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The Issues of Financial Innovations and Their Importance in the Contemporary Economic System in The Perspective Of Cognitive Theories

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Abstract

The presented article raises the issues of the importance of financial innovations in the contemporary financial system aiming at the identification and the systematization of major problems and related definitions. The paper presents the importance of the financial system and financial markets in the contemporary economy including functions they perform and features typical of their action, with particular emphasis on the role of innovation. Then, on the basis of the conducted theoretical studies, a broad definition of financial innovations was presented: it assumes that each new solution in the field of any financial system elements – markets, institutions, instruments and financial regulations – may be treated as a financial innovation, if the user of these solutions perceives them as new – innovative. Another raised problem is concerned with the systematization of major types and kinds of financial innovations distinguished on the basis of various classification criteria, such as: sources of innovations, motives of innovations, effects of innovations, functions of innovations. Financial innovations are not a homogeneous group of new financial solutions, hence various consequences for the financial system. It means that the assessment of their role and importance cannot be generalized but should be conducted individually for each type of innovative solutions.

Key words: innovations, financial innovations, financial system, financial market

Introduction

The contemporary financial system is characterized by a high pace of emergence of innovative financial solutions. As a result, it is reasonable to conduct an analysis of the impact of financial innovations on the financial system. Recently, a number of research has been published on the issues of financial innovations, however, they focus mainly on the global financial crisis or on different types of financial innovations. Additionally, in the published research it is difficult to find a uniform definition of financial innovations or a homogeneous classification of their kinds. The primary goal of this article is to present an attempt of systematization of the present state of knowledge about financial innovations. The article present an analysis of up-to-date publications related to the issues of financial innovations and their role in the financial system. On the basis of the conducted theoretical studies, the definition of financial innovations was formulated in a narrow and broad meaning. Then, the used classifications of financial innovations were analysed and arranged by the most important criteria. Another problem raised in the paper applies to the functions performed by financial innovations. Since financial innovations are characterized by significant diversity, they may perform various functions that require arrangement. Basing on the assumption that the primary goal of financial innovations is to improve efficiency of the financial system with regard to performing its basic functions, it was suggested that the functions of financial innovations should be classified in accordance with the functions of the financial system. It is beyond doubt that different financial innovations may have different effects for the financial

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system, in connection with this, in the conclusions it was stressed that each another financial innovation should be analysed individually, including the specific nature of the mechanism of functioning and potential consequences for the whole economy. The presented conclusions in the form of arranged knowledge about financial innovations can be a starting point for further research in this area.

Importance of the financial system in the contemporary economy

The contemporary economy cannot function without an efficient financial system, defined as a set of markets, institutions, instruments and regulations, by means of which trade in securities is conducted, interest rates are agreed and financial services are provided [19, p. 3]. The financial system is considered as one of the most important accomplishments of the contemporary society, and, being an integral part of the economic system, it becomes a significant element of the social system [19, pp. 3-4]. In addition, the financial system creates mechanisms of flow of funds between various economic entities: households, companies, governments of states or financial institutions. The literature presents different approaches to the classification of the financial system's functions. The first, general approach assumes that the financial system performs three sets of functions: (1) monetary, (2) allocation and (3) control [19, p. 5]. The monetary function is related to the process of creation of money in the economy and then the flow of money between different entities by means of an organized payment system. The allocation function is performed both by market and public financial system. The market financial system ensures flow of free funds from entities having surplus of funds to the most promising entities looking for funds, and thus is favourable for economic growth. On the other hand, the public financial system enables gathering funds necessary for financing public goods, services and social benefits, supporting in this way economic growth. On the other hand, the control function allows monitoring the flow of funds in the economy in terms of their efficient use [3, p. 1253-1257]. The mentioned functions are closely associated and their efficient performance determines the development of the whole economy.

The subsequent approach distinguishes six main financial system's functions. According to this wide approach, the financial system enables [6, pp. 24-32]:

a) transferring economic resources in time, beyond boundaries and between different branches of the economy,
b) risk management,
c) settling sales transactions,
d) gathering resources (gathering wealth and dividing property among companies),
e) making decisions on the basis of information on the level of prices,
f) solving the problems related to information asymmetry and agency conflict.

