PRACE NAUKOWE
Uniwersytetu Ekonomicznego we Wrocławiu

RESEARCH PAPERS
of Wrocław University of Economics

Nr 412

Zarządzanie finansami firm – teoria i praktyka

Redaktorzy naukowi

Adam Kopiński

Paweł Kowalik

Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu

Wrocław 2015

Redakcja wydawnicza: Aleksandra Śliwka

Redakcja techniczna: Barbara Łopusiewicz

Korekta: Justyna Mroczkowska

Łamanie: Beata Mazur

Projekt okładki: Beata Dębska

Informacje o naborze artykułów i zasadach recenzowania
znajdują się na stronach internetowych
www.pracenaukowe.ue.wroc.pl
www.wydawnictwo.ue.wroc.pl

Publikacja udostępniona na licencji Creative Commons
Uznanie autorstwa-Użycie niekomercyjne-Bez utworów zależnych 3.0 Polska
(CC BY-NC-ND 3.0 PL)

© Copyright by Uniwersytet Ekonomiczny we Wrocławiu
Wrocław 2015

ISSN 1899-3192
e-ISSN 2392-0041

ISBN 978-83-7695-568-1

Wersja pierwotna: publikacja drukowana

Zamówienia na opublikowane prace należy składać na adres:
Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu
ul. Komandorska 118/120, 53-345 Wrocław
tel./fax 71 36 80 602; e-mail: econbook@ue.wroc.pl
www.ksiegarnia.ue.wroc.pl

Druk i oprawa: TOTEM

Spis treści

Wstęp.. 9

Andrzej Babiarz: Zorganizowana część przedsiębiorstwa z branży gier komputerowych jako wkład do nowej spółki z udziałem funduszu VC (Organized part of a company from the computer games industry as a contribution to the new venture).. 11
Krystyna Brzozowska: Znaczenie Europejskiego Banku Inwestycyjnego w rozwoju partnerstwa publiczno-prywatnego w Europie (A role of the European Investment Bank in European PPP development)..................... 24
Elżbieta Drogosz-Zabłocka, Agnieszka Kopańska: Partnerstwo publiczno-prywatne – analiza korzyści dla interesu publicznego w przypadku wykorzystania w szkolnictwie zawodowym w Polsce (Public Private Partnership – value for money in case of vocational education in Poland) 35
Krzysztof Dziadek: Zarządzanie finansami projektów unijnych w świetle badań empirycznych (Financial management of projects co-financed from the EU in the light of empirical research)... 46
Anna Feruś: Wykorzystanie nowych modeli kapitalizacji do oceny spłaty kredytu przy równych ratach kapitałowo-odsetkowych na przykładzie Banku Pekao SA (Use of new models of capitalization for the evaluation of the credit equal installments of capital and interest on the example of Bank PEKAO S.A.) 56
Piotr Figura: Zróżnicowanie płynności finansowej w zależności od wielkości przedsiębiorstwa (Diversity of financial liquidity depending on the size of an enterprise) 66
Iwona Gorzeń-Mitka: Gender differences in risk management. Small and medium sized enterprise perspective (Różnice w zarządzaniu ryzykiem ze względu na płeć. Perspektywa małych i średnich przedsiębiorstw).......... 80
Joanna Hady, Małgorzata Leśniowska-Gontarz: Analiza wydatków na ochronę zdrowia a kondycja zdrowotna polskiego społeczeństwa (Expenditures on healthcare system against health condition of Polish society)... 90
Dagmara Hajdys: System wsparcia partnerstwa publiczno-prywatnego w Polsce na tle systemów wybranych państw Unii Europejskiej (Poland's PPP support system as juxtaposed with the systems operating in selected countries) 106
Jacek Kalinowski: The impact of the use of funding sources for targeted research projects on the accounting system of research institutes in Poland

− the results and analysis of the survey (Wpływ wykorzystania źródeł finansowania celowych projektów badawczych na system rachunkowości w instytutach badawczych w Polsce – wyniki i analiza badań ankietowych) 118
Paweł Kowalik: Kryzys finansowo-gospodarczy a stan finansów publicznych nowych krajów członkowskich UE (Financial and economic crisis vs. the condition of public finances in new Member States of the EU) 134
Paweł Kowalik, Małgorzata Kwiedorowicz-Andrzejewska: Poziome wyrównanie dochodów w Polsce na przykładzie Dolnego Śląska (Model of horizontal equalization in Poland – example of Lower Silesian Voivodeship) 144
Justyna Kujawska: Wydatki na opiekę zdrowotną a efekty zdrowotne – analiza porównawcza krajów europejskich metodą DEA (Health care expenditures vs. health effects − comparative analysis of European countries by DEA method) 156
Agnieszka Kuś, Magdalena Pawlik: Wykorzystanie modelu regresji wielorakiej do określenia czynników kształtujących poziom kapitału obrotowego w przedsiębiorstwach przemysłowych (The application of multiple regression model for determining factors shaping the level of working capital in industrial companies)... 166
Jacek Lipiec: Risk of public family firms (Ryzyko giełdowych firm rodzinnych) 185
Katarzyna Lisińska: Determinanty struktury kapitału na poziomie państwa na podstawie przeglądu literatury (Country-specific capital structure determinants. Review of the literature) 204
Tomasz Łukaszewski, Wojciech Głoćko: Wpływ cen energii i systemu wsparcia na efektywność inwestycji wiatrowych w Polsce (Impact of selected instruments of energy market on wind farm efficiency in Poland)....... 216
Barbara Michalak-Prymon: Zakres stosowania przez podmioty sektora bankowego dokumentu *Zasady ładu korporacyjnego dla instytucji nadzorowanych* (Implementation of corporate governance principles by the institutions supervised by the financial supervision authority).................. 229
Ireneusz Miciuła: Methods for providing economic safety in business transactions in the context of currency risk (Metody zapewnienia bezpieczeństwa ekonomicznego w transakcjach biznesowych w kontekście ryzyka walutowego) 246
Magdalena Mikołajek-Gocejna: Willingness to disclose information versus investors' expectations in companies listed on the Warsaw Stock Exchange (Skłonność spółek notowanych na Giełdzie Papierów Wartościowych w Warszawie do ujawniania informacji a oczekiwania inwestorów)......... 257
Dorota Starzyńska: Aktywność innowacyjna przedsiębiorstw a przynależność do sektorów przemysłu wynikająca z różnych poziomów techniki w świetle badań ankietowych (Innovation activities in manufacturing enterprises by technology levels in the light of the survey) 273

