impede (stimulate) the whole economy (see Gertler and Hubbard [1988], Bernanke and Gertler [1989, 1990], Bernanke *et al*. [1996, 1999] for representative works on the financial accelerator hypothesis).

The financial accelerator hypothesis has some important implications. First, economic fluctuations exert different influences on different types of borrowers. Borrowers with weaker financial positions or more severe information asymmetries, such as small or young firms, would be more susceptible to economic fluctuations — especially economic downturns— than their counterparts — large or mature firms. This feature is presented theoretically by Holmstrom and Tirole (1997) and supported by a wide range of empirical work (see, for example, Gertler and Gilchrist [1994], and Kashyap *et al*. [1994]). Second, the financial accelerator effects are asymmetric. This means that the impact of changes in borrowers' net worth on the real economy is more substantial in economic downturns than in economic upturns because, while there is a lower limit of borrowers' external financing costs — zero — no upper limit exists. This feature is not only presented theoretically in, for example, Gertler and Hubbard (1988), and Bernanke and Gertler (1989), but also identified empirically by, for example, Oliner and Rudebusch (1996). Third, considering the importance of SMEs in the whole economy, it is a matter of course that a disproportionate influence of economic fluctuations on them may trigger further economic distress endogenously.

It should be noted that the financial accelerator hypothesis can be related to the credit channel hypothesis of the monetary transmission mechanism. Ashcraft and Campello (2007) conduct an empirical analysis about whether the strength of borrowers' balance sheets influences the response of bank lending to monetary policy. They find that the negative response of bank lending to a monetary contraction is significantly stronger when borrowers' financial soundness becomes lower. Ciccarelli *et al*. (2010) find empirical evidence that the credit channel (changes in the financial positions of both banks and borrowers due to a monetary policy shock) significantly amplifies the effect of monetary policy on GDP growth and inflation.

Up to the present, financial accelerator hypothesis literature has focused mainly on the relationship between borrowers' balance–sheet variables and their investment behavior, taking firms as the object of analysis. However, only little attention has been paid to the aspect of bank lending in the financial accelerator hypothesis from the micro perspective of bank behavior. For example, by matching bank balance–sheet data with firm balance–sheet data, Jiménez *et al*. (2012a) find evidence that the heterogeneity in firm balance–sheet strength determine credit availability in both good and crisis times but effects are even stronger in the latter period. In other words, the answer to the questions of if and how borrowers' financial positions could significantly affect banks' lending behavior are not clear at the microeconomic level. Nevertheless, this issue cannot be ignored when attempting to ascertain the plausibility of the financial accelerator hypothesis.

3.2. The Capital Crunch Hypothesis

While the financial accelerator hypothesis focuses on changes in borrowers' balance sheet condition caused by initial shocks, the main argument of the capital crunch hypothesis is that changes in banks' balance sheet condition will affect their lending behavior (see Route 3 in Figure 1).

The deterioration of a bank's balance sheet — for example the depletion of bank capital resulting from declining asset values or bad loan problems as suggested by Stiglitz and Greenwald (1992) — will lower the bank's capacity and willingness to take risks and consequently reduce its ability and willingness to lend. Moreover, it is presented theoretically by Thakor (1996) that when a bank's level of capital is low, lending will be further diminished by the regulatory requirements of capital adequacy, since the bank has to reduce its high–risk category lending in order to clear the requirements. Therefore, banks' weak financial positions will have a direct negative impact on bank lending. In the previous literature, many studies provide empirical evidence supporting this negative correlation (see, for example, Bernanke and Lown [1991], Peek and Rosengren [1995]).

On the other hand, the weak financial position of banks will also impede their lending ability indirectly by causing a decrease in bank deposits. As suggested by Kashyap and Stein (1995), considering the information asymmetry between a bank and its depositors, the deterioration of the bank's financial position will increase its agency costs and lead to a decrease in deposits (especially when there is a lack of deposit insurance). Since deposits are a bank's principal means of raising funds, it is a matter of course that a decrease in deposits will constrain bank lending.

