THE IMPACT OF FINANCIAL INNOVATION ON BANKING REGULATION. EVIDENCE FROM THE GLOBAL FINANCIAL CRISIS

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Abstract

The development of financial innovations in a fast pace led to increased efficiency of the financial system, but raises some issues regarding the regulation and supervision of financial activity. The latest example is the global financial crisis, which has pointed out the negative role played by the financial innovations of credit risk transfer on the stability of the financial system. Starting from the above, the article herein is structured in the following sections: the first one reviews the decisive factors of the financial innovation, the second one highlights the role of the financial innovations in the global financial crisis and the final one refers to the impact of the financial innovations on the financial regulation and supervision.

Keywords: *banking regulation, financial innovation, global financial crisis*

JEL Classification: G20, G21, G28

Introduction

Similar with other fields, the latest decades might be described as witnessing a speedy pace of development of the financial innovations. Many of such innovations have occurred on the international markets or in the United States and Great Britain. Moreover, there is a complementarity between the two countries regarding the emergence and dissemination of the new financial products. As mentioned in a report on the London importance in the British economy, one of the key factors underlying the development of the financial innovations in London (mainly in the last ten years) is the complementary relations between the operations in New York and London. In other words, the financial products emerge and develop in New York and, later on, they are adopted and circulated for international purposes in London – very often via the London branches of the American banks. Other crucial factors that have constituted a stimulus for the financial innovations in the City of London include its ability to attract new talented youth from various countries and the regulation regime based on principles practiced by the Financial Services Authority (Wood and Wojcik, 2010 cited by Gordon et al., 2009).

The financial innovations have rapidly spread onto other markets, first in the developed countries and then in less mature markets with lower level of economic development. Thus, a feature of the financial innovations is the rapidity they propagate from one financial institution to another, from one financial market to another, which favors the process of integration at the international level.

Besides their positive effects, the financial innovations bring several problems about the regulation and supervision of the financial activity. The most recent example is the global financial crisis. The modern instruments of credit risk transfer increased vulnerability of the financial system. In this context, the building of a regulatory framework for the financial innovations is required, to allow the development of the financial innovations that are beneficial to the system and also to restrict the innovations that could affect the stability of the financial system.

Literature review

The financial innovations have given birth to numerous publications on the decisive factors which led to their rapid development (see among other: Mishkin, 2007; Kane, 1977, 1981, 1988; Howells and Bain, 2008; Frame and White, 2002; BIS, 1986). Wood and Wojcik (2010), cited by Gordon et al. (2009), mention the crucial factors that have constituted a stimulus for the financial innovations in the City of London. Llewellyn (1992) identifies common points and major differences between the financial innovations and the innovations in other sectors. The global financial crisis raised several issues regarding the role and impact of financial innovations on financial stability (Llewellyn, 2010; Gambacorta and Marques-Ibanez, 2011; Dowd et al., 2011, ECB, 2008; Beck et al., 2010, Vives, 2010). Since its first stages of development, the financial innovation raised a series of questions regarding the banking regulation and supervision (BIS, 1986; Howells and Bain, 2008). BCBS (2010a, 2010b), BIS (2009), Pol (2009), Cechetti (2010), Picciotto (2010) propose measures to reform the financial regulatory framework and financial innovation.

1. The financial innovations – particularities and decisive factors

In his attempt to draw a parallel between the financial innovations and the innovations in other sectors, Llewellyn (1992) identifies common points and also major differences. As well as in other industries, the reason of the financial innovation process is the increase of efficiency and competitiveness. Nevertheless, there are three fundamental differences between the financial innovations and the innovations in other sectors: (1) unlike many industries, the research costs for creating new products are relatively small in the financial area; (2) since there is no invention patent, the financial innovations are easy to copy and (3) the financial innovations are strongly influenced by regulations: many of them derive from the desire to elude the legal stipulations that affect the profitability of the financial institutions. The author states that, while the copying of an innovation requires a longer time in various industries and thus the inventor benefits from a market

advantage, this interval in banking sector is very small, of a few days. The fact that the financial innovations are visible and immediately copied contributes to increasing the financial integration at an international level (p. 16).

Starting from the premise that not all the financial innovations are economically beneficial, Mason (2008, p. 11) classifies the innovations into "real" and "nominal". The former ones involve important economic benefits, while the latter are vehicles that mainly raise the compensation in Wall Street, with few real benefits. Thus, Pol (2009, p. 9), defines a "toxic" financial innovation as being "a nominal innovation which single or jointly with other financial innovations provokes a financial crisis".