Wacława Starzyńska, Magdalena Sobocińska: Ocena konkurencyjności rynku zamówień publicznych na przykładzie oprogramowania informatycznego (Evaluation of competitiveness of public procurement market on the example of computer software) 287
Emilia Stola, Artur Stefański: The relation between the share of family enterprises in the credit portfolio and the quality of the entire bank credit portfolio and profitability of selected cooperative banks' asset (Zależność między udziałem przedsiębiorstw rodzinnych w portfelu kredytowym a jakością całego portfela kredytowego i rentownością majątku wybranych banków spółdzielczych)... 296
Jarosław Szymański: Pozacenowe kryteria wyboru najkorzystniejszej oferty a nowelizacja prawa zamówień publicznych (Non-price criteria for selecting the best offer and amendment of the law on public procurement)...... 308
Anna Wawryszuk-Misztal: Bezpośrednie koszty emisji akcji w pierwszej ofercie publicznej na GPW w Warszawie (Direct costs of share issuance in IPO on the Warsaw Stock Exchange).. 320
Paweł Wnuczak: Skuteczność rekomendacji wydawanych przez analityków giełdowych w okresach stagnacji na rynkach kapitałowych (Effectiveness of recommendations issued by stock market analysts in periods of stagnation on capital markets) 333
Magdalena Załęczna: Przestrzenne rozmieszczenie inicjatyw partnerstwa publiczno-prywatnego w Polsce (Spatial distribution of Public Private Partnership's ideas in Poland)... 343
Danuta Zawadzka, Ewa Szafraniec-Siluta, Roman Ardan: Factors influencing the use of debt capital on farms (Czynniki wpływające na wykorzystanie kapitału obcego przez gospodarstwa rolne) 356

Wstęp

Działalność gospodarcza, w skali zarówno makroekonomicznej, jak i mikroekonomicznej, składa się z gospodarki realnej wytwarzającej dobra i świadczącej usługi, w której kluczową rolę odgrywa szeroko rozumiana sfera finansów, obejmująca trzy zasadnicze grupy zagadnień: racjonalnego wyboru celów jednostek (organizacji) gospodarczych w aspekcie finansowym, optymalnych źródeł ich finansowania, a także efektywnego wykorzystania zgromadzonych zasobów finansowych.

Procesy globalizacyjne, a także kryzysy polityczne i wojskowe, sytuacja gospodarcza w Unii Europejskiej spowodowana falą imigracji, załamanie w gospodarce chińskiej muszą być uwzględniane przy podejmowaniu bieżących i strategicznych decyzji finansowych. Ponadto okoliczności te przyczyniają się do powstawania niekorzystnych warunków gospodarowania przedsiębiorstw w sferze pozyskiwania kapitałów, a w skali makro mogą prowadzić do powiększania deficytu i długu publicznego. Warunki zewnętrzne i wewnętrzne wymuszają jeszcze większą koncentrację teorii i praktyki zarządzania finansami na problemach zarówno finansów publicznych, jak i finansów przedsiębiorstw. Chodzi mianowicie o takie zarządzanie finansami, które powoduje pomnażanie bogactwa właścicieli kapitału i jednocześnie prowadzi do wzrostu dobrobytu całych społeczności. Zagadnieniom tym poświęcone są artykuły opublikowane w niniejszym zeszycie Prac Naukowych. Problematyka poruszana w przedstawionych opracowaniach dotyczy między innymi następujących obszarów zarządzania finansami: pozyskiwania kapitałów przez inicjatywy partnerstwa publiczno-prywatnego, udziału *venture capital*, zarządzania finansami w jednostkach sektora publicznego, np. w służbie zdrowia, zarządzania ryzykiem w podmiotach gospodarczych, sterowania strukturą kapitału i płynnością finansową przedsiębiorstwa, finansowania działalności innowacyjnej przedsiębiorstw, oceny efektywności inwestycji w odnawialne źródła energii, finansowych aspektów zamówień publicznych, finansów sektora bankowego oraz efektywności rynku kapitałowego.

