World Academy of Science, Engineering and Technology
International Journal of Economics and Management Engineering
Vol:9, No:9, 2015

Financial Innovations for Companies Offered by Banks: Polish Experience

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***Abstract*—**Financial innovations can be regarded as the cause and the effect of the evolution of the financial system. Most of financial innovations are created by various financial institutions for their own purposes and needs. However, due to their diversity, financial innovations can be also applied by various business entities (other than financial institutions).

This paper focuses on the potential application of financial innovations by non-financial companies. It is assumed that financial innovations may be effectively applied in all fields of corporate financial decisions integrating financial management with the risk management process. Appropriate application of financial innovations may enhance the development of the company and increase its value by improving its financial situation and reducing the level of risk. On the other hand, misused financial innovations may become the source of extra risk for the company threatening its further operation.

The main objective of the paper is to identify the major types of financial innovations offered to non-financial companies by the banking system in Poland. It also aims at identifying the main factors determining the creation of financial innovations in the banking system in Poland and indicating future directions of their development.

This paper consists of conceptual and empirical part. Conceptual part based on theoretical study is focused on the determinants of the process of financial innovations and their application by the non-financial companies. Theoretical study is followed by the empirical research based on the analysis of the actual offer of the 20 biggest banks operating in Poland with regard to financial innovations offered to SMEs and large corporations. These innovations are classified according to the main functions of the integrated financial management, such as financing, investment, working capital management and risk management.

Empirical study has proved that the biggest banks operating in the Polish market offer to their business customers many types and classes of financial innovations. This offer appears vast and adequate to the needs and purposes of the Polish non-financial companies. It was observed that financial innovations pertained to financing decisions dominate in the banks' offer. However, due to high diversification of the offered financial innovations, business customers may effectively apply them in all fields and areas of integrated financial management. It should be underlined, that the banks' offer is highly dispersed, which may limit the implementation of financial innovations in the corporate finance. It would be also recommended for the banks operating in the Polish market to intensify the education campaign aiming at increasing knowledge about financial innovations among business customers.

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***Keywords*—**Banking products and services, banking sector in Poland, corporate financial management, financial innovations, theory of innovation.

I. Introduction

MODERN financial system is characterized by a dynamic growth of financial innovations, both in terms of their quantity and volume. Initially, financial innovations were created by financial institutions for their own purposes and needs. Nowadays, financial innovations are spread in the financial system and used by various business entities.

The determinants of the process of creation and diffusion of financial innovations are analyzed in many theoretical and empirical studies. Wide attention is given to the supply theory of innovation, which addresses the competition between financial institutions, liberalization of capital flows and globalization of financial markets. The other widely discussed theory is the demand theory of innovation, which analyses the reasons behind innovation with regard to asymmetric information, agency costs and tax regulations. In addition, financial innovations are not homogenous, as they comprise of different groups of financial instruments, products, mechanisms and processes that can be implemented in order to improve financial strategy of their end-users. Therefore, the problem of financial innovation is very complex.

This paper focuses on the problem of the implementation of financial innovations by non-financial companies. It is based on the belief that financial innovations may be effectively implemented by non-financial companies in several areas of their activity, although these innovations are mostly associated with the activity of financial institutions. In non-financial companies, the implementation of financial innovations is expected to enhance the effectiveness of financial strategy, by supporting four major broad areas of concern: (1) financing decisions, (2) investment decisions, (3) working capital management decisions, and (4) risk management decisions. Financial innovations implemented by non-financial companies are mostly products and services offered by various financial institutions. The banking sector is one of most active in creating various types of financial innovations. Accordingly, the main objective of the paper is to identify the main types of financial innovations offered to non-financial companies by the banking system in Poland. It also aims at identifying the main factors determining the creation of financial innovations in the banking system in Poland and indicating future directions of their development. The theoretical discussion is here supported by empirical study, which covers the offer of 20 biggest banks operating in

Poland. The banks' offer is examined with regard to financial innovations provided to SMEs and to large corporations. Additionally, these innovations are classified with regard to the types of companies' decisions to be supported, that is: financing, investment, working capital and risk management decisions.

The paper is organized as follows. The second section provides theoretical insight to the problem, by reviewing the literature on the determinants of the process of financial innovations and the reasons behind their application by the non-financial companies. The third section provides the description of the conducted empirical study and the fourth section discusses the results. The fifth section concludes the paper.

II. Literature Review on Financial Innovations and Their Application in Corporate Financial Management

Global financial system is characterized by high pace of innovation. As a result, financial innovations are widely discussed in many theoretical studies and empirical research from different perspectives. There are three broad issues discussed in the literature on financial innovations: (1) the origins, evolutions and definition of financial innovations, (2) the process of financial innovations with its elements and determinants, and (3) the classification and functions of financial innovations, including the analysis of the consequences of their implementation. These issues are discussed further.

