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Editor's Preface

Chiara OLDANI[1]

This issue of Rivista Bankpedia - Bankpedia Review publishes contributions that focus on financial stability; financial stability is a qualitative condition of the economy and a goal of modern monetary policy, it can be negatively influenced by the operators' expectations. The adverse selection of agents, described by A.M. Sorrentino, can modify the impact of the policies and of the structural implementations of the financial system and then should be directly considered in the analysis. Europe addressed the perverse effects of the financial crisis by creating a challenging financial infrastructure that aim at restoring the necessary markets' confidence. The Banking Union, described by G. Aversa, is a very challenging European infrastructure that increases the homogeneity of the banking industry in the monetary union, ameliorates the risks management procedures and decreases the costs of banking crises. Financial stability is a goal of the monetary policy authority and can be negatively influenced by the perverse effects of financial innovation, and C. Oldani focus on options. L. Carbonari describes the theory of the transmission mechanism of monetary policy, and underlines its operative risks.

Since April 2014 Assonebb that sponsors the Bankpedia project and this Review has new Board's members; prof. Paolo Savona, who served as Chairman of the Board of Assonebb for almost ten years, left the office. Assonebb is indebted with him for his precious guide and unique effort provided to our research and publications.

[1] Chiara OLDANI, Director of Research, ASSONEBB

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Bankpedia Review Vol. 4 n.1 2014

ADVERSE SELECTION

Alberto Maria SORRENTINO[1]

Abstract

The adverse selection is the difficulty to select and distinguish healthy companies, those with a high credit rating, from those that are riskier. Adverse selection in the field of banking intermediaries is an issue concerning an ex-ante situation to the provision of funding. This problem surfaces in a context where many companies seek to draw from finance resources at the disposal of a given bank. Screening is a technique useful to solve this problem. Adverse selection arises with asymmetric information and is of particular relevance in the areas of contractual relationships, such as in the definition of optimal contracts between the main player (principal) and the agent (agent).

The role of bank intermediaries is to "intermediate" between players who are in financial deficit and those experiencing a surplus in order to resolve their need to invest available financial resources. People who are in financial deficit seek monetary resources by placing "liabilities" on the market and by offering them to those in surplus. The problem is therefore to reconcile the preferences expressed by buyers as compared with those made by the issuers of liabilities in terms of maturity, yield, value fluctuation, etc...

Subjects in surplus have difficulties in identifying and evaluating the quality of those in deficit, they must take into account the uncertainty associated with future events,

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ISSN 2239-8023
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their degree of risk aversion and the preference of short-term assets. On the other hand, those in deficit prefer to issue long term liabilities, not to disclose their quality of credit and, once the funds are obtained, they prefer to opt for more profitable but risky projects.

As a matter of fact, a direct transfer of resources from subjects in surplus to subjects in deficit is rather rare.

Consequently, the foundations are laid for the presence of a third party who is able to meet the different needs and to interact by transferring and finally reallocating financial resources within the economic system. Ultimately, financial intermediaries realise the channeling of savings into investments.

The existence and role of financial intermediaries is explained by the traditional theory that has developed a number of reasons to justify the development of this phenomenon. Among these, we can find the function of evaluating and selecting business projects within the theoretical paradigm of incomplete markets and imperfect information. This theory puts emphasis on the activities of banks by recognizing their critical role when it comes to the ability of solving the problems of asymmetric information that are relevant to an imperfect market - adverse selection and moral hazard. Thanks to the role played by financial intermediaries, such problems may be partly solved or at least transferred to the same financial intermediaries who have the means to bear any adverse effects, thus avoiding their transfer onto a single or a small number of savers.

In brief, adverse selection concerns the difficulty to select and distinguish healthy companies, those with a high credit rating, from those that are riskier. Adverse selection in the field of banking intermediaries is an issue concerning an *ex-ante* situation to the provision of funding. This problem surfaces in a context where many companies seek to draw from finance resources at the disposal of a given bank. Screening can be regarded as a technique to solve this problem, which the bank can implement through the employment of professionals and the use of skilled and ex-

ISSN 2239-8023
DOI 10.14612/SORRENTINO_1_2014

pensive methods, unlike what a single economic agent can usually do, given the high costs and the limited resources he/she may dispose of.