Depending on the reasons underlying the process of financial innovation, Mishkin, 2007 (p. 250-257) has grouped the financial innovations in three categories:

(1) *financial innovations as responses to changes in demand conditions*. In this sense, it is worthwhile mentioning the increase of the interest rate volatility, which has determined the increase in the demand for financial products and services that are meant to attenuate the interest rate risk;

(2) *financial innovations as responses to changes in supply conditions*. Developments in information technology have enabled financial institutions to create profitable products and services since the cost of processing financial transactions have decreased. These developments also allowed companies to issue easier securities because investors have the possibility to acquire easier financial information about company. Therefore, these changes resulted in new financial products and services, such as: credit and debit cards, e-bank, commercial papers and securitization;

(3) *financial innovations meant to avoid* regulations. Kane (1977, 1981, 1988) introduces the *regulatory dialectic* concept. Basically, financial institutions resort to financial innovations in order to avoid strict regulations affecting their profitability. In turn, the authorities introduce other rules as response to the financial institutions action and this "game" is endless.

Regulation, technology and volatility also are cited by Howells and Bain (2008) to explain the burst of financial innovation since the 1960s.

Frame and White (2002) identify other factors that stimulate financial innovations. Charging differential taxes on different streams of income or on different categories of assets determine the finding of new ways to reduce taxes. Taxation increase has the same effect. Financial innovations may also be stimulated through a proper intellectual property protection regime.

A thorough analysis of the factors that have stimulated the process of financial innovation on international financial markets in 1970s and 1980s was conducted by the Bank for International Settlements in a study on innovation in international banking (BIS, 1986, pp. 7-9). According to this study, financial innovations were stimulated by the interaction between several trends: rising inflation, financial market instability, the increased interest of investors toward securities in the detriment of bank deposits, the banking regulations that introduced

the minimum capital requirements, increasing competition in the banking system, and technological progress.

2. **The role of financial innovations in the global financial crisis**

The defining feature of the latest financial innovation wave is the development of instruments (collateralised debt obligations, credit default swaps) and vehicles of credit meant to transfer the credit risk from the originating bank to other banks. Such instruments have revolutionized the traditional banking model, giving rise to the new banking model (the "originate to distribute" model), which increased the risk of financial crises (Llewellyn, 2010).

Traditionally, banks attract deposits from customers and grant loans, which are supported by these deposits. The banking income derives mainly from the difference between the interest on loans and the interest on deposits. Main banking products and services are loans and deposits (table 1). Banks grant loans, keep them in the balance sheet until maturity, and bear the credit risk (the "originate to hold" model). The products are distributed through traditional subsidiaries, called in specialist literature "brick and mortar". Banking was strictly regulated and the financial and banking sector was relatively stable.

In the last three-four decades, the banking framework has undergone significant changes, following a series of factors, as deregulation and financial market liberalization, financial innovations, increased competition in the financial and banking field as well as information technology developments. This has entailed the decline of traditional banking in various states of the world. For example, in 1974, in the United States, commercial banks provided close to 40% of total nonfinancial borrowing, while by 2005 their market share dropped to below 30% (Mishkin, 2007, p. 257).

On this background the last decades have been marked by significant changes in the contemporary banking systems at international level, resulting in: mergers and acquisitions; disintermediation and increased off-balance sheet operations; securitization process. The afore-mentioned processes vary from one banking system to another. Initially, such changes focus on the developed countries, subsequently covering other states as well.

The banks focus more and more on services and on commission-based income and less on interest-based income. The range of products and services has diversified covering – besides deposits and credits – securities operations, insurance, investment funds and the like. Competition in the banking sector has increased (table 1), and regulations have taken new shapes. The clients have started to open bank accounts at various banks, being able to transfer their funds from one bank to another merely by a mouse click. Moreover, they may choose not only among local banks, but also among foreign banks and other financial institutions. The banks focus on the market and on the customers' requirements, developing marketing strategies in terms of products and services, price, promotion or distribution channels. The automated teller machines, home-banking and Internet-banking compete with traditional banking branches.