Financial innovations gain considerable attention today, but they are not a new phenomenon, as their appearance is strictly connected with the development of the financial system and its elements. Therefore, financial innovations have been important part of economic history, ranging from the innovation of interest to the creation of credit default swaps (CDS) or asset backed securities (ABS). In addition, financial innovations and technical innovations are bound together, creating conditions for the economic growth and increase in the social welfare [1], [2]. As it is argued that growth is not only driven by the profit-maximizing entrepreneurs who commercialize new technologies, but also by the financial entrepreneurs who develop new methods of screening and funding these new technologies, as well as financial services which reduce transaction costs (sustainable financial innovations). This leads to the conclusion that without financial innovations, the technological and economic development would slow down and the wealth of nations would be lower. At the same time, the application of the financial innovations would be limited without the demand arising from the technical progress. However, it should be stressed that not all financial innovations increase social wealth. Due to asymmetric information there may be created financial innovations, which could be harmful to financial system participants. Several types of financial innovations are blamed for the 2008+ financial crisis [3], [4]. Thus, financial innovations are not a new issue. However, their importance has increased recently, as since the mid-1990's the acceleration in the pace and range of financial innovations has been observed [5]. Financial innovations should be regarded as a process of change, influencing the situation of the financial system participants. The definition of financial innovations can be analyzed in a broad or narrow meaning. In most of the applied definitions, the financial innovations are presented in the narrow meaning, as mainly the product innovations (new developments in financial instruments) are described [6]-[8]. By the analysis of these definitions, the main features of the product financial innovations can be listed as follows:

- they can be entirely new solutions or just traditional instruments in which new elements of construction have been introduced improving their liquidity and increasing the number of their potential applications as they are better suited to the circumstances of the time,
- they can be used as substitutes to the traditional financial instruments improving the financial situation of the business entities using them,
- they cannot be easily assigned to one particular segment of the financial market,
- they can be used to hedge against the intensive volatility of the market parameters,
- they can be used in a form of complex instruments including several simple, traditional financial instruments,
- they can be used in a form of new financial processes or techniques or new strategies that primary use these new products.

In a broad definition, financial innovations are defined as a process of change resulting in new concepts or changes in the activity of all elements of financial system i.e. institutions, markets, instruments and regulations [9]-[11]. Consequently financial innovations create a huge and variable group of new developments that are created and implemented in order to increase the efficiency of the financial system in general and by this – to enhance the economic growth and social welfare. Different types of financial innovations are connected with each other in a mechanism called "innovation spiral", whereby one innovation begets the next [10], [16]. Even if one financial innovation is unsuccessful, it can provide information useful for creating newer developments or it can produce follow-on effects that lower the barriers to subsequent innovations.

The process of creating financial innovations usually includes several stages, such as: (1) source of innovation (initializing factor/driver of innovation), (2) idea (response to the factor), (3) invention (creating innovation), (4) implementation (applying innovation), (5) effect of innovation (assessing the results of application), (6) withdrawal of unsuccessful innovations or modification (improvement) of successful innovations, (7) diffusion by imitation or commercialization. Due to the low level of patent protection and advanced techniques of communication, the diffusion of financial innovations is very fast. Thus, successful innovations can be spread around the global financial system very quickly. It is worth to stress, that most of the financial innovations are evolutionary adaptations of prior developments [10].

Identification of factors determining the process of financial innovation (drivers of financial innovation) is

another issue undertaken in the literature [12]. The demand-side theory of the financial innovations indicates that the main reasons for the new developments are the imperfections of the financial market, mainly the asymmetric information, agency costs, transaction costs and taxes [7]. These imperfections create demand for the solutions that enable the market participants (business entities) to reduce their negative consequences, e.g. new solutions in the payments systems and instruments reducing the level of transaction costs, new developments in financing instruments increasing the availability of the sources of funds and giving more flexibility in designing cash flows. Yet another reason for creating and implementing financial innovations is connected with the unfavorable tax regulations, forcing the market participants to search for the solutions enabling them to avoid paying too high taxes e.g. new investment instruments in a form of structured products reducing or postponing the tax payment. The increased volatility of the market parameters also enhances business entities to look for new solutions enabling them to reduce the level of risk. New regulations may also force the market participants to use the new developments in financial management, accountancy or financial reporting. Summarizing, the financial innovations should be created as a response to the market participants' needs aiming at meeting their individual goals (the demand-driven financial innovations). Simultaneously, since the beginning of 1980's the intense activity of the financial institutions (mostly banks) creating new financial developments has been observed, being the subject of the analysis of the supply-side theory of financial innovations. This activity of financial institutions in inventing and implementing financial innovations is strictly connected with the currently observed processes, such as: globalization, deregulation and disintermediation of the financial markets, liberalization of the capital flows, increasing volatility of the market parameters, as well as the dynamic development of new communication technologies. These processes influence the functioning of the financial institutions resulting in the increasing importance of the risk management, the short-term perspective in generating profit and the need for the non-interest sources of revenues [5]-[7]. The process of increasing supply of financial innovations is also determined by the development of investment banking and financial engineering. All these factors result in a high number of financial innovations (mainly in a form of financial products and services), that are offered to their end-users, including non-financial companies (the supply-driven financial innovations).

Financial innovations are not a homogenous group of new financial developments, thus they can be classified according to various criteria [6], [10], [12], [13]. The most important criteria of the financial innovations classification include [9]:

- sources of innovations e.g. supply-driven and demand-driven innovations,
- factors influencing the process of creation and implementation of innovations e.g. externally-driven and internally-driven innovations,
- motives of using financial innovations e.g. adaptive, aggressive and protective innovations,
- elements of the financial system where the innovations occur e.g. innovations in financial instruments, markets, institutions and regulations,
- types of innovations e.g. product, process and risk-shifting innovations,
- effect of the financial innovation application e.g. sustainable (true) and harmful innovations.

