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# **Current Problems of Banking Sector Functioning in Poland and in East European Countries**



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## COMPARATIVE ANALYSIS OF ELECTRONIC BANKING SERVICES IN SELECTED BANKS IN POLAND IN 2013

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**Summary:** The main objective of this article is to identify the best e-banking websites from the point of view of an individual client. After a short introduction the author determined the assumptions for the study. Subsequently, he carried out multilateral analyses and presented the conclusions of the study.

**Keywords:** electronic banking, virtual banks, remote access to a bank account, websites' evaluation, factors in the development of websites.

### 1. Introduction

It appears that the consequences of the worldwide crisis in electronic banking in Poland strengthen the tendencies which show that the crisis, which started in the second half of 2008, does not concern this area. Compared to 2011, the number of individual clients with potential access to account increased by 17.08% (3% more than in 2011) reaching over 20 million users; the number of active individual clients went up by over 12% reaching 11.364 million, the average value of the settlements of an individual client per month increased by 12.07%, etc.<sup>1</sup> Undoubtedly, it is the fastest growing banking sector and nothing points to the fact that something may undermine these positive trends.

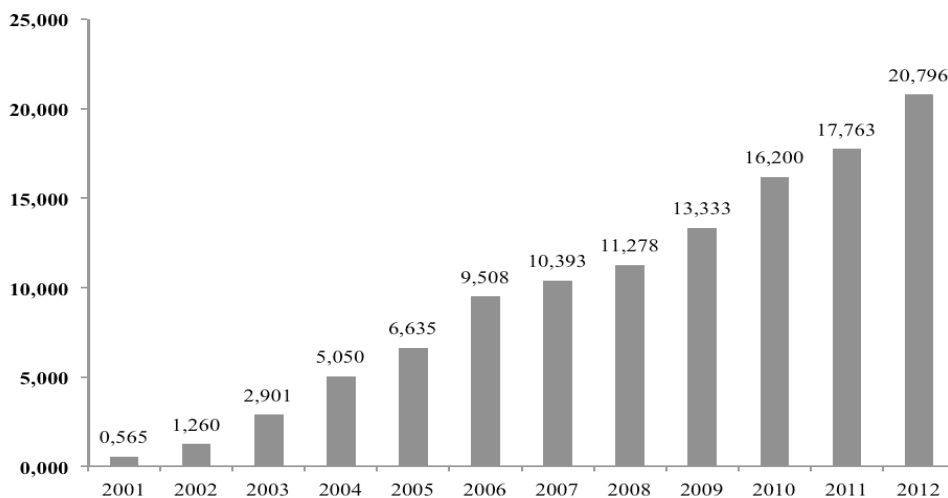
The increase in absolute numbers of clients is shown in Figure 1. The increase in the number of clients with potential access to an account via the Internet is accompanied by a continuous increase of active customers (at least one transaction a month). From the end of 2006 to the end of the third quarter of 2012 the number increased by over 7 million users, which is an increase by 164%.<sup>2</sup> Every year the

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<sup>1</sup> NETB@nk *Raport Bankowość internetowa i płatności bezgotówkowe. Podsumowanie IV kwartału 2012 r.*, <http://www.zbp.pl/photo/konf19-03-13/raportIVkw2012.pdf> [accessed: April 2013].

<sup>2</sup> <http://www.komputerswiat.pl/nawosci/internet/2013/12/ilu-z-nas-korzysta-z-bankowosci-elektronicnej.aspx> [accessed: April 2013].

population of new customers using the possibilities offered by the Internet to handle banking transactions grows. In 2007 more than 700,000 people started to use e-banking services, and in 2012 the number was close to 3 million. Last year we could observe a steady increase of the number of active individual clients, by nearly 12%, from 10.141 million to over 11.364 million people by the end of the year. There are nearly 55% of active users, out of all the clients having electronic access to an account. The average value of settlements made by individual clients every month increases in 2012 by over 1.67%, from PLN 6,000 to 6,300.



**Figure 1.** The evolution of the number of clients with electronic access to an account in 2001–2012 (in millions)

Source: own work on the basis of data from Polish Banks Association (Związek Banków Polskich), <http://www.zbp.pl/photo/konf19-03-13/raportIVkw2012.pdf> [accessed: April 2013].