Artykuły wchodzące w skład niniejszej publikacji są związane z coroczną konferencją „Zarządzanie finansami – teoria i praktyka", organizowaną przez Katedrę Finansów Przedsiębiorstwa i Zarządzania Wartością oraz Katedrę Finansów Publicznych i Międzynarodowych Wydziału Zarządzania, Informatyki i Finansów Uniwersytetu Ekonomicznego we Wrocławiu z udziałem pracowników naukowych z najważniejszych ośrodków akademickich w Polsce, przedstawicieli praktyki gospodarczej i gości zagranicznych. Konferencja ewoluowała od wąskiego niegdyś ujęcia zarządzania finansami firm do ujęcia szerszego, którego istotą jest objęcie różnych sfer działalności gospodarczej, w których zarządzanie finansami ma duże

znaczenie. Dotyczy to finansów międzynarodowych, w tym finansów Unii Europejskiej, finansów centralnych (rządowych), finansów lokalnych (w tym jednostek samorządowych), finansów służb publicznych, jak również finansów wielu innych podmiotów gospodarczych.

Jako redaktorzy naukowi książki w imieniu autorów i własnym wyrażamy głęboką wdzięczność recenzentom – Paniom Profesor: Agacie Adamskiej, Aurelii Bielawskiej, Krystynie Brzozowskiej, Teresie Famulskiej, Małgorzacie M. Hybkiej, Wacławie Starzyńskiej, Paulinie Ucieklak-Jeż, oraz Panom Profesorom: Jerzemu Kitowskiemu, Jakubowi Marszałkowi i Jerzemu Różańskiemu – za wnikliwe recenzje i cenne uwagi, które przyczyniły się do powstania publikacji na odpowiednio wysokim poziomie naukowym.

Mamy nadzieję, że niniejsza lektura będzie inspiracją nie tylko do dalszych badań naukowych, ale również do wdrażania innowacyjnych rozwiązań w zakresie finansów zarówno w sektorze przedsiębiorstw, jak i w sektorze publicznym.

Adam Kopiński, Paweł Kowalik

PRACE NAUKOWE UNIWERSYTETU EKONOMICZNEGO WE WROCŁAWIU
RESEARCH PAPERS OF WROCŁAW UNIVERSITY OF ECONOMICS nr 412 • 2015

Zarządzanie finansami firm – teoria i praktyka ISSN 1899-3192
e-ISSN 2392-0041

Emilia Stola
Warsaw University of Life Sciences
e-mail: emilia_stola@sggw.pl

Artur Stefański
WSB University in Poznań
e-mail: artur.stefanski@wsb.poznan.pl

THE RELATION BETWEEN THE SHARE OF FAMILY ENTERPRISES IN THE CREDIT PORTFOLIO AND THE QUALITY OF THE ENTIRE BANK CREDIT PORTFOLIO AND PROFITABILITY OF SELECTED COOPERATIVE BANKS' ASSETS

ZALEŻNOŚĆ MIĘDZY UDZIAŁEM PRZEDSIĘBIORSTW RODZINNYCH W PORTFELU KREDYTOWYM A JAKOŚCIĄ CAŁEGO PORTFELA KREDYTOWEGO I RENTOWNOŚCIĄ MAJĄTKU WYBRANYCH BANKÓW SPÓŁDZIELCZYCH

DOI: 10.15611/pn.2015.412.23

Summary: For decades family enterprises have been constituting the significant economic strength in the majority of countries in the world. Family corporations are characterized by a greater ability to survive than average ones. These enterprises function very well in times of crisis mainly because they join family, social and economic functions which translates into characteristics of finances of these subjects. Family corporations are characterized by a little tendency to take a risk which is connected with the stability preferred by them of functioning out of concern about long-term (multigenerational) surviving. This could be a cause that their financial management is more conservative, and their nature has considerable influence on a debt level which as a rule is much lower than in other enterprises. The cooperative banks were strongly structurally transformated in years 1996-2011. They changed their profile from niche, directed to farmers and agribusiness, into universal with more diversified banking products, directed at family entrepreneurs. Additionally the specificity of the cooperative banking, as for instance an aspiration to meeting the needs of its members, can be quite close for family entrepreneurs, which, strictly commercial by destinations, also often realizes other purposes. The aim of the elaboration is to present the process of forming the chosen group of customers –family enterprises in the structure of the credit portfolio, quality of the entire credit portfolio, and profitability of selected cooperative banks' assets. In order to fulfil the purpose the authors used the analysis of multidimensional models of the multiple regression with data from

chosen cooperative banks, functioning in the Polish banking industry, out of which two − Bank B and Bank D function in urban-rural communes, and Bank A and and Bank C on the area of rural communes. In the study quarterly data, starting from 2010 up to 2014, was used.

Keywords: credit risk, cooperative banks, credit portfolio, family enterpises.

Streszczenie: Celem opracowania jest ukazanie procesu kształtowania się udziału wybranej grupy klientów – przedsiębiorstw rodzinnych, w strukturze portfela kredytowego oraz oszacowania wpływu ewentualnych zmian na jakość portfela oraz na rentowność banków na przykładzie wybranych banków spółdzielczych działających w Polsce. Do zrealizowania celu posłużono się analizą wielowymiarowych modeli regresji wielorakiej, wykorzystując dane wybranych banków spółdzielczych, funkcjonujących w polskim sektorze bankowym, spośród których dwa – Bank B i D, funkcjonują w gminach miejsko-wiejskich, Bank A w mieście powiatowym, a Bank C na terenie gminy wiejskiej. W opracowaniu wykorzystano dane kwartalne, począwszy od grudnia 2010 roku do września 2014 roku.

Słowa kluczowe: ryzyko kredytowe, banki spółdzielcze, portfel kredytowy, przedsiębiorstwa rodzinne.