Another important issue is related to the classification of the functions fulfilled by financial innovations. According the Bank for International Settlements financial innovations are divided into five groups, based on their functions: (1) price-risk transferring, (2) credit-risk transferring, (3) liquidity-generating, (4) credit-generating and (5) equity-generating instruments [7]. The price-risk transferring innovations provide market participants with more efficient means for dealing with price or exchange rate risk. Credit-risk transferring instruments are used to reallocate the risk of default. Liquidity-generating instruments can have three different consequences: they increase the liquidity of the market, they enable deficit units to look for additional sources of funds and they allow market participants to avoid unfavorable law regulations. Credit-generating instruments increase the amount of debt funds available to the deficit units and finally, while the access to the additional sources of equity capital is provided by the use of the equity-generating instruments. Another approach to functions of financial innovations is presented in [5], [7], [10]. Financial innovations can be also analyzed from the perspective of their end-users i.e. non-financial companies that implement financial innovations in order to improve their financial condition and support their financial management [14], [15]. The integrated corporate financial management perspective is proposed in this paper to identify and analyze financial innovations based on their particular functions important for non-financial companies being the end-users of such new products and services. Based on this approach, 4 classes of financial innovations have been distinguished, that is innovations enhancing: (1) financing decisions (FIN), (2) investment decisions (INV), (3) working capital management decisions (WCM) and (4) risk management decisions (RMD).

Regarding the corporate financing decisions (concerning the capital mix, resulting in the level of equity and debt capital), financial innovation (FIN) can be applied in order to improve access to the external sources of capital, to decrease the cost of capital, to increase the flexibility or improve the quality of capital structure. In addition, financial innovation can be used to adjust the cash flows expected by the capital providers to the cash flows generated by company's operating activity and in this way to reduce the bankruptcy risk [14], [18].

As to the investment decisions, financial innovations (INV) can be applied to increase or stabilize the expected rate of return on the realized investments. In addition, new investment opportunities may enable the company to avoid or postpone the income tax payments or to reduce the transaction costs, increasing the level of available cash. The offer of new

investment opportunities can be also used to get access to the markets and instruments that are not available in the direct investments (mainly due to high level of the required initial investment). Certain innovative financial opportunities can be characterized by the low correlation to the stock markets or other traditional financial instruments, therefore company may use them in order to diversify the investment portfolio to reduce the level of investment risk and protect the invested capital [14], [18]. Company may also use financial innovations in working capital management decisions (WCM). This type of new solutions aim at increasing company's liquidity and flexibility, decreasing at the same time the level of operating risk. Financial innovations may be used to improve working capital management mainly by providing access to short-term sources of funds and by assisting cash and receivables management (e.g. factoring, forfeiting, escrow account, credit cards, asset management services, euro notes or commercial papers issuance programs). Many innovative mechanisms related to the working capital management are offered by banks in a form of packaged account that includes excess cash automatic investment vehicles, credit lines and credit cards. These solutions enable the company to reduce the provisions, fees paid to financial intermediaries (reduce transaction costs), and to save time required to search for appropriate services [11], [15].

Finally, financial innovations can be applied in the risk management process (RMD) limiting the level of enterprise risks, stabilizing cash flows and improving financial planning. In this application, financial innovations fulfill the risk management function. Financial innovations purely related to the risk management can be divided into two groups: (1) insurance-based risk treatment techniques and (2) non-insurance risk transfer solutions. The main purpose of creating innovations within the insurance-based risk treatment techniques is to provide the protection and financial support in the event of risk at lower costs (lower insurance premium) comparing to the traditional insurance contracts. As to the non-insurance risk transfer solutions, the most popular hedging instruments are derivatives (plain vanilla and exotic ones), such as options, futures, forwards, swaps, and their combinations (second-generation innovations) created by the financial engineering. The main motive of the risk-transfer derivatives is not only to reduce the risk, but also to limit the transaction costs due to the standardization process [14], [18].

III. Conceptual Framework of the Research

Banking sector belongs to one of the most relevant providers of financial innovations that are applicable in non-financial companies. To some extent, the current development of the banking sector has an impact on the scope and types of innovations applicable in financing, investment, working capital management and risk management decision of a company. Currently, the Polish banking sector consists of 38 commercial banks, 28 branches of credit institutions and 565 co-operative banks (as at the end of 2014). Total assets of the banking sector in 2014 in Poland amounted to PLN 1.5bn, in this assets of commercial banks represented 91%, branches of credit institutions – 2% and co-operative banks – 7%. Only 10 commercial banks and all co-operative banks were controlled by Polish investors (both State and private investors). The remaining 28 commercial banks were controlled by foreign investors. As a result, 38.5% of sector's assets were controlled by Polish investors and the remaining 61.5% by foreign ones, mainly from Italy, Germany, Spain, Netherlands, Portugal, USA and France [17].

For the purposes of this empirical study, the offer of top 20 commercial banks operating in Poland was analyzed (ranking based on their assets value as at the end of 2014) – Table I. These banks are regarded as the leaders in the Polish banking sector. Their position seems to be sufficient justification to select them as a sample representing the significant part of banking sector in Poland. These banks as leaders are expected to be also important creators of financial innovations in the Polish financial market, which is relatively young, with only 25-years long history.