The credit crunch hypothesis suggests that banks' balance sheet conditions exert significant effects on the real economy. Bernanke and Gertler (1987) present a general equilibrium model showing that the deterioration of banks' financial positions will tighten borrowers' external financing constraints, hinder their spending and thus worsen the situation of the real economy. This theoretical prediction is confirmed by recent empirical studies (see, for example, Gibson [1995], Hancock and Wilcox [1998]).

Several implications can be drawn from the credit crunch hypothesis. First, the hypothesis suggests there is a heterogeneity that cannot be neglected among banks in their lending behavior, since banks are quite different from each other in terms of financial condition, risk capacity and ability to attract deposits. Second, the hypothesis implies that banks will show different patterns of lending behavior during economic booms and economic recessions. This is because banks' financial positions will be affected differently as the economy experiences ups and downs. The third implication is related to the effect of liquidity provisions (such as public funds injection, central banks' direct provision of credit and asset purchases) on banks' lending behavior. If the capital crunch hypothesis is plausible, it is expected that in financial crises, measures of liquidity provisions to banks will relax banks' balance sheet constraints and thereby stimulate their credit extension. The last one is about the necessity of measures introducing a far greater capital cushion into financial institutions and the macroeconomic impact of regulatory policies having to do with banks' balance sheet conditions such as minimum capital requirements. While these measures and regulations do play a positive role in preventing financial uneasiness from occurring and promoting banks' financial health, it cannot be denied that during economic downturns and financial crises, they could aggravate the macroeconomic situation by imposing external constraints on bank lending and thus reinforce the "pro-cyclical" nature of financial intermediation.

It is noteworthy that just like the financial accelerator hypothesis is not isolated in the credit view, the credit crunch hypothesis is relevant to the credit channel hypothesis of the monetary transmission mechanism. Kashyap and Stein (1994) and Thakor (1996) suggest that the capital constraint of banks will impede the effectiveness of the lending channel of monetary easing policy by constraining banks' credit extension. Gambacorta (2005) shows that the impact of monetary tightening on reducing bank lending is weaker for well–capitalized banks.

The credit crunch hypothesis can also be related to the financial accelerator hypothesis. Gertler and Kiyotaki

(2011) develop a DSGE (Dynamic Stochastic General Equilibrium) model which incorporates balance–sheet constraints on financial institutions, suggesting that disruptions in financial intermediation due to weak financial condition of financial institutions will significantly amplify a recession. Ciccarelli *et al*. (2010) find empirical evidence that during a financial crisis, a reduction of credit supply to firms will significantly contribute to the decline in GDP growth, which means that a credit crunch can lead to the further deterioration of the real economy. Jiménez *et al*. (2012a) analyze the impact of bank balance sheet strength on loan granting, and find that weakness in banks' financial condition (such as capital and liquidity) reduces the supply of bank credit in crisis times. After identifying the effects of monetary policy on loan supply and loan demand, Jiménez *et al*. (2012b) present empirical results that both tighter monetary and worse economic conditions substantially reduce loan granting, especially from banks with lower capital or liquidity ratios.

4. A Model: A Theoretical Examination of the Credit View from Bank Behavior

As mentioned in the above sections, it is emphasized in the credit view that the essential difference between banks and other financial institutions is that banks tackle financial market imperfections through their information–acquiring activities. Based on this special activity performed by banks, I examine in this section the hypotheses of the credit view theoretically from the perspective of bank lending behavior, by presenting a bank model in which information–acquiring costs — i.e., the costs stemming from information–related activities — are incorporated.

There are two types of agents in the model, an entrepreneur and a bank. The detailed assumptions for each are stated as follows:

(1) The Entrepreneur

Investment project: The investment project of the entrepreneur is a one–period project. If the entrepreneur makes normal (average–level) efforts, the possibility of success of the project is p^s, while the possibility of failure is p^f ($p^s > p^f$). However, the diligent expense of effort entails disutility in the form of physical and mental pains, loss of leisure time, etc. Therefore, without the monitoring of outsiders, the entrepreneur has an incentive to be negligent in making average–level efforts. Furthermore, the expected returns from the project will be zero if the project ends in failure.