Table 1

Traditional versus modern banking

Traditional banking	*Modern banking*
Products and services: LIMITED • Loans • Deposits	Products and services: UNIVERSAL • Loans • Deposits • Insurance • Securities/Investment banking • Pensions • Other financial services
Income sources: • Net interest income	Income sources: • Net interest income • Fee and commission income
Competitive environment: • Restricted	Competitive environment: • High competition
Strategic Focus: • Assets size and growth	Strategic Focus • Returns to shareholders • Creating shareholder value (generating Return-on-equity, ROE, greater than the cost of capital)
Customer focus: • Supply led	Customer focus: • Demand led • Creating value for customers

Source: Casu Barbara, Claudia Girardone, Philip Molyneux, *Introduction to banking*, Pearson Education Limited, Edinburgh, 2006, p. 52.

Financial innovations and rapid developments in information technology allowed banks to develop a new banking model: banks grant credits and sell them to a special purpose vehicle which issues securities collateralized by credits (the “originate to distribute” model). The investment bank underwrites and sells securities, the entity specialized in servicing the credits collects the capital installments and the interest from borrowers, while final investors provide the funds and assume the credit risk. Revenues collected by the originating bank no longer take the form of interest, but of commissions charged for initiating the operation, and, eventually, collecting capital installments and interest (if the originating bank also fulfills this function). According to Gambacorta and Marques-Ibanez (2011), development of the securitization process was stimulated by the development of the institutional investors, which allowed the banks to base their funding on market instruments. But as Dowd et al. (2011) states, the primary factor driving the securitization in the last two decades was the regulatory arbitrage that allowed banks to lower capital requirements. Another way to lower the regulatory capital was the credit derivatives contract, especially the credit default swap (CDS). By buying a CDS contract, banks transfer credit risk and receive compensation in the event of a loan default.

Until the crisis triggered, the credit transfer financial instruments were considered a means to increase the efficiency of the financial system. BIS (2003) considered that these instruments allow a better risk management, the loosening of certain requirements regarding the credit offer, the more efficient allocation of risk upon a broader mass of entities, the increase in transparency and liquidities on the credit markets. The most important problem associated to the new banking model was the asymmetric information between the originating bank, on the one hand, and investors in bank's asset-backed securities along with the seller protection, on the other hand. Because banks no longer assume the credit risk like in the traditional banking model, are not interested to carry out a strict assessment of the debtor's ability to repay the credit and, therefore, credits quality deteriorate. Moreover, motivated by the desire to get as many bonuses as possible, employees were not encouraged to make a correct assessment of customers' creditworthiness. This practice leads to destabilization of the financial system. Besides, increased complexity of financial instruments determines hiding of risks. In accordance with the above, Jean-Claude Trichet (ECB, 2008) emphasized that financial crisis revealed some lessons, among which the impact of financial instruments for transferring risk and structured credit markets on financial stability:

"…These developments have facilitated the transfer and redistribution of risks across the financial system, thus increasing its efficiency and potentially its resilience to shocks. At the same time, as recent events have shown, the growing complexity of financial instruments and the opacity of exposures of financial institutions can give rise to increased uncertainty regarding the degree of risk involved, the ultimate bearer of the risk, and the extent of potential losses. As we presently see in periods of turbulence, this complexity and opacity may prompt a further propagation of initial shocks and a more generalised contagion" (ECB, 2008).

In this context, Beck et al. (2010) state that although it is difficult to predict the trend in the European and global banking systems, the financial crisis and the latest observations suggest the return to the traditional financial intermediation based on deposits and credits. The same predictions are made by Vives (2010) and Llewellyn (2010).

3. **The impact of the financial innovation on the financial regulation and supervision**

Since its first stages of development, the financial innovation raised a series of questions regarding the banking regulation and supervision. As many of the financial innovations (swap, NIFs, secutitisation) have been actively promoted, besides the commercial banks by other financial institutions, especially investment banks, it has been discussed that the latter should be submitted to supervision, even if they do not accept deposits from the public. But as the products offered by the investment banks are more and more similar to the ones offered by the commercial banks and the probability for the bankruptcy of an important investment bank to destabilize the financial-banking system is growing, the supervision of these

financial institutions would be justified. At the same time, if the supervision area would become broader, then the investment banks could suggest that the support granted by the central banks to the commercial banks for overcoming the liquidity problems should also be granted to them.

On the other hand, the more and more intense development of the operations specific to the financial investment activities within the banking organizations led to the increase of the pressure regarding the abolition of the Glass-Steagall type regulations, where these restrictions existed (BIS, 1986, p. 239-241).