TABLE I
List of Top 20 Banks Operating in Poland

No	Bank	No	Bank
1	PKO Bank Polski S.A.	11	Bank BGŻ S.A.
2	Bank Peakao S.A.	12	Bank BPH S.A.
3	Bank Zachodni WBK S.A.	13	Nordea Bank Polska S.A.
4	mBank S.A.	14	Deutsche Bank Polska S.A.
5	ING Bank Śląski S.A.	15	Alior Bank S.A.
6	Getin Noble Bank S.A.	16	BNP Paribas Bank Polska S.A.
7	Bank Millennium S.A.	17	Bank Ochrony Środowiska S.A.
8	Raiffeisen Polbank w Warszawie S.A.	18	Santander Consumer Bank S.A.
9	Bank Handlowy w Warszawie S.A.	19	SGB-Bank S.A.
10	Bank Gospodarstwa Krajowego	20	Euro Bank S.A.

Source: own elaboration based on [17].

The detailed analysis of the offer of these 20 banks has shown that 5 of these banks don't provide service for corporate customers. Two of these banks provide services only for individual customers (Santander Consumer Bank S.A., Euro Bank S.A). The other two suspended their activity in the Polish market since 2015 (Nordea Bank Polska S.A. merged with PKO Bank Polski S.A. and Bank BGŻ S.A. merged with BNP Paribas Bank Polska S.A.). The fifth bank - Bank Gospodarstwa Krajowego - is a State-owned bank which primary objective is to provide banking services for the public finance sector and to support the regional and local development programs. Therefore, these banks were excluded from a further study.

The remaining 15 banks (presented in Table II) provide various types of products and services to different groups of customers: individual clients, small firms, large corporations and government entities. Out of these 15 banks, only 4 are controlled by Polish investors (private investors or State-owned) and 11 banks are controlled by foreign investors. Altogether, their assets represent close to 80% of the banking sector's assets.

TABLE II
LIST OF ANALYZED BANKS

no	Bank	Country of origin of the major shareholder	Asset value (in PLN m)	Share in the total value of assets of the banking sector in Poland
1	PKO Bank Polski S.A.	Poland	248 700	16%
2	Bank Pekao S.A.	Italy	167 600	11%
3	Bank Zachodni WBK S.A.	Spain	134 500	9%
4	mBank S.A.	Germany	118 999	8%
5	ING Bank Śląski S.A.	Netherlands	99 890	7%
6	Getin Noble Bank S.A.	Poland	68 800	4%
7	BGŻ BNP Paribas Bank Polska S.A.	France	63 200	4%
8	Bank Millennium S.A.	Portugal	60 700	4%
9	Raiffeisen Polbank w Warszawie S.A.	Austria	53 500	3%
10	Bank Handlowy w Warszawie S.A.	USA	49 600	3%
11	Deutsche Bank Polska S.A.	Germany	36 290	2%
12	Bank BPH S.A.	USA	31 600	2%
13	Alior Bank S.A.	Italy	30 100	2%
14	Bank Ochrony Środowiska S.A.	Poland	19 600	1%
15	SGB-Bank S.A.	Poland	16 130	1%
	Total		1 199 209	78%

Source: own elaboration based on [17].

The offer of the sampled 15 banks was subject of a deeper analysis, with regard to the innovative products and services that may support companies' activities in four decisive areas: (1) financing decisions, (2) investment decisions, (3) working capital management decisions, and (4) risk management decisions. In this context, 3 substantial research questions were asked:

Q1: Do financial innovations pertained to financing decisions dominate in the offer of the analyzed banks?

Q2: Is there a difference between the financial innovations offered by banks with the dominant domestic (Polish) investors and by banks controlled by foreign investors?

Q3: Is there a difference between financial innovations offered to SMEs and to large corporations?

As the problems subject to the empirical verification are specific and qualitative in nature, the study relies on descriptive approach, based on the document analysis as main research method. The documents were derived from the corporate websites of banks presenting their products and services offered to their business customers (SMEs and corporations). Banks' offer was analyzed from the functional perspective aiming at identification of types of innovations enhancing: (1) financing, (2) investment, (3) working capital management and (4) risk management decisions of companies (Table III).

TABLE III
FUNCTIONS OF FINANCIAL INNOVATIONS FROM CORPORATE FINANCIAL MANAGEMENT PERSPECTIVE

Areas of corporate financial management	Function of financial innovations	Definition of financial innovations applied in the study
Financing decisions	Financing function	Financing services other than traditional bank loans with fixed or floating rate
Investment decisions	Investment function	Investment products and services that are not in the form of traditional bank deposits
Working capital management decisions	Working capital management function	Products and services enhancing payment, cash and receivables management
Risk management decisions	Risk management function	Products and services enhancing risk management (insurance and non-insurance transfer)

IV. FINDINGS AND DISCUSSION

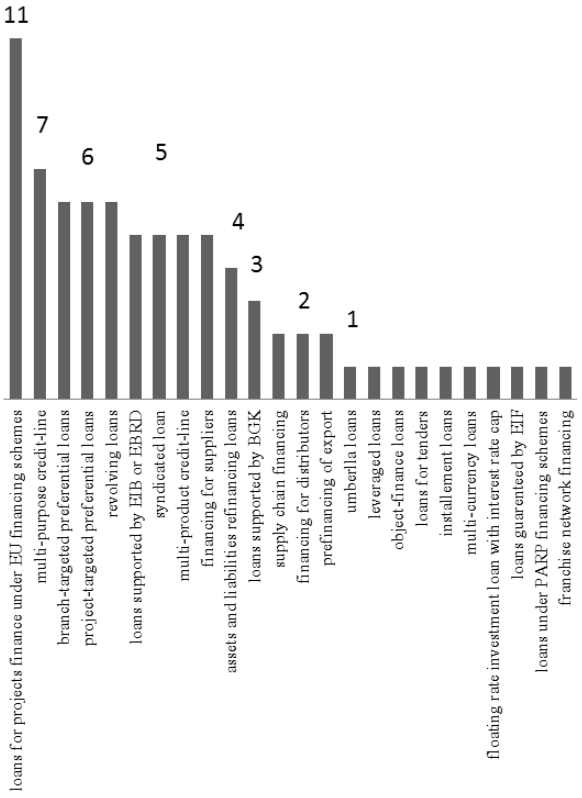
A. Identification of Types of Financial Innovations