Endowments: At the beginning of the period, the entrepreneur has an endowment of some internal funds (*IF*), and some fixed assets, which are assumed to be lands (*LA*) for the sake of simplicity. Let the subscript "0" designate "the beginning of the period", and the subscript "1" designate "the end of the period". Assuming the land price at the beginning of the period is p_0^L, the total market value (collateral value) of the lands is $p_0^L \cdot LA$ at the beginning of the period, then the entrepreneur's net worth (*NW*) can be expressed as the sum of internal funds and the collateral value of fixed assets:

$$NW = IF + p_0^L \cdot LA \tag{1}$$

Demand for Borrowing: Since the investment capital needed by the investment project is larger than the amount of the entrepreneur's internal funds, it is necessary for the entrepreneur to borrow from a bank to finance the project.

If a bank is willing to lend to the entrepreneur, at the beginning of the period, a debt contract for one period is made between them, and the entrepreneur starts the project with the funds from the bank. At the end of the period, the project is over, and the debt contract is finished.

Limited Liability: The entrepreneur has limited liability: that is to say, the bank has no claim on any asset of the entrepreneur other than the project returns and collateral.

(2) The Bank

The Balance–Sheet Constraint: For simplicity, the bank is assumed to have only two categories of assets: loans and reserves, and one category of liabilities: deposits.

At the beginning of the period, just before the bank lends to the entrepreneur, the bank's balance–sheet constraint is:

$$AS = R_0 = D_0 + C_0 \quad (R_0 > qD_0), \tag{2}$$

where AS is total assets of the bank, R_0 is bank reserves (including extra reserves), D_0 is deposits of the bank, C_0 is bank capital, and q ($0 < q < 1$) is the required reserve ratio.

If the bank lends the amount L to the entrepreneur, then at the end of the period, just before the entrepreneur repays the debt, the bank's balance–sheet constraint is:

$$R_1 + L = D_1 + C_1 \quad (R_1 \geqq qD_1), \tag{3}$$

and

$$D_1 = D_0 + kL, \tag{4}$$

where k ($0 < k < 1$) is assumed to be the remaining deposit ratio.

Equation (4) shows that the deposits at the end of the period are the sum of the deposits at the beginning of the period and the amount of loans flowing into the bank in the form of deposits during the period.

The Problem of Asymmetric Information: Using past experience and expert know–how, the bank can estimate the project's possibilities of success and failure under the average–level efforts. However, the bank doesn't know how much effort that the entrepreneur would indeed make. This is the asymmetric information problem I assume there to be between the entrepreneur and the bank[4].

Collateral Requirement: When lending to the entrepreneur, the bank requires the land possessed by the entrepreneur to be put up as collateral in order to ameliorate the problem of asymmetric information, and to provide protection from the insolvency of the entrepreneur. At the beginning of the period, the bank's expectation about the total market value of the land at the end of the period is $E\,[p_1^L \cdot LA]$.

In the case of limited liability, if the project fails the pledged land will be confiscated by the bank since the project returns are then zero.

Information–Acquiring Activities: Another action taken by the bank to mitigate the information problem is conducting information–acquiring activities concerning the entrepreneur, such as investigating his creditworthiness, evaluating the profitability of the project, monitoring the level of efforts exerted by the entrepreneur, and confirming the development of the project. I assume that with such information–related activities, the entrepreneur would expend at least average–level efforts.

Information–acquiring activities are costly, however, and the costs of such activities — let us call them information–acquiring costs (IC) — are too high to be ignored. IC is assumed to be determined by three variables: the amount of the loan (L), the total assets of the bank at the beginning of the period (AS), and the net worth of the entrepreneur at the beginning of the period (NW).