The highest growth in the number of potential users of electronic banking was recorded in PKO BP (5 million), followed by mBank (2.5 million), Pekao (2.2 million) and BZ WBK (2 million). This option has been used at least once a month by 11.36 million clients – the greatest number in PKO BP (2.8 million), BZ WBK (1.3 million) and ING Bank Śląski (1 million).<sup>3</sup>

Poland in the European statistics – with regard to penetration – compares quite well – according to ComScore<sup>4</sup> report – it takes the sixth place (52.3%), while the European average is 40%. The largest e-banking penetration is in the Netherlands – 66%, the lowest in Switzerland (18.8%). France (60%), Finland (56.4%), Sweden

<sup>3</sup> <http://bank24.blox.pl/2013/03/Bankowosc-internetowa-w-Polsce-i-Europie.html> [accessed: April 2013].

<sup>4</sup> <http://www.egov.vic.gov.au/focus-on-countries/europe/trends-and-issues-europe/statistics-europe/internet-statistics-europe/comscore-releases-2013> [accessed: April 2013].

(54.2%) are ahead of us, behind are among others: Germany, Spain, Denmark and Norway. The dynamics of the increase of the number of e-banking clients in Poland is still one of the highest on our continent – in recent years we have noted the increase of over one million every year.

## 2. Assumptions of the study

There are many publications concerning the issue of the evaluation of websites and access to e-banking services, but there is no easy solution to the problems encountered.<sup>5</sup> The review of the literature shows that e-banking websites may be analyzed from the point of view of:

- usability (site map, directory),
- interactivity (availability and responsiveness),
- functionality (search, navigation, relevance of content),
- visualization (color scheme, background, graphics, text),
- efficiency (cost of purchase, transport, the difference in prices offered by traditional and online shops),
- reliability and availability.

Most of the evaluation methods are traditional scoring methods based on specific criteria sets, evaluated by means of an applied scale. Technical and functional criteria are the most commonly applied. Most of them contain factors which may be evaluated in a very subjective way: text clarity, attractive colors, images and pictures, the speed and intuitiveness of navigation, etc. Moreover, some users do not treat particular criteria sets in an equivalent way. However, on the other hand, there occur frequent problems with determining preferences for particular criteria and the evaluation of relations between them. This part of the work concerns the application of the author's own, though based on the literature, set of criteria for a scoring evaluation and a selection of electronic services of selected banks.

At the beginning of 2013, the author carried out research on the quality of websites offering electronic access to the services of the most popular banks, among Polish individual clients, on a sample of 84 people, out of which 73 respondents completed surveys correctly (thus, we can treat this survey only as

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<sup>5</sup> Literature on the subject includes among others such titles as: M.B. Mateos, A.C. Mera, F.J. Gonzales, O.R. Lopez, A new Web assessment index: Spanish universities analysis, *Internet Research: Electronic Application and Policy* 2001, Vol. 11(3), pp. 226–234; Y.K. Migdadi, Quantitative evaluation of the internet banking service encounter's quality: Comparative study between Jordan and the UK retail banks, *Journal of Internet Banking and Commerce* 2008, Vol. 2(13); F.J. Miranda, R. Cortes, C. Barriuso, Quantitative evaluation of e-banking web sites: An empirical study of Spanish banks, *The Electronic Journal Information Systems Evaluation* 2004, Vol. 2(9), pp. 73–82, <http://www.eiise.com>; J. Wielki, *Modele wpływu przestrzeni elektronicznej na organizacje gospodarcze*, Wydawnictwo UE we Wrocławiu, Wrocław 2012; M. Sikorski, *Usługi online. Jakość, interakcje, satysfakcja klienta*, Wydawnictwo PJWSTK, Warszawa 2013.

a pilot study). The participants of the survey were students, aged 22–45, of management and information technology faculties at the University of Warsaw and Vistula University in Warsaw. Among the respondents, 39% were women and 61% men, mainly from Warsaw and surrounding areas. Each respondent declared to have at least one electronic access account at one of the banks operating in Poland (15 used e-banking services provided by two banks, 2 people of three banks); thus, in total, the author examined access to 93 active electronic accounts.

**Table 1.** The percentages of holders of accounts with electronic access

Bank	% of account holders	Bank	% of account holders
mBank	14.56	ING Bank Śląski	6.80
Alior Bank	11.65	Raiffeisen Bank	5.83
Inteligo	10.68	Pekao S.A.	4.85
PKO B.P.	9.71	BGŻ	3.88
Toyota Bank	8.74	BPH	3.88
Millenium	7.77	CitiBank	2.91
BZ WBK	6.80	Crédit Agricole	1.94

Source: own study.