The first objective of this paper was to identify the types of financial innovations offered by the selected banks to corporate customers. These financial innovations were classified according to their function, defined from the corporate financial management perspective.

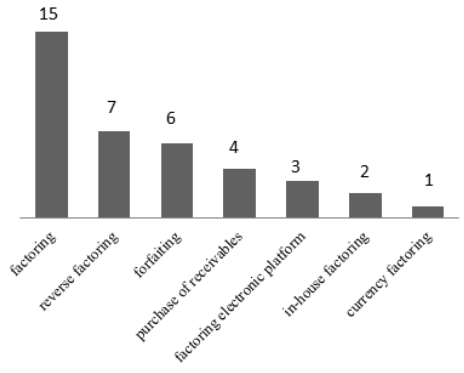
One of the most important areas of the services offered by bank to corporate customers is financing. In particular, banks offer various forms of debt and equity funding. This study examined other options, which characteristics allow to classify these as innovative ones. The study has shown that in the offer of the 15 analyzed banks, there were 44 types of innovative financing products and services (FIN) – shown as: Figs. 1 (a)-(d). These innovations can be classified into 4 groups: (1) loans and credit-lines: 24 types, (2) factoring and forfeiting: 7 types, (3) leasing: 6 types, (4) other financing products and services: 7 types.

The most popular innovation within financing products and services (FIN) is factoring offered by 15 banks. On the second place, there are loans connected with UE grants/support (offered by 11 banks) and multi-purpose credit lines, as well as reverse factoring (offered by 7 banks each).

The 3 most active banks in this field are: mBank S.A. offering 18 types of financing innovations, ING Bank Śląski S.A. offering 15 types of innovations and BGŻ BNP Paribas Bank Polska S.A. offering 13 types of innovations. The most recent and the most interesting financing innovations that seem to be well adjusted to the needs of firms are umbrella loans (one loan and one credit line for all entities within a capital group), object finance loans and supply chain financing. Another example of innovation is loan with limited interest rate (with cap).



(a)



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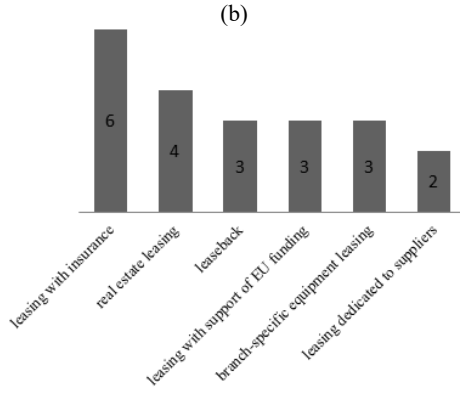

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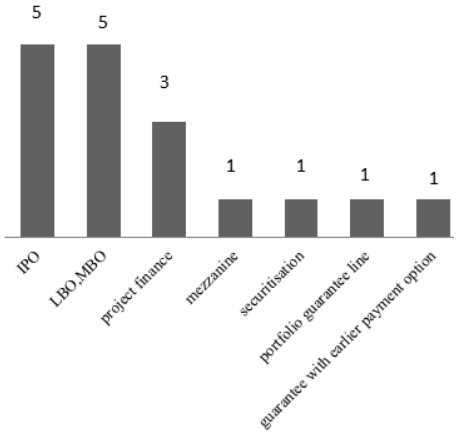


(d)

Fig. 1 (a) Number of banks offering particular type of financing innovations (group 1), (b) Number of banks offering particular type of financing innovations (group 2), (c) Number of banks offering particular type of financing innovations (group 3), (d) Number of banks offering particular type of financing innovations (group 4)

It should be stressed, that significant part of financing innovations is connected with the programs realized by the government agencies supporting particular branches of economy or particular investment projects. Part of the banks' offer is dedicated to large corporations, this includes innovations connected with capital market transactions (e.g. IPO, LBO, MBO, securitization), project finance or mezzanine finance.

The second analyzed area of financial management is connected with investment decisions. Banks offer various forms of time and savings deposits to their corporate customers. Other instruments are connected with structured products and services based on electronic solutions. Based on the offer of 15 banks, there were identified only 8 types of innovations dedicated to investment decisions (INV) of companies (shown as: Fig. 2).

The most popular innovations are auto-overnight deposits (offered by 8 banks), multicurrency deposits (offered by 6 banks) and structured deposits (offered by 5 banks). Auto-overnight and auto-deposits are popular due to their simplicity and usefulness. Structured deposits require certain knowledge about foreign exchange market and interest rate fluctuations, which limits their application. FX and securities trade electronic platforms represent solutions that aim at increasing the efficiency of transactions, by reducing the required time and money. The 3 most active banks in this area are: PKO Bank Polski S.A., mBank S.A. and Raiffeisen Polbank w Warszawie S.A. which offer 4 innovations each. 4 out of 15 analyzed banks do not offer any innovations connected with investment decisions. The remaining 8 banks offer 1-2 innovations in this field.