1) Adverse Selection: the case of insurance intermediaries

In the case of insurance intermediaries *adverse selection and moral hazard* occur in different situations. The first phenomenon is usually experienced prior to the signing of the insurance contract, in case the insurer does not have sufficient information to classify its clients into homogeneous classes of risk, namely in classes that are characterised by the same probability of suffering a damage such to make the insurer establish an equal premium for all those insured against the same risk. In such cases, the premium would result too high for low-risk individuals and too cheap for those expected as the riskiest, thus generating an accumulation of bad risks and the consequent default of the insurance company. The second phenomenon occurs after the signing of the contract and it characterises the actions taken by the insured leading to changes in the likelihood of risk as originally estimated by the insurance company or the amount of the reimbursement – such a case is encountered when, being covered by the insurance contract, the insured reduce the caution they would have applied had they not been insured, thus making the insured event more likely and its reimbursement higher.

In order to counter these problems, the insurance companies may seek to acquire more detailed information on the conduct of the insured agents and to employ measures to discourage and combat these phenomena, by:

a) segmenting customers into homogeneous risk classes,

b) making it compulsory to take out an insurance for all the subjects exposed to certain types of risks,

c) involving insured agents in sharing the risk,

d) tying the premium to the history of the person to be insured,

ISSN 2239-8023
DOI 10.14612/SORRENTINO_1_2014

e) reducing the premium if the insured implements special precautions to reduce the probability of the risk occuring.

The first two types of measures tend to contain the phenomenon of *adverse selection,* the last three types are mostly used to limit *moral hazard* by making virtuous behaviours cost-effective for the insured.

Information is therefore essential and the basis of every decision linked to the activities of financial intermediaries. A proper information system is key to the solution/minimization of problems arising from asymmetric information.

2) Adverse Selection: the Principal-agent case

In addition to the financial intermediaries, asymmetric information problems (adverse selection and moral hazard) are of particular relevance in the areas of contractual relationships, such as in the definition of optimal contracts between the main player (*principal*), identifiable for example with a company shareholders' meeting, and the agent (*agent*) identifiable with the company CEO. The *principal* is the one who offers a contract and who is not familiar with the capabilities of the agent to whom the contract is offered. In the case of *adverse selection,* it is the agent who knows his/her own true professional skills, while the principal can only guess them and learn them over time, but only after having signed the contract. The case of *moral hazard* arises when the agent's actions are not fully verifiable by the principal: this case is justified by the fact that if every action of the agent were to be checked and approved by the principal, then his/her role would be unnecessary and it would represent only an additional cost for the company.

3) Adverse Selection: the case of Akerlof's lemons

When dealing with problems of adverse selection and moral hazard, the most fre-

ISSN 2239-8023
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quently cited and studied example in economics is the one developed by George Akerlof in relation to the used car market, which distinguishes cars classified as good from those defined as “lemons”. In a few words, in this market only sellers know the quality of the car on sale while buyers ignore its characteristics. If buyers were aware of which car is good, they would pay the price they feel reasonable for a good car; but since there are also “lemons”, they will be willing to pay a price that, based on the probability that the car on sale is a lemon, averages between the reasonable price for a bad car and the one judged as appropriate for a good car. Considering the price lower than the correct one, good car sellers will not be inclined to sell, while sales of lemons will be promoted at a higher price than their value. Considering the trend in sales of lemons, buyers will no longer be inclined to pay the requested price, thereby generating a negative trend in sales, to the point that transactions will decline to zero. This situation generates the need for a third party who acts as an intermediary and has the tools and skills to discharge that function.

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ISSN 2239-8023
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ISSN 2239-8023
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Bankpedia Review Vol. 4 n.1 2014

BANKING UNION

Giovanni AVERSA[1]

Abstract

The Banking Union is a project started by the European Union since 2010 for the financial stability of the euro area. After the U.S. subprime mortgage crisis in 2007, a radical revision of the bank control systems became manifestly visible in the EU regulatory framework. The Banking Union is based on a single set of rules that includes a Single Resolution Mechanism (SRM) and a deposit guarantee system centralized, whose supervision is assigned to the European Central Bank (ECB) through a Single Supervisory Mechanism (SSM). The European Commission has therefore taken an inclusive approach and proposed a roadmap for the Banking Union with different steps, potentially open to all Member States. Since the establishment of the European System of Financial Supervision (ESFS) in 2010, the overall goal of the European legislator in the Banking Union project is to avoid new crisis in the euro zone, to break the connection between financial crises and national public debts and rebuild investor confidence in the banking sector (see Banking Union divides Europe). At the global level, the project is linked with commitments taken by the EU in the G20 and in the Basel III, as a set of measures approved on banking supervision in the financial crisis of 2007-08 with the aim of improving the existing prudential regulation of banks, the effectiveness of supervision and the ability of intermediaries to manage the risks they assume. The Union Banking is fundamentally based on three pillars: the Single Supervisory Mechanism (SSM), which entered into force in 2013 but functional from November 2014, the Single Resolution Mechanism (SRM) which will come into force in 2016 and the Single Fund Resolu-