Howells and Bain (2008) mention some particular aspects that the financial innovations and the technological evolutions raised to the authorities in charge of regulation and supervision: the screen-based trading systems development; the development of the securitization process; and of the new derivative products; the increase of the risks associated to the off-balance sheet operations; the risks associated to the fast changing on-balance sheet positions.

According to the Financial Stability Forum recommendations, the starting point for reforming the current regulatory framework of international financial activity is the package of measures initiated by the Basel Committee, known as the Basel III. The Basel III regime are designed to strengthen the Basel II capital framework, with regard primarily to the treatment of certain complex securitization positions, off-balance sheet vehicles and trading book exposures (www.bis.org/bcbs/history.htm). In order to strengthen the resilience of banking sector, the Committee has also adopted an international framework for liquidity risk.

As Pol (2009) highlights, an important difference between the 1930-1933 crisis and the global financial crisis is represented by the financial regulatory framework: whereas in the first case, we could talk about the lack of the regulations, between 2000-2008 the regulations regarding the financial system were abundant (even though they only regarded the traditional banking system and did not include the shadow banking system). The author states that a characteristic of the global financial crisis is the failure of the regulations, manifested by the incapacity of the regulation and surveillance systems in certain developed countries to adapt to the shifts on the financial markets and to evaluate the risks associated to the new financial innovations.

Regarding the balance between the financial innovations and the financial stability, Llewellyn (2010, p. 19) observes that until 2007 the financial innovations and particularly the ones regarding the credit risk transfer developed under apparent stability conditions (macroeconomic, inflation, interest rates etc.). As a consequence, the stress tests accomplished were based on data associated to an economic environment characterized by a low level of risk.

In order to diminish the negative effects certain financial innovations can have upon the financial stability, Pol (2009) proposes a new institutional arrangement, an "institutional innovation" consisting in creating an institution (Financial Innovation Administration – FIA) with the aim to register and evaluate any new financial idea. Thus, there is no longer allowed to trade any financial innovation, but only those innovations for the public interest and that do not cause the increase of vulnerability on the financial markets. The author compares this

institution and the Food and Drug Administration operating in almost every country. As the biological innovations cannot be launched on the market until after certain clinical trials are carried out, the financial innovations have to pass some tests before being commercialized. Among the financial innovations that should not be practiced, there are: the financial innovations that suppose granting credits without taking into consideration the capacity of the person to pay back the money; the financial innovations based on granting credits that can only be paid if the price of the respective assets keeps growing; financial innovation of the Ponzi scheme.

With regard to the risks and weaknesses of this institutional innovation, the author highlights: (1) the government could intervene in this proposal and be much too intrusive; (2) there are appropriability issues associated with the FIA; (3) in order to attain the purposes, FIA must be accepted internationally.

For the purpose of maintaining a balance between safety and innovation in the field of financial instruments, Cechetti (2010) advanced a regulation proposal similar to the one within the pharmaceutical field: just as the medicine that does not require a medical prescription, the safest financial instruments may be available for everybody; as the safety degree of the financial instruments decreases, a more limited number of users will have access to them.

The same proposal is made by BIS (2009, p. 126-137). Improving the safety of financial instruments involves creation of a system that rates the safety of these instruments, limits investor access to these instruments and provides warnings about their risks. In line with these observations, Picciotto (2010) mentions that financial derivatives should be regulated through a system of registration and certification.

Conclusions

A defining characteristic of the recent decades has been the rapid development of financial innovation. The main factors that have contributed to the development of financial innovations are the rapid developments in information technology, increasing instability of financial markets and financial regulations. A particularity of financial innovations compared with innovations in other areas is the critical role that regulation of financial activities has in creating new products and services, new mechanisms, new financial institutions and markets.

The weaknesses revealed by the global financial crisis imposed the reforming of the current financial regulatory framework in order to better capture the risks caused by the financial innovation process. Another goal of the reforming process is to keep a balance between innovation and progress, on the one hand, and safety and financial stability, on the other hand.

In order to achieve this goal, several measures have to be taken. Mainly, the measures to improve the safety of financial instruments consist in creation of a system of registration of any new financial instruments that have to classify these instruments depending on their risks and benefits for the society. The instruments that are toxic and menace the financial stability should be prohibited. To avoid regulatory arbitrage and to have the expected effect these measures should be applied at international level.

This work was supported by the project "Post-Doctoral Studies in Economics: training program for elite researchers – SPODE" co-funded from the European Social Fund through the Development of Human Resources Operational Programme 2007-2013, contract no. POSDRU/89/1.5/S/61755.

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