Analysing the mentioned functions, it can be noted that they are performed mostly by financial markets, which constitute the most important part of the financial system. The main role of financial markets is transferring free funds from entities having financial surplus (households and institutions) to entities looking for funds (mainly companies and governments of states) in the process of transformation of savings into investments. In connection with the above, financial markets gather and allocate savings (1) investment function and (2) financing function), determine interest rates and prices of financial assets (3) valuation function), enable concluding and settling transactions (4) payment function) and support the risk management process (5) risk management function) [19, p. 6]. For clarity of further discussions, it can be assumed that the mentioned functions of financial markets can be regarded as the main functions of the entire financial system, because the financial system supports economic growth by their performance.

However, for this goal to be achieved, financial markets should be characterized by the

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following features: (1) credibility, (2) transparency, (3) efficiency, (4) liquidity, (5) integrity and (6) innovation [1, p. 128]. Credibility is related with the way securities' issuers transfer information to investors. Transparency is associated with the way of settling transactions and notifying market participants of this fact. Efficiency of financial markets may be analysed in three dimensions: (1) allocation efficiency (capital is transferred to finance the best investment projects), (2) efficiency (purchase-sales transactions are concluded at the lowest level of transaction costs) and (3) information efficiency (all market participants have the same access to information having effect on valuation of financial instruments) [9, pp. 290-294; 8, pp. 143-145]. Liquidity of financial markets is defined as the possibility of concluding purchase-sales transactions at any time at the agreed price, without any additional transaction costs, while integrity of financial markets results from close relations between institutions supervising operations of financial markets, creating conditions for their development and operating on these markets [4, p. 1162-1172]. Currently, particular importance is attained to the feature related to innovation of financial markets, reflected in a number of new financial solutions used on these markets.

To sum up, a common feature of the contemporary financial system and financial markets is an intensified globalization process and dynamic development of financial innovations. The latter issue requires particular analysis because financial innovations are indicated as the main reason for global financial crisis.

Definition and origin of financial innovations

The role of innovations in economic growth is unquestionable. The general definition indicates that innovations appear when new ideas, solutions, instruments are introduced to change the operating conditions of a business entity and improve its situation. The application of innovations increases competitiveness of a business entity and creates value for its owners [7, p. 196]. Sustainable development of a contemporary business entity is almost impossible without a proper innovation management incorporated into the knowledge, information, reputation and trust management process. At the beginning, the term "innovation" was used to describe changes in technological solutions forming new combinations of means of production, generating more than average rates of return and, as a result, supporting dynamic growth of the whole economy. The traditional approach to technological innovations introduced by J. Schumpeter distinguishes the following groups of innovations: (1) new products, (2) new methods of production, (3) new sales markets, (4) new sources of raw materials, (5) new organizational forms and structures and (6) new methods of management, [7, p. 196]. Based on that classification, OECD developed its own methodology distinguishing four types of innovations: (1) product, (2) process, (3) marketing and (4) organizational [17, p. 48]. New solutions in these four categories are considered as innovative if they are treated as such by an entity using them (customization of the approach to category of innovations). This means that solutions used could have been already known and used before in other entities [5, p. 41]. Defining the term "innovations" allows further thinking about the causes of creation and introduction of these new solutions. The sources of innovations may be analysed from two points of view, determined by the demand or supply theory of innovations. According to the demand theory, innovations are created in response to the needs reported by business entities searching for the sources of competitive advantage in business environment (this kind of new solutions is termed as demand-controlled innovations). However, the demand for innovations may result from the internal needs of a business entity aiming at improvement in its situation or from the need to adjust the operating strategy to changes occurring in its environment.

The second theory emphasises the importance of supply side because usually

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innovations are created by one group of entities (authors, suppliers of innovations) and then introduced to the second group of entities – users of innovations. This kind of new solutions is termed as supply-controlled innovations, and is created during the process consisting of three phases: (1) phase of creativity, (2) phase of innovation and (3) phase of diffusion implemented by way of imitation or commercialization of innovative solutions [7, pp. 196-200].

In the case of definition of financial innovations in the literature different standpoints are presented, related to the classification of financial innovations and their functions. On the basis of the conducted analysis of the definition of financial innovations as well as mechanism of their creation and introduction, it can be noticed that financial innovations do not constitute a uniform group of new financial solutions, in connection with this systematization of their various classification perspectives is indicated. Financial innovations may be classified on the basis of various criteria [12, pp. 330-338]. The most important of them include: (1) sources of innovations, (2) factors affecting the process of creation and introduction of innovations, (3) motives for using innovation, (4) elements of financial system where innovations appear, (5) types of innovations, (6) effects of using innovations, (7) moment of creation of innovations (8) base instrument (in the case of financial instruments)