In the surveyed population the majority of the respondents had accounts in the banks which are considered to be Internet banks (mBank, Toyota Bank, Inteligo PKO BP), or regarded as modern (AliorBank, Millenium), or the largest ones (PKO BP, BZ WBK). This does not correspond to the numbers of electronic access accounts declared by particular banks; however, considering the facts that only the active accounts were described and the fact that the surveyed population is relatively young, the structure of the use of accounts is probably closer to reality than the one presented on the basis of official statistics.

This study belongs to a series of cyclical, yearly analyses concerning the factors influencing the usability of websites with online access to individual accounts in the banks.<sup>6</sup> The same set of criteria has been applied in the evaluation of e-banking condition at the turn of 2010/2011 and earlier, before the crisis began in 2008.

The respondents filled in the tables evaluating e-banking websites of the banks where they had their accounts, performing the analysis and assessment of the obtained results. The tables which they completed were sent by email. In the second stage, they imposed preference coefficients on particular criteria and performed further calculations. The obtained findings were supplemented with comments.

<sup>6</sup> See for example W. Chmielarz, Methodological aspects of the evaluation of individual e-banking services for selected banks in Poland, Chapter 11, [in:] M. Pańkowska (ed.), *Infonomics for Distributed Business and Decision-Making Environments. Creating Information System Ecology*, IGI Global, Business Science Reference, Hershey/New York 2010, pp. 201–216.



All calculations in the present study are carried out with the application of the author's own, though based on the literature and consultations with experts, set of criteria for a scoring evaluation and a selection of electronic access to services of selected banks. Criteria applied in this study can be divided into three main groups:

- economic – annual nominal interest rate, maintaining an account month/PLN, surcharge for access to electronic channels (including a token, if there is one), a fee for a transfer to a parent bank, fee for a transfer to another bank, interest rate on deposits – 10,000 PLN, fee for issuing a card, monthly fee for a card – month/PLN,
- functional – due to large similarity of basic services, we only selected non-standard additional services such as: insurance, investment funds, cross-border transfer or foreign currency account,
- technological – the number of surcharge-free ATMs, account access channels (branches, the Internet, Call Centre, mobile phone), security (ID and password, token, SSL protocol, a list of single-use passwords, a list of single-use codes).

Considering the situation of the signs of economic crisis spreading, the author applied a set of psychological criteria in addition to the criteria used previously in the evaluation of e-banking websites which were discussed above. The psychological criteria included the so-called anti-crisis criteria related to – according to the experts cooperating with the author – all those activities, which were to counteract a potential impact of the crisis on the banking sphere.<sup>7</sup> This additional group of criteria was also included in the previous evaluation of e-banking websites. The group of the considered anti-crisis measures includes:

- dynamics of interest rates on deposits (reduction, increase, differences in rates, tendencies),
- dynamics of interest rates on credits (reduction, increase, differences in rates, tendencies),
- stability of the policy related to basic fees (the number and the nature of changes),
- degree of customer confidence (the number of individual clients, its dynamics, how long the bank has been operating in the Polish market),
- the average places occupied in the rankings on the Internet and in trade magazines last year.

In the scoring method the author collected information on selected criteria; they were assigned values according to the assumed scoring scale and the results were analyzed in a combined table. For the purposes of the evaluation the author applied

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<sup>7</sup> W. Chmielarz, *Metody oceny elektronicznych usług bankowych dla klientów indywidualnych w Polsce*, [in:] A. Gospodarowicz (ed.), *Bankowość detaliczna – idee, modele, procesy*, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, no. 54, Wydawnictwo UE we Wrocławiu, Wrocław 2009, Chapter 1, pp. 9–26.

– as in previous studies – a typical Likert scale.<sup>8</sup> A scoring method was used in two variations: simple – where criteria were treated equivalently; and the one with a preference scale – where sets of criteria were assigned indicator values differentiating their treatment by clients (the total of coefficients = 1).

In a simple scoring method you need to measure the distance from the maximum value to be obtained (according to the assumed scoring scale). It concerns the value of criterion measure and in the sense of a distance it is the same when we measure the distance from one criterion to another and the other way round. However, we do not define the relations between particular criteria. Assigning a preference scale to particular criteria (or sets of criteria) can be regarded as such a measure. A linear preference scale in a normalized form defines in turn the participation of particular criteria in the final score. It establishes a one-time relation between criteria in relation to the final score, it is also a specific “averaged” measure of criteria in particular cases, without the individualization of the evaluation for any of them. However, it does not specify to what degree one criterion is better/worse than the other. It is merely a derivative of the normalized distance.