The next area of corporate finance is related to working capital management decisions. Traditionally, banks offer various forms of payment services, bank accounts and credit cards. Financial innovations included in this class are mostly based on the communication technology developments. The

study has shown that in the offer of 15 analyzed banks, there were 30 types of innovative working management products and services (WCM) – shown as: Figs. 3 (a) and 3 (b). These innovations can be classified into 4 groups: (1) payment solutions: 18 types, (2) products related to bank cards: 6 types, (3) products related to bank accounts: 3 types, (4) other WCM innovations: 3 types.

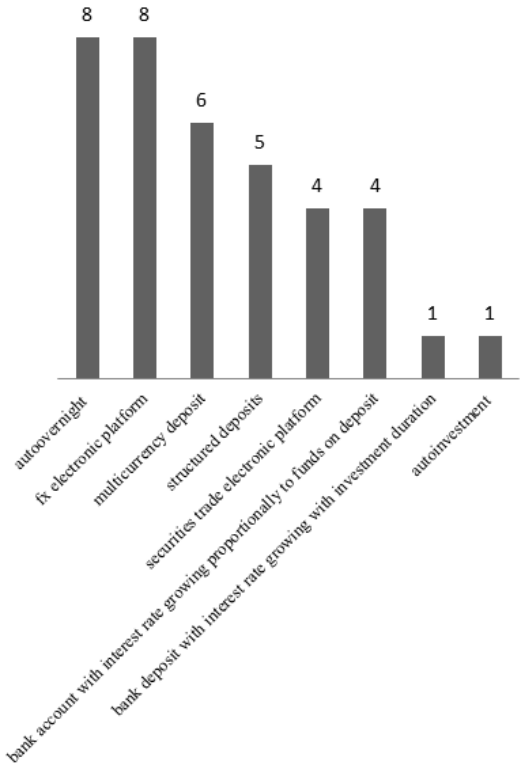


Fig. 2 Number of banks offering particular type of investment innovations

The most popular WCM innovations are mass payments, as well as electronic platform (offered by 15 banks each) and cash pooling (offered by 12 banks). Cash pooling is popular solution due to its usefulness and simple construction. Relatively new solution - multicurrency cash pooling is offered by 2 banks. Electronic platforms provided by all analyzed banks offer easy access to different groups of products and services, increasing the efficiency of working capital management. WCM innovations are mostly based on Internet and telecommunication technology. These are mostly products connected to mass payments and speed collect. Quite popular are various types of payment/credit cards linked to various forms of insurance (travel insurance, life insurance, health insurance), different systems of bonuses and discounts or assistance (priority pass and concierge). These benefits seem to be used to motivate managers to choose the particular bank's offer.

Three banks with wide range of working capital management innovations are: Bank Handlowy w Warszawie S. A., PKO Bank Polski S. A., mBank S. A., Raiffeisen Polbank w Warszawie S. A. and Deutsche Bank Polska S.A offering 10 and more types of innovations.

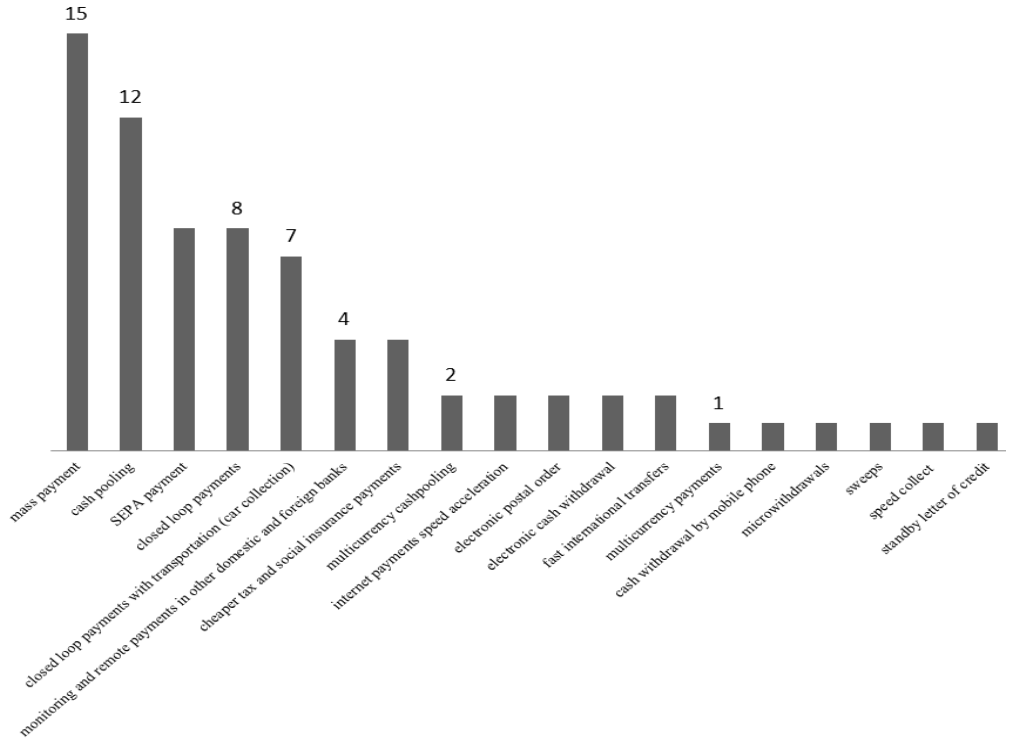
Risk management products and services constitute the last area of financial management analyzed in this study. Banks offer risk management products (RMD) in two forms: (1) based on derivative instruments and (2) based on insurance products. In the analyzed sample of banks, there were identified 14 types of innovations (shown as Fig. 4) dedicated to risk management (RMD). Currency, interest rate and commodity risk are the most popular types of risk that can be hedged with derivatives. The most popular types of risk management innovations are currency forward and IRS (interest rate swaps) offered by 14 banks, currency option (offered by 13 banks) and interest rate options together with currency swaps offered by 8 banks each (Fig. 4). Banks offering currency options, usually propose many variants of options (up to 8 different types of options). They also offer more complex fx risk management strategies based on currency options (both put and call, long and short).