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ISSN 2239-8023
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tion (SRF) that after a transitional phase, from 1 January 2015, will be fully functional in 2025.

European Central Bank (ECB) Supervisory Authority of Union Banking. Single Supervisory Mechanism (SSM)

The first pillar is a union banking supervision system under the control of the ECB. it will be in operation in November 2014. In the meantime, the ECB is actively preparing to take up its new role of supervisor. The ECB is currently carrying out a comprehensive assessment of all banks, which will be under its direct supervision and the balance sheets of those banks. In parallel it is recruiting high quality supervisory staff and building up a new supervisory structure that integrates national supervisors before it commences its activities. The regulatory framework of the mechanism (R. 1022/2013-22/10/2013 and R.1024/2013-15/10/2013) provides direct supervisory tasks to the ECB for the European banks most significant (systemic) and decentralized supervisory tasks to the local authorities for the banks less relevant. It confers new supervision powers on the ECB for the banks of the euro area: the authorisation of all banks in Europe and the coherent and consistent application of the single rulebook in the euro area, the direct supervision of banks significant banks, including all banks having assets of more than €30 billion or constituting at least 20% of their home country's GDP (around 130 banks), the monitoring of the supervision exerted by national supervisors on less significant banks The ECB may at any moment decide to directly supervise one or more of these credit institutions to ensure consistent application of high supervisory standards.
This new mechanism will modify the European System of Financial Supervision (ESFS), active since 2010.

ISSN 2239-8023
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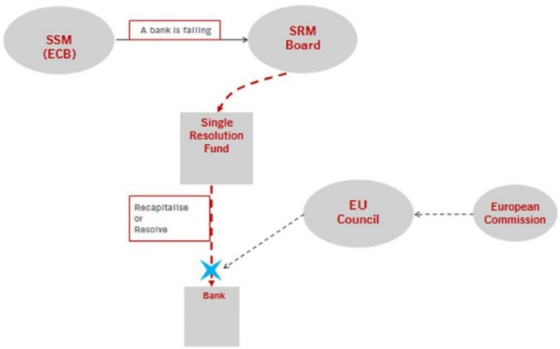
Banking Crisis. Single Resolution Mechanism (SRM)

The second pillar of the Banking Union is represented by the Single Resolution Mechanism of banking crises. The Council of EU Finance Ministers reached an agreement on the general approach of these new rules on June 27 (MEMO/13/601). The report of the Committee on Economic and Monetary Affairs of the European Parliament was adopted on 20 May, opening the negotiations between the Council and the European Parliament for final adoption of the mechanism. This mechanism will allow troubled banks to receive bailout funds from the central bank in order to alleviate the impact on one nation's banks crisis. The resolution would establish a 55 billion Euro reserve fund for this purpose.

In addition, a committee of national authorities representatives, the Single Board Resolution, which will operate under the ECB, will have the task of checking the execution of bailing operations or failure of a bank. This new board will modify the duties of the already functioning European Banking Authority (EBA).

As shown in (Fig. 1) the process of the new mechanism for resolution of banking crisis provides that the ECB will signal a bank which requires restructuring; the Single Resolution Board shall prepare a proposal on the measures of bank resolution; the Commission and the European Council will take a final decision. Finally, the national authorities will assist the Single Board Resolution on implementing the measures.