As L becomes larger, the intensity of the bank's information–acquiring activities will increase and at the same time the bank's incentive to monitor the entrepreneur will be stronger because the bank will suffer a larger loss if the project fails. Both of these will induce more costs (not only the pecuniary costs but also non–pecuniary costs) in connection with the information–acquiring activities. I also assume that as AS becomes larger, IC will decrease due to the economics of scale. As we know, large banks often have extensive branch networks, allowing them get more correct information more easily. Furthermore, as mentioned in Section 3.1., high NW will mitigate information asymmetries between the bank and the entrepreneur, reduce the entrepreneur's agency costs associated with borrowing, and thus lead to a decrease in IC. For these reasons,

4　In the literature, the problem of asymmetric information has been captured from various aspects. For example, in Stiglitz and Weiss (1981), only entrepreneurs know about the riskiness of their projects; in Gertler and Hubbard (1988), entrepreneurs have private information about how investment funds are used; and in Bernanke and Gertler (1989), "costly state verification (CVS)" problem (it is costly for outsiders to observe the realized outcome of entrepreneurs' investment projects) is assumed.

$$IC = f(L, AS, NW)$$
$$(+) \quad (-) \quad (-)$$

where the *IC* function is twice continuously differentiable, and

$$\frac{\partial^2 IC}{\partial^2 L} > 0, \frac{\partial^2 IC}{\partial^2 AS} < 0, \frac{\partial^2 IC}{\partial^2 NW} < 0$$

The specific form of the IC function is assumed as:

$$IC = a_1 L^2 - a_2 AS^2 - a_3 NW^2, \tag{5}$$

where $a_1 > 0$, $a_2 > 0$, $a_3 > 0$, and $a_1 > \frac{a_2 AS^2 + a_3 NW^2}{L^2}$ [5]

The Loan Rate and the Deposit Rate: To keep things as simple as possible, it is assumed that the loan market and deposit market are highly competitive and both the entrepreneur and the bank are price takers. Hence, with the given loan rate (r_L) and deposit rate (r_D), the bank and the entrepreneur make their decisions concerning loan supply and loan demand.

The Interest Rate on Safe Assets: The riskless interest rate (r), a proxy for monetary policy, is given exogenously. As a result, the opportunity costs of the bank's lending to the entrepreneur — in other words, the return from investing the same amount as L in safe assets — is $(1+r)L$.

Based on the above set of assumptions, I describe *the bank's incentive–compatible constraint* as follows:

$$p^s (1 + r_L) L + p^f E [p_1^L \cdot LA] - IC \geqq (1 + r) L \tag{6}$$

The left–hand side of (6) shows the bank's expected return from lending, which is the expected return of the project (the sum of the expected return if the project succeeds and if the project fails) minus the information–acquiring costs. The right–hand side is the opportunity costs that the bank incurs when making loans. This inequality shows that the bank has the incentive to bear information–acquiring costs in order to lend to the entrepreneur only when the expected return from lending is no less than the opportunity costs of lending.

The profit function of the bank can be expressed simply as subtracting the interest costs paid for deposits ($r_D D_1$) and the information–acquiring costs (IC) from the interest income of loans ($r_L L$):

$$\Pi = r_L L - r_D D_1 - IC \tag{7}$$

It is assumed that the bank chooses L to maximize (7) subject to (1), (2), (4), (5) and (6).

The maximization problem can be stated as the following Lagrangian function Φ, with Lagrangian multiplier λ associated with the bank's incentive–compatible constraint.

$$\Phi = r_L L - r_D D_1 - IC + \lambda \{[p^s (1 + r_L) L + p^f E [p_1^L \cdot LA] - IC] - (1 + r) L\} \tag{8}$$

Choosing L to maximize the profit results in the two first–order conditions:

$$\frac{\partial \Phi}{\partial L} = r_L - r_D k - 2a_1 L + \lambda [p^s (1 + r_L) - 2a_1 L - (1 + r)] = 0 \tag{9}$$

$$\frac{\partial \Phi}{\partial L} = \{p^s (1 + r_L) L + p^f E [P_1^L \cdot LA] - IC\} - (1 + r) L \geq 0, \lambda \geq 0 \text{ with complementary slackness} \tag{10}$$

when the bank's incentive–compatible constraint is not binding — i.e. the bank's expected return from lending is always larger than that from investment in riskless assets, λ=0. In this situation, the level of L can be obtained directly from (9). For λ>0, we can solve for L directly from (10).