1. Introduction

For decades family enterprises have been constituting the major economic force in most countries in the world. The strong presence of family enterprises among small and medium-sized companies should not be surprising, since almost all newly established companies are marked by the personality of their founders. The share of family companies in the SME segment is difficult to estimate clearly, because of an even non-uniform definition of family companies, and the limited access to statistical information. Family companies are not only small entities. For example, in the 80s of the XX century, more than half of the companies from the list of "Fortune 500" of America's largest corporations were family businesses [Shleifer, Vishny 1986], and family founders are present in 1/3 of the companies creating the S&P index of 500 largest corporations in the years of 1992-1999 [Anderson, Rebb 2003]. Studies conducted in East Asia indicate that 2/3 of the companies are controlled by individuals or families [Cleasens, Fan 2002], while among companies noted on the stock exchanges in 13 countries of Western Europe 44% (from 5232 entities subject to the study) are companies controlled by families [Faccio, Lang 2002]. Among the largest and most famous large family companies in Poland are: ITI, Fakro, Konspol, Witchen, Mokate, Solaris or Irena Eris. It is estimated that in Poland there are over a million family companies excluding family farms [Blikle 2011]. It is both huge economic and social potential.

Family businesses are characterised by a better than average ability to survive, even in times of crisis. For generations of current owners they are a natural retirement provision, and for their children – the future workplace. Each successive generation of the family business has a sense of responsibility towards previous generations,

which have built the company, and those who will come after them. The involvement of family members in running the economic company together and combining family, social and economic functions causes specific consequences for the effects of this business, which also translates into specific features within the characteristics of finances of such entities. In case of family businesses it is emphasised that they are characterised by low risk-taking tendency, which is related to the functioning of stabilisation they prefer in the interests of the long-term (multi-generation) survival. In such entities some values are passed down from generation to generation and this can cause that managing finances are more conservative, and their nature has a significant effect on the level of debt [Gallo et al. 2004], as we present below [Jewartowski, Kołdoński 2012; Winnicka-Popczyk 2005].

The capital structure in family companies is of interest to Polish investigators. In general, studies conducted on a group of family companies based in Poland indicate that they are reluctant to use foreign capital. Most prior research shows that family companies use foreign sources of financing relatively less often. Nevertheless, when they do, they most often use bank credits [Różański, Marszałek 2012]. It is worth noting that most researchers of family companies use data concerning large entities, often public ones. There is almost no research on the capital structure of family businesses from the SME segment in the literature. The causative study on the unrepresentative sample of family companies from the SME segment indicates that among family companies the share of own capitals is higher than in case of non-family ones [Stefański 2015].

Due to this specificity it can be expected that family companies pay their debts better, so the increase of share of these companies towards other economic entities in the credit portfolio of banks should result in a relatively better quality of these portfolios. This may be due to the relatively lower amounts of granted credits, for the most part these were small companies, and these are generally better paid. Secondly, running a family business also aims at meeting the needs of the family in the long term, which is also reflected on the repayment of credits. Additionally, family companies are often attributed with the significant load of conservatism in financial management, which may also result in the greater attachment to banks, and this in turn can lead to the acceptance of a relatively higher price of offered services, and therefore the increase of share of this group of entrepreneurs in bank portfolio may promote the increase of their profitability.

2. The definition of family enterprise

Although family enterprises are the oldest known form of economic activity, there is neither consensus as to its definition nor the criteria for distinguishing them. Most often what is indicated includes: the family structure of the entity, exercising strategic control by the family, participation of family members in management, as well as involvement of more than one generation in the company's functioning [Handler 1989].

Family companies can be perceived as those in which family members have more than 50% of shares, are actively involved in the management process of the company and have the final say [Di Giuli et al. 2011] or as those entities in which the founder or the family member are people managing the company and have a real impact on the decision-making [Anderson, Rebb 2003]. Family companies can also be defined as entities being the property of one person or members of their family [Wallmon 2008]or entities, in which their founder or successors among their shareholders occupy key positions in the management of the company or its board of directors [Surdej, Wach 2010]. It is worth noting that the definition of family companies also uses subjective criteria, such as: the desire to maintain control of the company by the family, and the perception of own company as a family, creating ethos of the family company [Surdej 2014].

The literature review allows to distinguish four basic kinds of the family business based on the criterion of ownership, criterion of ownership and management, legal criterion and others [Stradomski 2010].

According to the ownership criterion, the family company is a company in which the family has a majority of votes. According to the ownership and management criterion, the family business is an economic entity in which the family has a majority package of votes or such a majority vote package is directly or indirectly controlled by them, or the managers are the members of one dominating family.

According to the legal criterion, family companies are entities which owners by inheritance or capital contribution are members of one family.

For the purposes of this study, the definition of the family company will be adopted based on the criterion of ownership and management, using the SFI index in accordance with the concept of S.B. Klein [Klein 2000]. The SFI synthetic index is the sum of family participation structure indexes in the company's ownership, participation of family members in the supervisory board and participation of family members in the board. Each entity will be treated as family business, according to the assumptions of most studies, in which the SFI index was used [Stradomski 2010], for which the SFI index will be higher than unity.