Fig. 1 Main steps of Single Resolution Mechanism (SRM):



ISSN 2239-8023
DOI 10.14612/AVERSA_1_2014

In this regulation framework, the purpose of the European legislator is to create a close link between the implementation of a Single Supervision Mechanism (SSM) and the creation of common models of bank resolution crisis mechanism (Single Resolution Mechanism –SRM). In fact, the recent financial crisis has shown that the banks bailing by national governments, can have negative effects on sovereign debt, These effects can be extended, later, to the economies of other states of the monetary union, producing costs which must be supported by the taxpayers. Consequently, the existing European System of Financial Supervision (ESFS) and the subsequent ECB supervision (Single Supervisory Mechanism - SSM) could not be able to resolve these difficulties. For this reason, in order to resolve these gaps, in the purpose of the European legislator, the creation of Single Resolution Mechanism (SRM) is necessary to harmonize the policy instruments available to the European states and impose the cost of banks bailing to its shareholders and creditors and not to taxpayers.

Who Pays for the Crisis. Single Resolution Fund (SRF)

The third pillar of the Union Banking is closely connected to the second and is characterized by the Single Resolution Fund (SRF). In fact, it is connected to the SRM regulation and is part of the efforts pursued by the EU in the past years to adopt a number of legal acts "fundamental for the achievement of the internal market in the field of financial services and for guaranteeing the financial stability of the euro area and of the Union as a whole, as well as for the process towards deeper economic and monetary union.

The SRF is funded by levies on banks that will initially be managed at the national level, then gradually converge in 10 years in a single European fund. The Single Resolution Fund (SRF) provides the creation of a fund that will be about 55 billion euro over ten years and will serve to refinance the banking system to the European-

ISSN 2239-8023
DOI 10.14612/AVERSA_1_2014

bank in crisis. In addition, the costs connected with the banking crisis will be paid, in order, by shareholders, bondholders and depositors with more than 100 thousand Euros. Overall, the private sector will necessarily have to cover the costs of the bank in default for an amount at least equal to 8% of the assets of the institution. Beyond this threshold, the SRF will intervene in the second round for a total of 5% of the assets of the bank. If they require additional resources the governments can intervene through the European Stability Mechanism (ESM).

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Bankpedia Review Vol. 4 n.1 2014

EFFECTS OF OPTIONS ON FINANCIAL STABILITY

Chiara OLDANI[1]

Abstract

The lack of collateralized trading in the OTC derivatives market and the absence of any system for the resolution of cross exposures have been highlighted as major causes of the collapse of assets prices during the financial crisis. According to the perfect market hypothesis derivatives are a zero sum game (according to Black-Scholes pricing models) and do not add new risk to the market or modify existing risk. However, these virtues only apply in the real world in the presence of effective regulation, control, and supervision. The perverse effects of the financial crisis suggest that it is time to rethink the standard finance theory approach to derivatives.

Derivatives and the Finance Theory

Finance theory relies heavily on the perfect market hypothesis which tells us that financial derivatives are powerful tools for investors, banks, and governments to hedge, smooth financial costs, and create opportunities. According to the perfect market hypothesis derivatives are a zero sum game (according to Black-Scholes pricing models) and do not add new risk to the market or modify existing risk. However, these virtues only apply in the real world in the presence of effective regulation, control, and supervision.

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The regulation of derivatives in the present global financial system is not homogenous and the controls placed on investors vary across countries and investor classes, leaving room for regulatory arbitrage. The most obvious example is the $67 trillion of traditional securities and OTC derivatives traded in 2012 in the so-called shadow banking system, a system that operates with almost no supervision or monitoring. The lack of collateralized trading in the OTC derivatives market and the absence of any system for the resolution of cross exposures have been highlighted as major causes of the collapse of assets prices during the financial crisis. This real world experience suggests that it is time to rethink the standard finance theory approach to derivatives.

The Subprime Crisis

One of the initial shocks in the subprime crisis came when it was announced that it was impossible to value the off balance sheet assets and liabilities of a primary global bank. This generated the panic in August 2007 and the crisis spread like a deadly plague. Investors could not be sure of the true market value of their assets and liabilities. Initial credit ratings were quickly discarded as they were no longer relevant to the new market conditions of extreme liquidity shortage that was itself the result of the uncertainty on the value of assets pledged as collateral. This uncertainty depressed consumption and investment, and finally forced governments to inject resources to rescue banks and industries. The additional debt undertaken by governments to prop up the collapse of equity in the private financial system led to second crisis—the sovereign debt crisis.