Solving L is not the main purpose of the model. Instead, the most important results obtained from the model are the following relations, when the bank's lending behavior is constrained by a binding incentive– compatible constraint[6]:

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5 In order to guarantee that IC is larger than zero, it is assumed that $a1 > \frac{a_2 AS^2 + a_3 NW^2}{L^2}$.

6 To see the denominator $(1 + r) - p^s (1 + r_L) + 2a_1 L$ is positive, note that from (3) and (9),

$$L [(1 + r) - p^s (1 + r_L) + 2a_1 L] = p^f E [p_1^L \cdot LA] + a_2 AS^2 + a_3 NW^2 > 0$$

$$\frac{\partial L}{\partial D_0} = \frac{2a_2}{(1+r) - p^s(1+r_L) + 2a_1 L} > 0 \tag{11}$$

$$\frac{\partial L}{\partial C_0} = \frac{2a_2}{(1+r) - p^s(1+r_L) + 2a_1 L} > 0 \tag{12}$$

$$\frac{\partial L}{\partial IF} = \frac{2a_3}{(1+r) - p^s(1+r_L) + 2a_1 L} > 0 \tag{13}$$

$$\frac{\partial L}{\partial P_0^L \cdot LA} = \frac{2a_3}{(1+r) - p^s(1+r_L) + 2a_1 L} > 0 \tag{14}$$

$$\frac{\partial L}{\partial E\,[P_0^L \cdot LA]} = \frac{p^f}{(1+r) - p^s(1+r_L) + 2a_1 L} > 0 \tag{15}$$

$$\frac{\partial L}{\partial r} = \frac{L}{(1+r) - p^s(1+r_L) + 2a_1 L} > 0 \tag{16}$$

To speak specifically, *ceteris paribus*, the above formulas imply the following relations, which support the credit view theoretically from the viewpoint of bank lending behavior:

(i) (11) predicts that an increase in the bank's deposits at the beginning of the period would lead to an increase in the bank's lending to the entrepreneur.

(ii) (12) predicts that an increase in the bank's capital at the beginning of the period would lead to an increase in the bank's lending to the entrepreneur. The result is consistent with the credit crunch hypothesis.

(iii) (13), (14) and (15) predict that an increase in the entrepreneur's internal funds, collateral values and the bank's expectation at the beginning of period of the entrepreneur's end–period collateral values would lead to an increase in the bank's lending to the entrepreneur. Since these 3 variables are determinants of the borrower's net worth and agency costs in this model, this result is consistent with the bank lending channel of the financial accelerator hypothesis.

(iv) (16) predicts that an increase in the riskless interest rate would lead to a decrease in bank lending to the entrepreneur. This result implies that monetary shocks would cause changes in bank lending behavior, which is consistent with the credit channel hypothesis of the monetary transmission mechanism.

5. Conclusions

As noted by Boivin *et al*. (2011), "the role of non–neoclassical channels in our understanding of economic fluctuations and monetary policy" is one of "extremely important outstanding questions for research."

In the first part of the paper, focusing on the credit channel hypothesis, the financial accelerator hypothesis, and the capital crunch hypothesis, I review the literature of the credit view and sketch the general outline and implications of the credit view. I also raise several issues in the credit view calling for clarification from the micro–perspective of bank lending behavior.

Taking these issues into consideration, in the second part of the paper, I develop a bank behavior model using a different strategy from that of previous literature: focusing on bank lending behavior, instead of looking at borrower investment, employment or production behavior.

The special feature of the model is that information–acquiring costs are incorporated. The model predicts that such factors as the balance–sheet condition of the bank (bank deposits and bank capital), balance–sheet condition of the borrower (internal funds and the collateral value of fixed assets), and monetary policy will work together to affect bank lending behavior. The results of the model are consistent with the hypotheses of the credit view, supporting the credit view theoretically from the bank side.