3. The objective, test and methods

Credit is one of main sources of external financing of companies, and this also applies to family businesses. While for the banks credit is the basic sales product, in case of cooperative banks it is worth noting that these institutions were subject to strong structural transformations, especially in the years 1996-2011. These banks changed their profile from niche, addressed mainly to farmers and agribusiness, to the universal one, with a more diverse product offer. In addition, cooperative banks in a natural manner try to involve economically with relatively smaller customers, and many of them are family entrepreneurs. Additionally, specific features of cooperative banking, such as striving to meet the needs of own members, can be quite close to

family entrepreneurs, who apart from strictly commercial goals often implement also other goals.

The aim of the study is to show the process of shaping the share of the selected group of customers – family businesses in the structure of the credit portfolio and to estimate the effect of possible changes on the quality of the credit portfolio and on the profitability of banks, based on the example of selected cooperative banks operating in Poland. The study examined the relationship between the volatility of the share of credits for family businesses in the volume of total granted loans, and the quality of the bank's credit portfolio and the profitability of their assets. In this case, raw data of cooperative banks were used, which made it possible to conduct the econometric analysis for the whole group of banks and for each bank separately due to significant differences in the range of the analysed variables between the selected banks. Data for analysis were made available by four cooperative banks functioning in the Polish banking sector, among which two – Bank B and D function in urban-rural municipalities, Bank A in the county city, and Bank C in the rural municipality. The study used quarterly data, from December 2010 to September 2014.

In order to determine the statistic relationship between selected pairs of variables, the analysis of variance was applied together with the calculation of basic descriptive statistic, regression analysis using the method of least squares as well as correlation analysis. These methods are complementary but not substitutive [Luszniewicz, Słaby 2003].

4. Research results

In Fig.1 we can see the share of customer group – family companies in the total credit portfolio in particular cooperative banks, qualifying customers to this group, entities that meet the condition of the SFI index. From mid 2010 to the end of 2014 in all cooperative banks the upward trend of the share of family businesses was observed in the structure of the total credit portfolio in these institutions. According to the accepted criterion, the share of family companies in Bank A functioning in the district has on average stood on the level of 12.2% in the total portfolio. At the same time in Bank C, which is in the rural municipality, this share was on average 10.6%, the lowest from the studied entities. In case of Bank B, which is in the urban-rural municipality, this share was the highest and was on average at the level of 18.6%. In Bank D, the second which also functions in the urban-rural municipality – this share was lower and on average amounted to 11.7%. At the same time, at the end of the studied period, bank which was located in a small urban-rural municipality (D) and the rural one (C) underwent the decline of values of granted credits for agricultural enterprises.

A small share of customer group – family companies with the general structure of other customer groups in these banks could be, among others, caused by the growing competition in the sector, especially in case of banks, as well as other credit

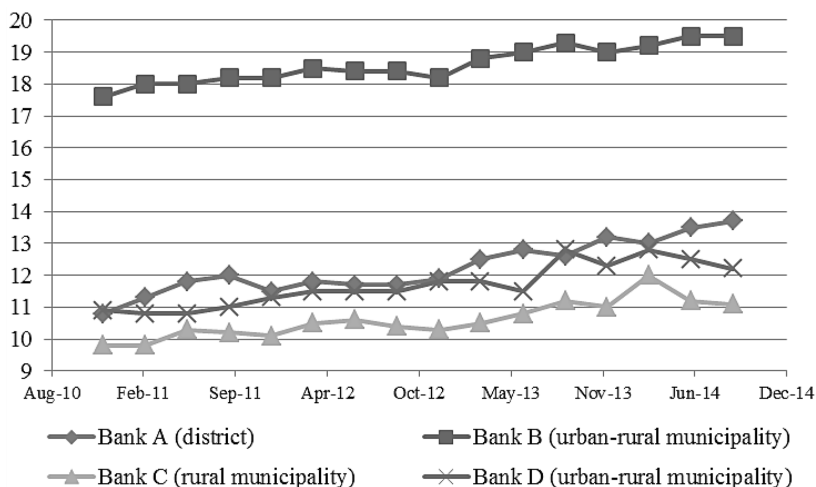

Fig. 1. Family enterprises' share in the credit portfolio of selected cooperative banks [in %]

Source: author's own study on the basis of the data provided by the banks.

and para-banking institutions. Also of importance here for taking loans are the socio-cultural factors and the conservative approach of people managing family companies.

The quality of the credit portfolio in the cooperative banks sector in Poland has been decreasing from 2010. Since then further deterioration of the quality has been observed. However, the pace of these changes was slower in the following years. Similar relations can be observed in the analysed cooperative banks. It is worth emphasizing that the share of bad debts is slightly higher than in the banks functioning in district towns. The profitability of assets owned by the analysed cooperative banks also decreased. Slightly higher profitability was reached by the banks operating in district towns. The observations of the ROA changes in the analysed population are also concurrent with the changes recorded in the entire sector of cooperative banks in Poland.

In Fig. 2. the share of multi-generational companies in the credit portfolio of family companies was presented. The biggest share of the subgroup – multi-generational companies characterised the largest Bank B, functioning in the urban-rural municipality, in which the average share of this segment of customers was approximately 61% in the credit volume for family businesses. This share was similar in case of the second Bank D, operating in the urban-rural municipality, in which it was on average 47%. In Bank A, functioning in the district city, this share did not exceed 35%, while in Bank C, functioning in the rural municipality, this share did not exceed 38%.