The subprime crisis revealed the systemic and perverse effects of improper risk management practices, weak regulation and supervision, and ineffective control due to the failure of regulators to comprehend the massive size of the shadow markets. The virtues attributed to derivatives by standard finance theory evaporated entirely

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during the crisis and these same virtues became vices that contributed substantial to systemic risk. The roots of the subprime crisis thus may be seen to lie in dangerous market imperfections and regulatory weaknesses. The appropriation of the profits of the finance industry by management and employees at the expense of shareholders and the economy as a whole has not been eliminated following the subprime crisis. Banks and investment firms still pay exorbitant bonuses to traders and brokers, while taxpayers and workers (employed and unemployed) pay the cost of the crisis (socialization of losses).

The Financial Instability Hypothesis and Options

The Financial Instability Hypothesis (FIH) (Minsky, 1977) provides a powerful alternative to standard Neo-Classical and New Keynesian models, which cannot provide a satisfactory integration of the real and the financial sides of macro-models. The FIH also describes how financial markets become unstable even in the absence of an exogenous shock. The expansionary money policies of the new millennium, financial globalization, and the enormous profits created in the derivatives market all fuelled the share of finance in GDP. This process is endogenous to the capitalist economy, and the FIH captures these features.

Financial innovation plays a key role in the growth of the capitalist economy. Financial innovation contributes to the endogenous creation of profits from new forms of investment during periods of tranquility and stability. However, according to the FIH, regulation and supervision should be used during turbulent periods to maintain a stable environment for investors and firms (see Oldani, 2008). Financial derivatives are the most developed financial innovation seen in recent decades; among these innovations, options represent an important share of the market. According to finance and economic theory, options expand portfolio allocation opportunities, increase market liquidity, and improve the pricing mechanism. When options are used

ISSN 2239-8023
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for hedging, they contribute to better portfolio management for firms and investors. Options are introduced in the FIH by means of the hedging opportunities they provide to firms, and thus influence the saving function and, as a result, the equilibrium. In the absence of shocks and with proper regulation and supervision, options contribute to better portfolio management, as finance theory states. However, in the run-up to the crisis, the benefits of this innovation led to a decline in the recognition of the important role of regulation in assuring these benefits. The failure of regulation led to the disappearance of the benefits of these instruments as a means to finance investment and promote growth. Instead innovative instruments were increasingly used for speculative financing of higher and high leverage positions. This was an endogenous process by which the belief in the benefits that could be derived from these instruments led to the elimination of the formal regulations and supervision that were necessary to achieve these benefits.

When turbulence arose in these markets volatility increased, and the hedging strategies of investors became ineffective, aggravating financial payments by firms. The leverage effect of options multiplies losses, which has a negative impact on the debt accumulation process and the investment decisions of firms. The reaction of firms can further intensify the downturn by selling assets, increasing the debt or trying to raise new capital. In the presence of the massive use of options, financial fragility becomes more pronounced. Regulation is the tool needed to safeguard financial stability, as Minsky predicted at a time when financial markets were less sophisticated. During the crisis derivatives were like gasoline poured on a fire, but they were not the reason for the crash. Regulation of the global financial system was inappropriate; it allowed unregulated investors (like shadow banks) to expand their balance sheets without sufficient capitalization.

The contribution of options to financial instability is similar to other financial securities previously investigated in the FIH literature in the presence of weak regulation and control, such as bonds and shares. They substantially worsen financial crises.

ISSN 2239-8023
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An empirical investigation to measure the impact of derivatives on stability is not possible, since data are not provided on a high frequency basis, and are not provided by the shadow banks that represent a large share of the market.

The lack of data on the shadow banking system (trading, exposure, market concentration counterpart and so on) and on OTC derivatives trading represents a clear obstacle to a safe exit from the meltdown. Confidence in these markets cannot be restored until specific responsibilities are defined and a strong regulatory response is put in place.

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Bankpedia Review Vol. 4 n.1 2014

TRANSMISSION MECHANISM OF MONETARY POLICY

Lorenzo CARBONARI[1]

Abstract

The transmission mechanisms of monetary policy may be defined as the channels, not mutually exclusive, through which the evolution of monetary aggregates affect, often after variable and not completely predictable intervals, the level of product and prices.

The economic literature has identified the existence of at least four different mechanisms through which monetary policy is able to influence the price level and the national income: the interest rate, the prices of financial assets, the domestic credit and the exchange rate (Mishkin, 1993). In the following paragraphs, we will analyse in detail the functioning of these mechanisms by examining the case of an expansionary monetary policy.