Three most active banks offering the biggest number of risk management innovations are BGŻ BNP Paribas Bank Polska S.A. (offering 10 types of innovations), mBank S.A. (9 types of innovations) and PKO Bank Polski S.A. (8 types of innovations). Most of the analyzed banks offer many different types of risk management innovations. Besides derivatives, analyzed banks offer other innovations related to risk management, among others: insurance products (separate from other bank products or services) or guarantee lines.

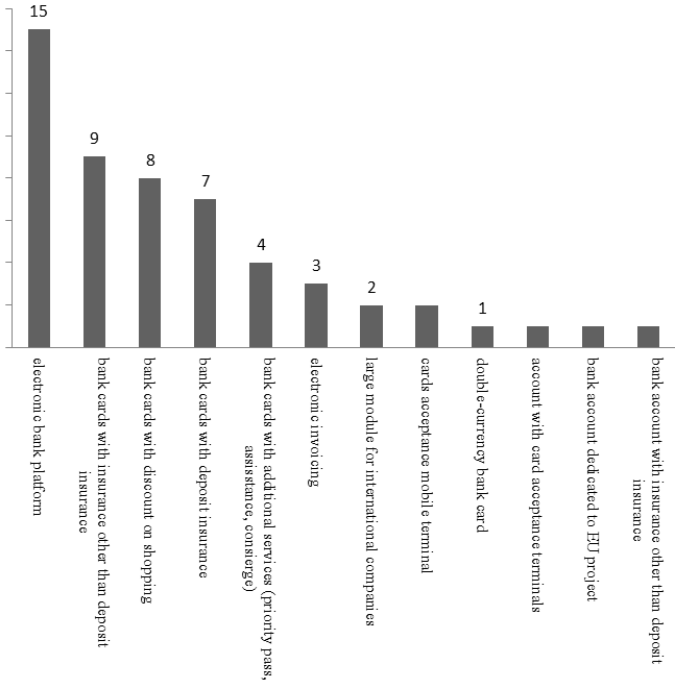
B. Interpretation of Results

The second objective of this paper was to answer 3 research questions related to: the types of financial innovations (Q1), activity of the banks in the context of their shareholders' origin (Q2) and differences in the offer to SMEs and large corporations (Q3).

To answer the first research question (Q1), the structure of the identified financial innovations was analyzed. Based on the detailed analysis of the selected banks, altogether 96 types of innovations were distinguished, divided into 4 broad classes of innovations (Table IV). The biggest number of innovations was devoted to the financing decisions (FIN) (46% of all identified types of new products and services). Working capital management (WCM) including payment innovations represented about 31% and risk management innovations (RMD) constituted 15% of all innovations. While the smallest number of innovations, (8%) was related to the investment decisions (INV). This result leads to the conclusion that financial innovations pertained to financing decisions dominate in the offer of the analyzed banks. It is also consistent with the role of financing decisions and financial investments in the non-financial companies. As the core decisions are connected with investments in the real assets (plant & equipment) and acquiring funds for their purchase. At the same time, financial investments are regarded as subsidiary, so they are less important for companies.



(a)



(b)

Fig. 3 (a) Number of banks offering particular type of working capital management innovations (group 1), (b) Number of banks offering particular type of working capital management innovations (groups 2, 3, 4)

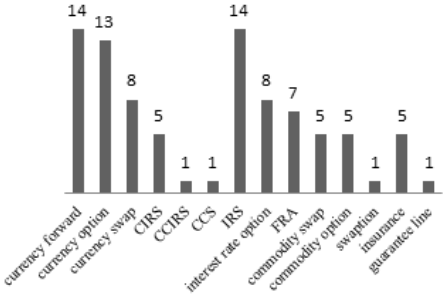


Fig. 4 Number of banks offering particular type of risk management innovations

TABLE IV
STRUCTURE OF IDENTIFIED TYPES OF INNOVATIONS

Classes of innovations	Number of types	Structure of innovations
Financing innovations (FIN)	44	46%
Investment innovations (INV)	8	8%
Working capital management innovations (WCM)	30	31%
Risk management innovations (RMD)	14	15%
total	96	100%

To answer second research question (Q2) Table V was prepared presenting the aggregated data for all analyzed banks.