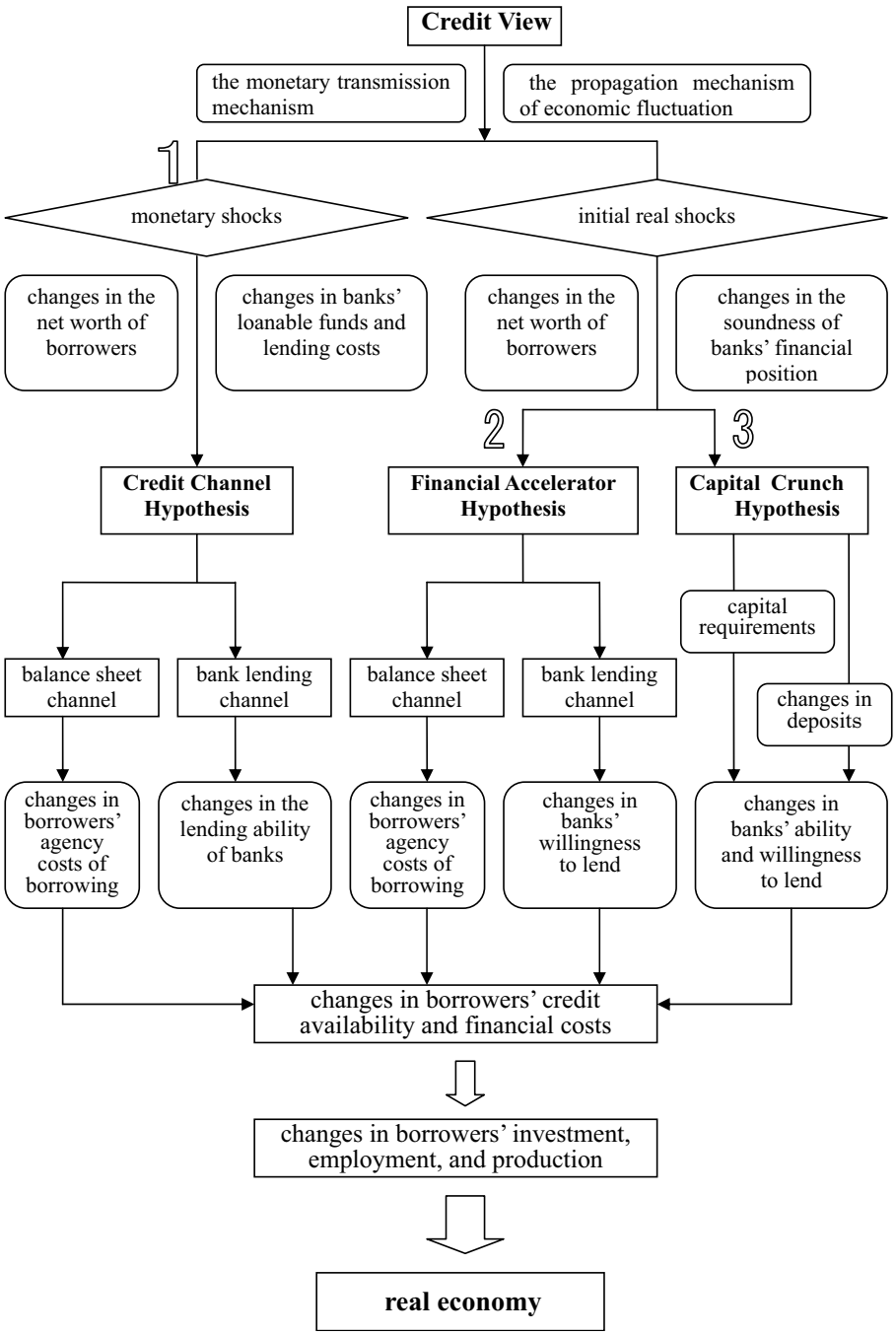

Figure 1 A Schematic Diagram of the Credit View

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