1. Interest rate

An expansionary monetary policy ($\uparrow M$) causes a sudden reduction in official rates ($\downarrow i_{mff}$), thus reducing the cost that each commercial bank faces to access the Central Bank's facility. Under "normal" conditions, the interbank rate should move downward ($\downarrow i_{bal}$), generating an expansion of lending to individual banks. These, in turn, will use this excess of liquidity by buying financial assets, and providing greater credit to the private sector. On the securities market, the increased demand ex-

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ISSN 2239-8023
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erts upward pressure on prices and determines a further reduction in nominal interest rates that, inflation expectations being equal, results in a reduction of the real interest rate
($\downarrow r$). All this helps the evolution of the domestic demand through the expansion of investment and consumption ($\uparrow I, \uparrow C$). In symbols:

$$\uparrow M \Rightarrow \downarrow i_{eff} \Rightarrow \downarrow i_{bank} \Rightarrow \downarrow r \Rightarrow \uparrow I, \uparrow C \Rightarrow Y$$

2. The prices of financial assets

As mentioned above, an expansionary monetary policy is able to exert strong upward pressure on prices of financial assets ($\uparrow P_E$), increasing the market value of firms in relation to the cost of capital (the so-called *q of Tobin*, $\uparrow q$) and positively influencing the value of securities wealth of households($\uparrow W$). This should translate on the one side into an increase in investment by firms ($\uparrow I$) and on the other side, assuming that household consumption depends positively on the stock of wealth, in an expansion of private consumption ($\uparrow C$). In symbols:

$$\uparrow M \Rightarrow \uparrow P_E \Rightarrow \uparrow_q, \uparrow W \Rightarrow \uparrow I, \uparrow C \Rightarrow Y$$

3. The domestic credit

This channel of transmission is strictly related to the assets of commercial banks and specifically to the financing granted to companies and to the securities portfolio. When determining the monetary policy changes in interest rates, commercial banks can find it profitable to reallocate part of their activities' bearing. In particular, it has been clarified how the monetary expansion made by the Central Bank has made commercial banks more liquid, increasing their reserves ($\uparrow R$). Among the various

ISSN 2239-8023
DOI 10.14612/CARBONARI_1_2014

methods through which the liquidity can be invested, one of the most important is the provision of credit to the private sector ($\uparrow L_P$). This is the mission of commercial banks, whose growth determines positive effects on business investment and on household consumption. In symbols:

$$\uparrow M \Rightarrow \uparrow R \Rightarrow \uparrow L_P \Rightarrow \uparrow I, \uparrow C \Rightarrow Y$$

In literature, the mechanism of transmission of bank credit refers to the so-called *credit view* that relies on the effects of imperfections in the capital market. In particular, this branch of the economic research focuses on the determination of loans granted by banks, which are viewed as non-perfect substitutes of the direct financing to businesses.

4. The exchange rate

Monetary policy exerts a strong impact on the exchange rate. In particular, it was seen how increasing the amount of currency in circulation would result in a reduction in the nominal interest rate. This leads to a negative differential between the domestic and the foreign interest rates ($i < i^*$, where i^* indicates the foreign nominal interest rate), and – in the presence of perfect capital mobility and perfect substitutability of financial assets – a depreciation of the nominal exchange ($\uparrow S$, which indicates the units on the national currency to buy one unit of the foreign currency) due to the simultaneous growth in the demand for foreign currency and in the supply of domestic currency in the forex markets. Assuming constant both the foreign and the domestic price level (as it is reasonable to believe in the short term), the depreciation of the nominal exchange rate results in a subsequent real depreciation ($\uparrow Q$) that, under the so-called Marshall-Lerner conditions, exerts a positive influence on the balance of payments ($\uparrow NX$) and therefore on aggregate income. In symbols:

ISSN 2239-8023
DOI 10.14612/CARBONARI_1_2014

$$\uparrow M \Rightarrow \downarrow i,\ i<i^* \Rightarrow \uparrow S,\ \uparrow Q \Rightarrow \uparrow NX \Rightarrow Y$$

It is worth noticing that, within each of the four transmission mechanisms presented, not a secondary role is played by the *expectations* on prices. In a context characterised by high uncertainty, operators make forecasts about the economic fundamentals considering the full range of information available. The expectations on prices and future rates affect the yield curve and may contribute to the growth of nominal variables, such as prices and rates. The more the Central Bank is able to influence the expectations of economic agents the more they can contribute to the stability of future prices.

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