In order to verify the magnitude and direction of the relation between the process of shaping the share of a client group, i.e. family enterprises in the structure of

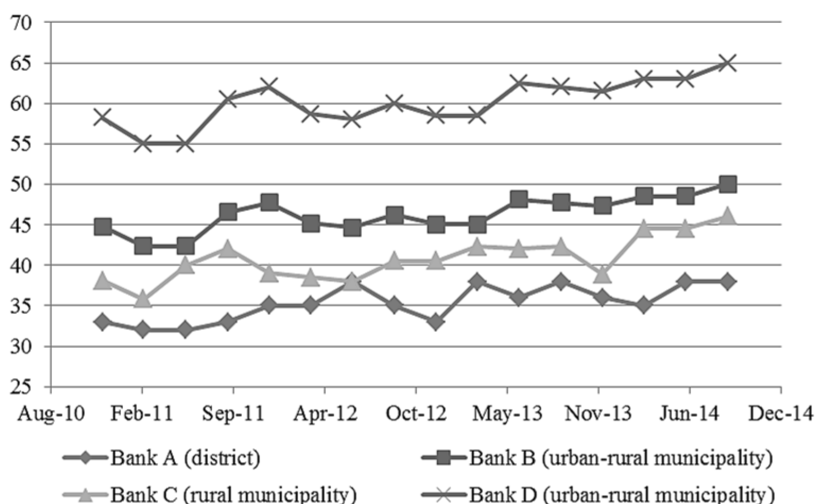

Fig. 2. Multi-generational companies' share in the family enterprises' credit portfolio of selected cooperative banks [in %]

Source: author's own study on the basis of the data provided by the banks.

a credit portfolio and these group influence on the quality of this credit portfolio as well as in the second stage of the bank profitability analysis, the econometric analysis was applied using the methods of regression analyses. In the first phase of the analysis, the Kendall correlation coefficient was calculated between the variables of the family enterprises' share in the credit portfolio (X_1), and the quality of this portfolio (Y_1), and next against the variable – banks' assets profitability ROA(Y_2). Due to the fact that the level of bad debts in the portfolio may be under the influence of other variables not included in the analysis, in order to measure the relation between the variable Y_1 and variable X_1 the correlation coefficient was applied. This measure will allow to distinguish and determine the relation between the selected variables excluding, at the same time, the influence of the remaining variables. Moreover the Kendall[1] method is a nonparametric method, which al- lows for no assumptions referring to the arrangement of variables in the population. However, to guarantee a correct interpretation, the condition of normal distribution was kept [Zielaś, Pawełek 2002]. The amount of calculated Kendall coefficients for the banks was presented in Table 1.

The variable of the family enterprises' share in the volume of given credits had significant influence on the cooperative banks' portfolio quality. In all banks it

[1] The value of the Kendall coefficient is included in the range [-1; 1]; if equal to 1, it means a linear relation between the analyzed variables, whereas if close to 0, it means no relations between variables.

Table 1. The values of partial correlation coefficients by Kendall for the analysed variables

Variable	Bank A	Bank B	Bank C	Bank D
	X_1			
Y_1	0.82*	0.92	0.89	0.87
Y_2	-0.69	-0.35	-0.82	-0.85

* marked coefficients are crucial for $p < 0.05$ (The value for p was calculated on the basis of a test statistic and compared with y, the level of statistical significance $\alpha = 0.05$: If $p < \alpha$ is mean rejects H_0 adopting H_1; If $p > \alpha$ H_0 does not have any grounds to be rejected).

Source: own elaboration.

exceeded more than 0.82. Moreover, the positive relation was observed between the variables, which mean that the increase of one of the variables also results in the increase of another. The strongest relation between the variables was observed in Bank B – the family enterprises' share in the credit portfolio in the total balance significantly influenced the quality of this portfolio. The value of the coefficient was respectively 0.92, which means the positive relation, namely the improvement of the portfolio quality (the decrease value of the bad debts share) takes place after the increase in the share of the clients from the segment – family enterprises, and on the contrary, i.e. together with the increase in family enterprises' share, the portfolio quality deteriorates (there is an increase in the share of bad debts). The weakest, but still very strong, relation was observed in Bank A, and it does not matter if it comes to the magnitude of correlation between the variables or if the bank is located in a district town or not.

There is also observed an inverse correlation between the share of family enterprises credits in the total balance of the credit portfolio and the ROA, i.e. the growth of amount of credits for this group is accompanied by the decrease in the profitability of assets. Still, it has to be admitted that the magnitude of correlation is considerably weaker than in the case of the earlier discussed variables. In Bank B correlation was not statistically crucial. Banks C and D showed a huge influence of variable X_1 on the ROA profitability (Y_2). The values of the coefficients amounted to -0.82 in Bank C and -0.85 in Bank D respectively. It means that the bigger the family enterprises' share in the structure of clients the more deteriorate profitability of these banks. Such a situation may be the result of the characteristics of cooperative banks operating in urban and rural areas, among which people connected with agricultural activity or not having credit history or accountancy to prove their financial operation are prevailing for both the target group and base group of clients. Obtained results allow to claim that the changes in the size of family enterprises' share in the volume of given credits considerably influenced the quality of a credit portfolio of these banks as well as assets profitability.

To show how the variable changes, namely the portfolio quality (Y_1) and assets profitability ROA (Y_2) depending on the changes in the variable of family enterprises'

share in the structure of the credit portfolio (X_1), the models of simple regression were applied for each bank. For the enumerated variables *X* and *Y* the regression function was defined as follows: E(Y|X = x) = fx), where E(Y|X = x) is the variable mean Y, which equal the value of variable x_i.