The presented approaches to the theory of technological innovations might apply to the analysis of financial innovations, however, no sooner than after considering their specific features. Financial innovations are not a new phenomenon because from the beginning they were related to technological innovations, and were developing simultaneously with them [15, pp. 2-5]. On the one hand – financial innovations allow financing innovative technological projects in the event when traditional sources of financing are unavailable due to high investment risk. On the other hand, technological and economic development resulting in increasing complexity of business processes and the formation of new kinds of risk force the financial system and financial markets to adapt to the changes as required by business entities and challenges of the contemporary world. As a result, it can be stated that technological and economic development would be slower and the level of the society's wealth would be lower without financial innovations. At the same time, the application of financial innovations would be limited without demand for them, resulting from technical progress. The development of financial innovations has a long record. It may be assumed that each financial instrument (beyond ordinary shares and bonds with fixed interest rate), each financial institution (beyond traditional banks) and each financial market (beyond traditional markets of shares and bonds) could be treated as financial innovation during a certain period of history. In the 17th and 18th century, new financial instruments were used – debt contracts quoted on liquid financial markets in order to collect capital needed for financing transoceanic commercial expeditions. Then, in the 19th century, new financial institutions were created: these were investment banks using new methods of accounting and their primary task was to identify profitability of railway companies and provide them with funds necessary for the expansion of railway networks. On the other hand, in the 20th century, *private equity* funds were created: they are involved in analysing and financing projects in the area of high technologies. The beginning of the 21st century witnessed the development of new forms of investment companies: pharmaceutical corporations preparing analysis and providing funds for financing innovative biotechnological solutions. These are only selected examples of new solutions indicating the importance of financial innovations for technological and economic development [16, pp. 243-256].

Financial innovations are not a new phenomenon, however their importance has been growing systematically as since mid-1990s their dynamic growth has been recorded [13, p. 1]. To carry out an analysis of the importance of financial innovations for the contemporary financial system, it is necessary to define them. Due to the lack of a uniform definition of

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financial innovations, similarly as in the case of technological innovations, it is advised to arrange past deliberations.

In most used definitions financial innovations are presented in narrow perspective as product innovations. On the basis of the analysis of the used definitions, financial product innovations may be characterized as:

a) completely new solutions or traditional instruments to which new construction elements were introduced to increase their liquidity and the scope of potential applications owing to a better adjustment to the conditions of functioning,
b) substitutes of traditional instruments improving the situation of entities using them,
c) instruments that may not be clearly assigned to one segment of the financial market,
d) instruments that may be used as a protection against increased fluctuation of market parameters,
e) complex instruments consisting of several simple, traditional financial instruments,
f) instruments used in new financial processes, techniques or strategies of entities using them for the first time.

Assuming that each financial instrument beyond ordinary shares and bonds with fixed interest rate can be considered as financial innovation, under new solutions two categories can be distinguished: (1) innovations related to share instruments and (2) innovations related to debt instruments.

A different approach to the definition of financial innovations assumes a division into: (1) product innovations, (2) process innovations and (3) risk changing innovations [13, p. 4]. The first category – product innovations – contains new financial instruments, contracts, techniques and markets. The next group – process innovations – is related to improvements in the processes of securities distribution, settlements of transactions or valuation of assets. On the other hand, risk changing innovations are created by separation or combination of various instruments in order to receive new solutions with changed risk profile. In this group of financial innovations two categories can be distinguished: (1) instruments (2) post-contractual innovations [13, p. 5]. In the first case, a new instrument is designed and created in such a way that it has specified in advance characteristics (*ex-ante* innovations). In the case of the second group of innovations, risk profile is changed only after concluding a contract, after using the primary instrument (*ex-post* innovations).

The presented approaches to the definition of financial innovations belong to the most often used, however, based on the definition of financial system, a new definition of financial innovations may be prepared. As a result, financial innovations in a broad perspective may be defined as new solutions and changes in operations of: (1) financial markets, (2) financial institutions, (3) financial instruments and (4) regulations determining their functioning. Relations between different groups of financial innovations are various and can be defined as a spiral of financial innovations. New financial institutions create new financial instruments (products and services) that become the object of trade on new markets [5, p. 176-184] that will require soon new legal regulations. On the other hand, changes in market conditions and legal environment lead to creation of new financial instruments and then new markets and financial institutions specializing in these new solutions.