### **3. Comparative analysis of internet access to e-banking accounts using a scoring method**

To evaluate cost, functional, technological and anti-crisis criteria, the author used a preliminary table presenting bank offers related to internet banking services used by respondents and fees connected with using bank accounts operated via the Internet. This table has been generated on the basis of data obtained from websites of selected banks.

On the basis of the surveys, the author created an averaged combined table for the criteria generated by users (see Table 2).

The spread in the respondents’ evaluations of the analyzed banks amounts to nearly 7 percentage points (compared to 5 percentage points in 2010/11, and 2.25 points in 2008), which reflects the growing diversity of evaluations; which confirms the thesis that the period of crisis increased the radicalism of evaluations and heightened expectations concerning the tools used to access an account.

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<sup>8</sup> W. Chmielarz, O. Szumski, M. Zborowski, *Kompleksowe metody ewaluacji jakości serwisów internetowych*, Wydawnictwo Naukowe WZ UW, Warszawa 2011.

**Table 2.** The combined table of evaluations

Criteria/Banks	Raiffeisen Bank	Millenium	ING Bank Śląski	Alior Bank	mBank	Crédit Agricole	PKO B.P.	BGŻ	Toyota Bank	Pekao S.A.	BPH	CITIBANK	Inteligo	BZ WBK	Total	%
Annual nominal interest rate of personal accounts	0.25	0.35	0.07	0.84	0.12	0.00	0.50	0.00	0.75	0.00	0.00	0.12	0.13	0.25	3.37	24.04
Account maintenance PLN/month	0.00	0.32	1.00	0.77	1.00	0.50	0.37	1.00	0.25	1.00	0.25	0.92	1.00	1.00	9.37	66.93
Fee for a transfer to a parent bank	0.00	0.88	0.85	0.88	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.35	88.18
Fee for a transfer to another bank	0.00	0.69	0.75	1.00	0.75	1.00	0.94	0.50	1.00	0.75	1.00	0.92	1.00	1.00	11.30	80.71
Payment order	0.50	0.60	0.69	1.00	0.59	1.00	0.69	1.00	1.00	1.00	1.00	1.00	1.00	0.75	11.81	84.36
Fee for issuing a debit card	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	14.00	100.00
Fee for a card PLN/month.	1.00	0.94	0.66	0.49	0.96	0.88	0.85	0.50	1.00	0.75	1.00	0.88	0.63	1.00	11.53	82.36
Additional services	0.50	0.63	0.97	0.51	0.93	0.63	0.69	0.50	0.25	0.50	0.50	0.75	0.88	1.00	9.23	65.89
Access channels to an account	0.75	0.69	0.85	0.61	0.71	0.88	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.39	88.46
Security	0.75	0.85	0.82	0.76	0.84	0.88	0.66	0.75	0.75	1.00	1.00	0.88	1.00	1.00	11.92	85.14
Visualization	0.50	0.85	0.79	0.78	0.80	1.00	0.63	0.50	0.50	0.50	1.00	0.63	1.00	0.75	10.22	72.96
Navigation	0.50	0.35	0.19	0.63	0.67	0.63	0.82	0.75	0.75	0.75	1.00	0.88	1.00	0.75	9.65	68.93
Clarity and ease of use	0.75	0.32	0.25	0.34	0.46	0.38	0.60	0.50	0.75	0.75	0.75	1.00	0.88	0.75	8.47	60.50
Functionality	0.25	0.38	0.32	0.28	0.45	0.38	0.88	0.75	0.50	0.50	0.75	0.63	0.88	1.00	7.93	56.61
Interest on savings accounts	1.00	0.88	0.88	0.95	0.82	1.00	0.63	1.00	0.75	0.75	1.00	1.00	0.75	1.00	12.41	88.64
Interest rate on deposits of 10, 000	1.00	0.78	0.88	1.00	0.94	0.84	0.50	1.00	0.88	0.75	0.75	0.75	1.00	1.00	12.07	86.21
Interest rate on loans 10,000	1.00	0.56	0.66	0.76	0.68	0.74	0.69	1.00	1.00	1.00	0.75	1.00	0.75	1.00	11.58	82.73
Anti-crisis measures	0.50	0.50	0.38	0.32	0.50	0.38	0.88	0.50	0.25	0.75	0.75	0.88	0.92	1.00	8.50	60.68
Total	10.25	11.52	11.97	12.88	12.94	13.08	13.24	13.25	13.38	13.75	14.50	15.24	15.82	16.25	188.07	
% of the maximum score	56.94	64.00	66.50	71.54	71.87	72.68	73.56	73.61	74.33	76.39	80.56	84.67	87.89	90.28		

Source: own calculations.