The model of linear regression was adopted in the analysis as: $Y = E(Y|X = x_i) = \beta_0 + \beta_1 x + \varepsilon$, where $E(Y|X = x_i)$*)* means the value of a chosen variable Y expected on the condition that the variable takes the value x, whereas s means a random variable. In order to estimate the parameters of the simple regression model, the method of least squares was adopted.

Table 2 presents estimated values of the coefficients together with the assessment for all the banks. All banking institutions recorded a fall in family enterprises' share, which deteriorated the portfolio quality (the increase in the share of bad debts). Bank A reported a fall of its clients by 1 pp, which caused the greatest changes in the quality of the credit portfolio, i.e. by 0.44 pp on average. The fall of family enterprises in the structure of credit clients in Bank B and C had the biggest influence on the portfolio quality, where the decrease in the share of the clients from this segment by 1 pp resulted in the drop of the portfolio quality by about 0.86 pp with the mean error of 0.09 pp in Bank B and 0.85 pp in Bank C. Simultaneously, obtained results were characterized by high quotients *t,* which mean by how much the evaluation of the parameter is higher than the estimation error, e.g. in Bank B, the evaluation of the parameter with the variable − the share of farmers in the portfolio, is more than nine times higher than the estimation error. Moreover, in no case there was a condition which would disqualify any of the models due to their higher value of the estimation error (S_{b1}) than the quotient *t*.

The modification of variables X_1 and Y_1 in the models of simple linear regression ~~is~~ made by the adjusted coefficient of determination (R^2), which in Bank A explains the change of the portfolio quality by means of the changes in the share of clients segment, i.e. family enterprises in about 64% (the lowest one), whereas in Bank B − about 84% (the highest one) and Banks C and D − about 78-74%.

The standard error of the mean (S_e) in the conducted estimations ran at the level of range from 0.21 to 0.27 pp. The biggest possible deviation in obtained results may be observed in the model for Bank A (0.27 pp) and C − 0.26 pp, whereas the lowest in the model for Bank B − 0.21 pp.

To explain the profitability of assets ROA (variable Y_2) by means of changes in the family enterprises' share in the volume of given credits, estimate models of simple linear regression. These models were characterized by an inverse correlation, so the increase in the percentage share of family enterprises in the credit portfolio caused the decrease in profitability of assets of these banks. These simulations were confirmed by earlier analysis − partial correlation coefficients.

The biggest decrease in ROA (tab. 2) due to the percentage fall of family enterprises clients took place in Bank C − by about -0.23 pp with the estimation error of the mean at the level of 0.04, as well as in Bank D − by about -0.18 pp and Bank

Table 2. The results of the simple linear regression model for the explanatory variable X_1 and response variables Y_1 and Y_2

Bank:	Bank A	Bank B	Bank C	Bank D
Variable Y_1				
b_0	-0.51*	-11.17	-4.24	-2.13
b_1	0.44	0.86	0.85	0.61
S_{bi} [1]	0.08	0.09	0.11	0.09
$t(14)$ [2]	5.34	9.10	7.39	6.64
Corr. R^2 [3]	0.64	0.84	0.78	0.74
S_e [4]	0.27	0.21	0.26	0.24
Variable Y_2				
b_0	2.40	2.71	3.56	3.21
b_1	-0.11	-0.08	-0.23	-0.18
S_{bi}	0.03	0.05	0.04	0.03
$t(14)$	-3.61	-1.44	-5.42	-6.21
Corr. R^2	0.44	0.06	0.65	0.71
S_e	0.96	0.13	0.09	0.07

* marked coefficients are crucial for $p < 0.05$ (The value for p was calculated on the basis of a test statistic and compared with y, the level of statistical significance a = 0.05: If $p < \alpha$ is mean rejects H_0 adopting H_1; If $p > \alpha$ H_0 does not have any grounds to be rejected).tak

[1] S_{bi} – the average error of the estimation;

[2] $t = b/S_{bj}$;

[3] Corr. R^2 – adjusted coefficient of determination;

[4] S_e – standard terror of the mean.

Source: own elaboration.

A -0.11 pp. The equation of regression model for the Bank B was not crucial for $p < 0.05$. The rest of these models had the factor R^2, reflecting the explanation of the correlation between these variables amounting to about 71% – Bank D and 65% – Bank C respectively. In Bank A the increase in family enterprises' share in the volume of given credits by 1 pp., consequently, resulted in the increase in ROA by about 0.11 pp with the coefficient R^2 run at the level of 44%.

The standard error of the mean (S_e) for the estimated models equalled from 0.07 pp to 0.09 for Banks D and C, so possible deviations from obtained results may be insignificantly lower than in the case of the models concerning the first correlation. In Bank A the standard error of the mean was higher than in other models and it was 0.96 pp.

In order to verify the correctness of conducted estimations, the significance of model parameters and all partial models as well as to hold the assumptions of the least square method, the analysis of variance was applied. Two hypotheses were put forward: H_0: $\beta_i = 0$ oraz H_1: $\beta_i \neq 0$. For the majority of the parameters (except for the parameter b_1 for the variable Y_2 in Bank B) the results of regression analysis turned out to be crucial, hence H_0 about lack of significance for H_1 was rejected, which confirmed previous analyses and the conducted discussion.