To sum up the above discussion, the definition "financial innovations" may be used in two meanings:

a) in a narrow meaning, financial innovations are defined as new solutions in financial instruments (completely new instruments, combinations of several traditional instruments, modifications of traditional instruments, new applications of the existing instruments, etc.),
b) in a broad meaning, financial innovations include new solutions in any element of the financial system (within markets, institutions, instruments and financial regulations),

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and the word "new" means that innovations are perceived as novelty by entities using them, and not necessarily by other financial system participants. Knowing the meaning of the term "financial innovations" subsequently it is required to think over factors influencing the development of new solutions. Two situations encouraging formation and use of financial innovations can be distinguished. Firstly – financial innovations are used when traditional solutions are no longer available, secondly – when costs related to the introduction of financial innovations are lower than costs related to the use of old, traditional solutions [18, pp. 33-35].

The demand theory of financial innovations indicates as the main source of new solutions imperfections of the financial market resulting mostly from information asymmetry, agency costs and transaction costs [10, p. 28]. These market imperfections create demand for solutions enabling market participants to limit their negative consequences. An example of financial innovations responding to the financial market participants' need (reactive innovations) may be payment instruments and systems reducing transaction costs. Another example may be financial instruments increasing the availability of sources of financing and raising flexibility of cash flows. Unfavourable tax solutions can be indicated as another cause of creation and introduction of financial innovations, forcing market financial system participants to search for solutions that ensure avoiding the need to pay too high taxes – by the application of defensive innovations (for instance, in the form of selected structured instruments) it is possible to lower or postpone in time tax payments. Also, growing variability of market parameters stimulates participants of the financial system to search for instruments restricting the level of risk [14, pp. 91-121]. The use of new solutions in the area of finance management, accounting and financial reporting may also result from new legal regulations that force financial market participants to apply them – as an example, adaptive innovations in the form of new systems of financial reporting can be indicated. To sum up, financial innovations should be generated in response to the needs of financial market participants for the purpose of the best adjustment to their individual needs and goals (demand-controlled financial innovations).

At the same time, since the beginning of 1980s, enormous activity of financial institutions has been noticed in the field of creation and introduction of new financial solutions being the object of analysis of supply theory of financial innovations [18, pp. 33-35]. Solutions of this type are created by financial institutions to increase their competitive advantage. A huge number of financial innovations is offered to customers of financial institutions – these are usually aggressive innovations concerning various areas of finance: new instruments and tools of investment, saving, financing or payment implementation (supply-controlled financial innovations).

In addition, financial innovations are introduced by financial institutions in order to improve received results, protect the market position or improve their financial situation. This type of solutions are called protective innovations and may apply both in investment decisions and in risk management area. Many factors influence increased activities of financial institutions in the field of creation and implementation of financial innovations. The most important of them include: globalization and disintermediation of financial markets, increased variability of market parameters, deregulation and liberalization of flows of capital and the dynamic growth of communication technologies. Other significant factors include: increased competition between financial institutions, short-term perspective in the determination of financial results, search for new sources of revenue (non-interest revenue) and growing importance of the risk management process (more information on factors of financial innovations [5, p. 42; 10, p. 27; 13, p. 7]. It is often emphasized that financial innovations are created in connection with looking for more effective methods of risk redistribution between financial market participants.

Conclusions

To sum up, regardless of differences resulting from demand and supply approach to explaining the motives for use of financial innovations, two group of factors affecting the process of creation and implementation of financial innovations in the financial system can be listed. The first group includes internal factors resulting from the needs, goals, decisions and changes in management style of financial system participants (both financial institutions and other entities). The second group includes external factors resulting from imperfections of the financial market, variability of the business environment and challenges of the contemporary economy. Even without taking into account the diversity of sources of financial innovations, the process of creation and implementation is the same. A huge number of financial innovations observed in the financial system is a consequence of relatively low patent protection as compared to technological innovations. As a result, the diffusion of financial innovations is very quick. At the beginning, financial innovations are introduced to a weaker controlled international market, and only later, after a positive verification, they are introduced to more restrictive domestic markets. Financial innovations that were not successful are withdrawn and after some time their modifications are introduced. Positively verified financial innovations may be easily imitated by competition, so it often happens that new financial solutions are introduced to the market simultaneously by various financial entities. The process of creation and introduction of financial innovations is thus faster, less complicated and cheaper than a similar process conducted in the case of technological innovations. Additionally, the process of diffusion of financial innovations in the global financial system is strengthened through a dynamic development of new TIC. Then, the issue widely commented in literature relates to effects of the application of financial innovations which may be very diverse. Balanced (positive, right) innovations help the financial system to perform its main functions at reduced costs and increased efficiency of action, however, not all new financial solutions have a positive impact on the financial system. Some of them may have unforeseeable and undesirable side effects leading to instability of the financial system and increased financial risk level. As a result, harmful (negative, inadequate) innovations should be properly controlled and eliminated through actions of competent supervisory and regulatory institutions [14, pp. 92-94]. The effects of financial innovations may be analysed against time prospect of their impact. Short-term (temporary) innovations offer its users temporary benefits, and, at the same time, generate adverse effects for other participants of the financial system. On the other hand, long-term (permanent) innovations lead to improved efficiency of the whole financial system.