This time the best in the ranking were: BZ WBK (90.28%) and Inteligo (87.89%). Directly behind are: CitiBank and BPH. The low position of mBank (the fifth position in the reverse order), came as a surprise because this bank so far occupied leading positions and it was very popular with the analyzed group of people (interestingly, it received surprisingly low scores for functionality or its behavior during the crisis – 0.5). It is worth mentioning that in the rankings<sup>9</sup> till May 2010 it held the first position. There occurred a reversal of the situation from two years ago – the banks which two years ago fell in the rankings, at present, are trying to make up for the previous losses. Another issue which seems to be characteristic of this study – general scores for the quality of the websites increased.

It is difficult to compare the present results with the scores before the crisis because due to a number of mergers, the appearance of new players on the market, etc., but with the assumption that the group which was examined in the end of 2008 was similar, such a comparison is possible. The comparison with the ranking from 2013, 2010/2011 (post-crisis period) with the ranking from 2008 (situation before the crisis) is presented in Figure 2.

In 2013 there emerged a new player – Credit Agricole (benefited from the positive opinions of Lucas Bank) and occupied the seventh position.<sup>10</sup> Two years ago Alior Bank moved immediately to the first position. In the last two years the greatest growth in the clients' opinions was recorded by BZ WBK (25%) and Inteligo (14%), while the greatest loser is Alior Bank (fall by 8 percentage points) and mBank (6 percentage points).<sup>11</sup>

CitiBank (8.28%) and iPKO (8.56%) noted the smallest difference in the respondents' opinions. Also, generally, in 2008 clients were more satisfied with online banking services than in 2010/2011: in the previous period in the first ten all banks gained over 70% of the maximum score, in the present ranking – only top five. After two years, the situation was reversed again – despite higher clients' expectations with regard to banks' websites.

In the majority of analyzed cases there are no obligatory payments for issuing a debit card; transfers to the parent bank are usually free of charge. The level of security can be regarded as satisfactory for clients. Actually, it has not changed since 2008. Based on the compilation, we can conclude that a fee for issuing a card (usually there is

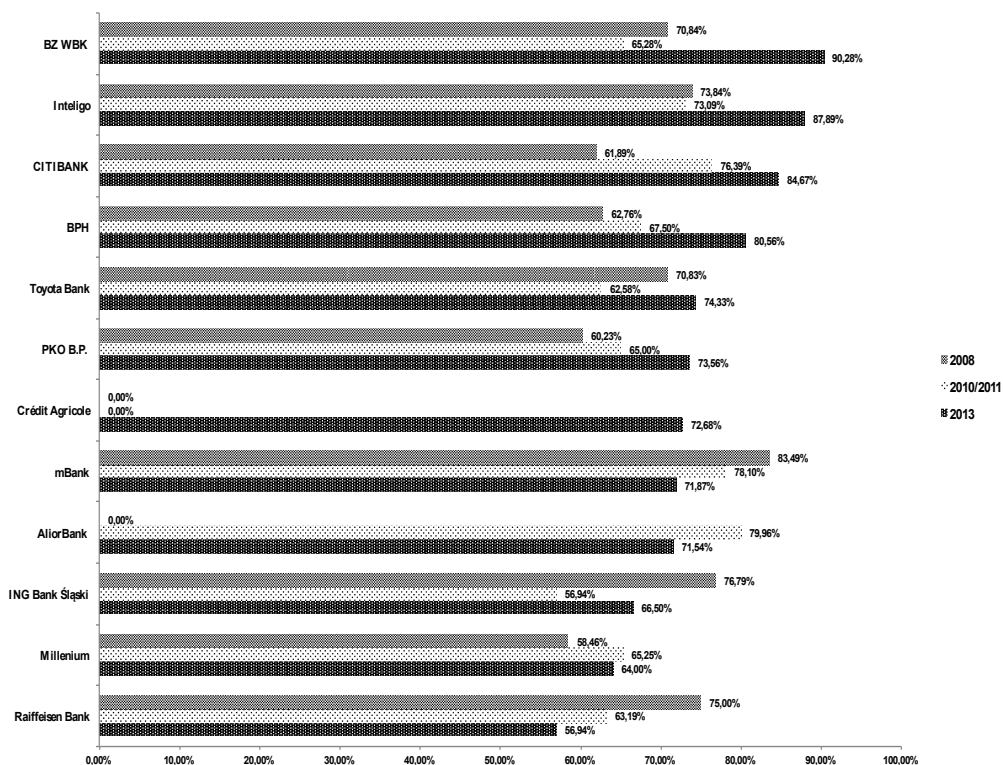
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<sup>9</sup> See for example: M. Samcik, M. Ostrowski, W którym banku najlepsze konto, *GW, Biznes, Ludzie, Pieniądze*, 24 May 2010. p. 34; Znajdź swój bank, *Newsweek* ranking June/July 2010. SMG/KRC auditors' group, *Newsweek*, 3 October 2010, p. 78.