5. Conclusions

The aim of the study was to show the process of shaping the share of the selected group of customers – family companies in the structure of the credit portfolio and the estimation of the impact of potential changes on the quality of the credit portfolio and the profitability of banks, based on the example of the selected cooperative banks operating in Poland. On the basis of the implemented literature studies and the conducted econometric analysis the following conclusions were formed:

1. The share of family businesses in the structure of total credit portfolios of particular cooperative banks differed mainly due to the location of the given bank. The largest share of credits in this group was recorded by banks functioning in the urban-rural municipality (Bank B) and the county town (Bank A). At the same time, Bank C, located in the rural municipality and Bank D, operating in the small urban-rural municipality observed a slight decrease in the share of credits of the group of the family businesses in the total volume of granted credits in these institutions. In addition, banks operating in urban-rural municipalities were characterised by the largest share of multi-generational businesses in the volume of credits granted to family enterprises (about 60%).

2. The result of the analysis indicates statistical relation between the share of family enterprises in the credit portfolio as well as in the quality of it and influence of profitability of cooperative banks' assets. There has been observed a strong inverse correlation between the share of family enterprises' credits in the total balance of credits and the quality of a bank's credit portfolio, which means that the increase of credits to family enterprises' share in the banks' credit portfolio deteriorates (the increase in share of bad debts) the quality of the entire credit portfolio of the banks. Moreover the analysis assumes that there exists a correlation between the increase in the credits for family enterprises' share and the deterioration of the profitability of cooperative banks' assets.

3. From the banks' perspective credits for the family enterprises are characterized by certain traits influencing the risk related to them, e.g. small family enterprises often do not have any credit history or they do not have accountancy or do not have credit surety in the required value. In consequence banks could not evaluate the risk factor connected with credit for this group of clients. On the other hand, owners of this kind of enterprises often do not want to take out a loan or any credit.

References

Anderson R., Reeb D.M., 2003, *Founding family ownership and firm performance: evidence from the S&P500,* Journal of Finance, no. 58, pp. 1301-1329.

Blikle A., 2001, *Firmy rodzinne w Polsce*, Magazyn firm rodzinnych 2011, the pilot number, pp. 3-4.

Claessens S., Fan J.P.H., 2002, *Corporate Governance in Asia. A Survey*, International Review of Finance, vol. 3, no. 2, pp. 105-129.

Di Giuli A., Caseli S., Gatti S., 2011, *Are small family firms financial sophisticated,* Journal of Banking and Finance, no. 35, pp. 2931-2944.
Faccio M., Lang L.H.P., 2002, *The ultimate ownership of Western European corporation*, Journal of Financial Economics, vol. 65, no. 3, pp. 365-395.
Gallo M.A., Tepies J., Cappuins K., 2004, *Comparison of family and non-family business: financial logic and personal preferences*, Family Business Review, no. 4, pp. 303-318.
Handler W., 1989, *Methodological issues and considerations in studying family businesses*, Family Business Review, no. 2, pp. 257-276.
Jewartowski T., Kołdoński M., 2012, *Struktura kapitału i dywersyfikacja działalności spółek rodzinnych notowanych na GPW*, [in:] *Zarządzanie finansami firm – teoria i praktyka*, eds. A. Kopiński, T. Słoński, B. Ryszawska, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 271, Wrocław, pp. 265-278.
Klein S.B., 2000, *Family businesses in Germany. Significance and structure*, Family Business Review, no. 3, pp. 157-181.
Luszniewicz A., Słaby T., 2003, *Statystyka. Teoria i zastosowania*, Wydawnictwo C.H. Beck, Warszawa.
Różański J., Marszałek J., 2012, *Struktura finansowania firm rodzinnych na przykładzie przedsiębiorstw regionu łódzkiego*, [in:] *Zarządzanie finansami firm – teoria i praktyka*, eds. A. Kopiński, T. Słoński, B. Ryszawska, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 271, vol. 2, Wrocław, p. 215-225.
Shleifer A., Vishny R., 1986, *Large shareholders and corporate control*, Journal of Political Economy, vol. 94, no. 3, pp. 461-488.
Stefański A., 2015, *Capital structure of family businesses in companies seated in the Wielkopolska region*, MEST Journal, January, vol. 3(1), pp. 11-20.
Stradomski M., 2010, *Finansowanie obce firm rodzinnych na rynku niedoskonałym,* PWE, Warszawa.
Surdej A., *Firmy rodzinne w perspektywie instytucjonalnych mechanizmów rozwoju państw nisko rozwiniętych: zarys problematyki*, [in:] *Firmy rodzinne – współczesne nurty badań i praktyki zarządzania,* ed. A. Marjański, M.R. Contreras Loera, Przedsiębiorczość i zarządzanie, vol. XV, z. 7, Łódź 2014, p. 18.
Surdej A., Wach K., 2010, *Przedsiębiorstwo rodzinne wobec wyzwań sukcesji,* Difin, Warszawa.
Wallmon M., 2008, *Family Matters – the Complexities of Relationships in the Small Family Firm,* [in:] *SMEs in Modern Economics. Selected Issues,* eds. J.E. Wasilczuk, K. Zięba, Politechnika Gdańska, Gdańsk, p. 229-246.
Winnicka-Popczyk A., 2005, *Polska firma rodzinna z perspektywy pokolenia następców*, [in:] *Determinanty rozwoju przedsiębiorstw rodzinnych w Polsce*, ed. Ł. Sułkowski, Dom Organizatora, Toruń, pp. 69-70.
Zielaś A., Pawełek B., Wanat S., 2002, *Metody statystyczne*, Polskie Wydawnictwo Ekonomiczne, Warszawa, p. 102.