References

[1] Al-Kaber, M. (2010). *Rynki finansowe*, Białystok: Wydawnictwo Wyższej Szkoły Ekonomicznej w Białymstoku.

[2] Anderloni, L., Bongini, P. (2009). Is Financial Innovation Still a Relevant Issue? In: L. Anderloni, D. T. Llewellyn, R. H. Schmidt (ed.), *Financial Innovation in Retail and Corporate Banking*, Cheltenham: Edward Elgar.

[3] Breński W. (2015).*The influence of the innovativeness and changes in education on the science development in the European Union*, American Journal of Educational Research, Vol. 3, Available online at http://pubs.sciepub.com/education/3/10/7

[4] Breński W. (2015). *Outsourcing as a Business Process in an Organization*, *American Journal of Educational Research*, 2015, Vol. 3, Available online at http://pubs.sciepub.com/education/3/9/17.

[5] Breński W., (2015). *Customer centricity and satisfaction as a key aspect of CRM*, Volume 13, Issue 1 (cont.), Problems and Perspectives in Management.
[6] Bodie, Z., Merton, R. C. (2000). *Finance*. Upper Saddle River: Prentice Hall.
[7] Dabic, M., Cvijanovic, V., Gonzalez-Loureiro, M. (2011). *Keynesian, Post-Keynesian Versus Schumpeterian, Neo-Schumpeterian. An Integrated Approach to the Innovation Theory*. Management Decision, *49*(2).
[8] Damodaran, A. (2001). *Corporate Finance. Theory and Practice*. Hoboken: John Wiley & Sons. Dębski, W. (2005). *Rynek finansowy i jego mechanizmy*. *Podstawy teorii i praktyki*. Warszawa: PWN.
[9] Ehrhardt, M. C., Brigham, E. F. (2009). *Corporate Finance. A Focused Approach.* Mason: South-Western, CENGAGE Learning.
[10] Fabozzi, F. J., Modigliani, F. (2003). *Capital Markets. Institutions and Instruments*. Upper Saddle River: Pearson Education International.
[11] Frame, W. S., White, L. J. (2009). *Technological Change, Financial Innovation, and Diffusion in Banking* (Working Paper 2009-10). Atlanta: Federal Reserve Bank of Atlanta.
[12] Jenkinson, N., Penalver, A., Vause, N. (2008). *Financial Innovation: What Have We Learnt?* Bank of England, Quarterly Bulletin, Nr 3.
[13] Llewellyn, D. T. (2009). *Financial Innovation and the Economics of Banking and the Financial System*. In: L. Anderloni, D. T. Llewellyn, R. H. Schmidt, *Financial Innovation in Retail and Corporate Banking*. Cheltenham: Edward Elgar.
[14] Lumpkin, S. A. (2010). *Regulatory Issues Related to Financial Innovation*. *OECD* Journal: Financial Market Trends, 2009(2).
[15] Michalopoulos, S., Leaven, L., Levine, R. (2009). *Financial Innovation and Endogenous Growth*. National Bureau of Economic Research, Working Paper 15356, Cambridge, September.
[16] Mullineux, A. W. (2010). *Financial Innovation and Social Welfare*. Journal of Financial Regulation and Compliance, 18(3).
[17] OECD. (2005). *Oslo Manual*. *Guidelines for Collecting and Interpreting Innovation Data*. 3rd ed., Eurostat.
[18] Pantalone, C. C., Welch, J. B. (1987). *Innovative Financing. How New Financial Strategies Have Reshaped American Business.* Financial Executive, Nr 4.
[19] Rose, P. S., Marquis, M. H. (2009). *Money Market and Capital Market, Financial Institutions and Instruments in a Global Marketplace*. New York: McGraw Hill.