The most active banks with regard to the total number of identified types of innovations are: mBank S. A. (54 types of innovations), BGŻ BNP Paribas Bank Polska S. A. (37 types of innovations) and Deutsche Bank Polska S. A. (also 37 types of innovations). Two of these banks are controlled by German investors–mBank S. A. (being part of Commerzbank AG) and Deutsche Bank Polska S. A. (being part of Deutsche Bank AG), while BGŻ BNP Paribas Bank Polska S. A. is controlled by French investor (BNP Paribas). At the same time, the least active banks, based on the number of innovations in their offer to business customers are Getin Nobel Bank S. A., Bank Ochrony Środowiska S. A. and SGB-Bank S. A. All these banks are controlled by Polish investors. This result leads to the conclusion that there are differences in the range of innovative products and services offered by banks controlled by foreign investors and by banks controlled by Polish investors. Banks controlled by Polish investors included in this study provide narrow range of innovations, preferring traditional products and services. These findings are consistent with the theory of financial innovations explaining the process of their diffusion. It is assumed that financial innovations that are assessed as successful can be easily transferred from one market to another (from one country to another) by the activity of international corporations (in this study represented by large international banks). After positive verification in one market, by the process of imitation or adoption, innovation can be introduced to the offer by other banks (operating in the local market).

Last research question (Q3) was focused on the differences between financial innovations offered to SMEs and to large corporations. Analyzed banks provide much-diversified offer to their customers and use different market strategies. Some of the banks do provide separate services to SMEs and to large corporations. On the other side, there are banks that prepare one offer to all business entities, irrespectively of their size. In this case, there are no differences between financial innovations provided to SMEs and large corporations. Yet another identified approach is based on two offers-one to large corporations and the other to SMEs and individual clients together. Based on these diversified observations it is very difficult to conclude and answer the research question. The observed differences in the offered financial innovations arise from the particular needs and characteristics of business clients (e.g. offer to large corporations includes innovations connected with capital market transactions or treasury operations). It is noticeable that large corporations are provided with tailor-made services and products, individually prepared, with negotiable terms and conditions, while SMEs usually are offered with standardized products and services.

TABLE V
NUMBER OF TYPES OF FINANCIAL INNOVATIONS OFFERED BY PARTICULAR BANKS

no	Bank	Country of origin of the major shareholder	FIN	INV	WCM	RMD	total
1	PKO Bank Polski S.A.	Poland	5	4	10	8	28
2	Bank Pekao S.A.	Italy	12	1	8	7	30
3	Bank Zachodni WBK S.A.	Spain	7	0	6	5	23
4	mBank S.A.	Germany	18	4	10	9	54
5	ING Bank Śląski S.A.	Netherlands	15	0	3	7	32
6	Getin Noble Bank S.A.	Poland	6	1	0	3	11
7	BGŻ BNP Paribas Bank Polska S.A.	France	13	1	6	10	37
8	Bank Millennium S.A.	Portugal	5	2	9	6	25
9	Raiffeisen Polbank w Warszawie S.A.	Austria	7	4	10	5	31
10	Bank Handlowy w Warszawie S.A.	USA	8	0	14	0	26
11	Deutsche Bank Polska S.A.	Germany	10	2	10	5	37
12	Bank BPH S.A.	USA	9	2	7	6	30
13	Alior Bank S.A.	Italy	4	2	5	3	16
14	Bank Ochrony Środowiska S.A.	Poland	3	1	4	4	14
15	SGB-Bank S.A.	Poland	6	1	3	3	14

V. CONCLUSION

Based on the conducted analysis there have been identified types of financial innovations offered to business customers, grouped into 4 broad classes of innovations: financing (FIN),

investment (INV), working capital management (WCM), risk management (RMD) innovations. These innovations may be implemented and applied by non-financial companies in order to improve their financial condition and to support the process of integrated financial management. However, business entities before choosing a particular type of financial innovations should analyze their consequences – both positive (e.g. reduction of transaction costs) and negative ones (e.g. increase in the level of risk). As financial innovations comprise a much-diversified group of products and services, this analysis should be conducted on a case-by-case basis.

This study has revealed that the offer of financial innovations to business customers prepared by the Polish banking sector is very rich and diversified. All decisions and functions of integrated financial management may be supported by particular services and products provided by banks operating in the Polish market. The offer seems to be well adjusted to the needs and requirements of the Polish companies. However, there are several limitations connected with relatively high dispersion of this offer. In many cases, the business customer has to search and analyze the offer of several banks in order to find the required solutions, as it may be difficult to find different types of innovations in one bank. This searching is time and money consuming and may impede the application of particular innovations. Therefore, the development of the banks' offer with regard to the creation of financial innovations may be limited. Banks should also consider increasing education activity in order to inform better their customers about the potential consequences of using financial innovations instead of traditional banking products and services.

This study has some limitations. Empirical research was conducted on the offer of the selected banks, not on the entire banking system in Poland. Financial innovations have been analyzed from the perspective of the supply-side theory of innovations, as the research focused on the content of the banks' offer. However, there has been no information obtained whether these innovative products and services offered by the analyzed banks are actively used by corporate customers. These limitations have revealed interesting areas of further research. The research gap has been found: there have not been prepared any aggregated data or reports devoted to the problem of financial innovations and their application by the non-financial companies in the Polish market so far.

ACKNOWLEDGMENT

The research project was founded by National Centre of Science, Poland, granted with the decision No. DEC-2011/03/D/HS4/01924.

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