<sup>10</sup> Quotation from the students' survey: "...Credit Agricole – the website presents ideal coloring which is associated with banking services, and the most important information is consistent with the entire website's visualization and draws consumers' attention..."

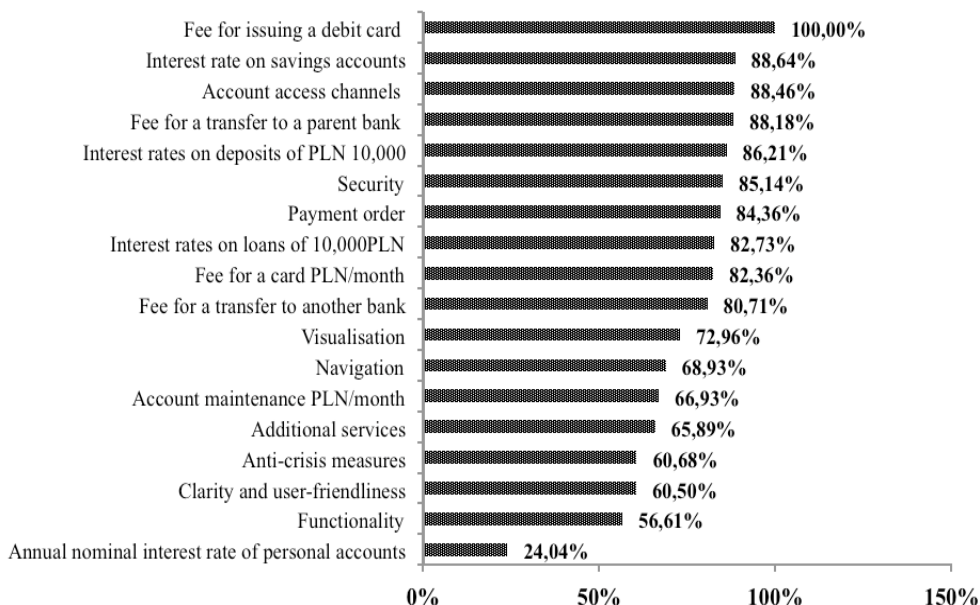
<sup>11</sup> Quotation from the students' survey (exact phrases): "...a considerable downside of this website turned out to be to my surprise that I cannot find the rate on eKONTO that was analyzed and, therefore, the bank has not received the maximum score. This was achieved thanks to the built-in search engine..."

no fee for such a service) reached a level which, at present, may satisfy clients' needs in 100%. The interest rate on savings accounts is satisfactory (over 88%). Undoubtedly, the worst indicator is an annual nominal interest rate (evaluated by the majority of users as too low – 24% of the maximum scores). The fact is that, in response to continually decreasing annual nominal interest rate of the accounts, there appeared savings accounts. The interest rates on deposits reached over 86% of the maximum score (see Figure 3). Out of the factors not listed within the criteria, clients paid attention to the lack of possibility to make a cross-border transfer (e.g. SWIFT in Inteligo) or no possibility of fully automatic obtaining a credit – via the Internet. In 2008 there were no anti-crisis measures among the criteria; however, if we compare this study with the research carried out in 2010/2011, we have to admit that during the crisis e-banking clients neither noticed any signs of the crisis nor were able to define anti-crisis measures undertaken by the banks, and at present they sometimes suggest criteria to be applied for their evaluation.



**Figure 2.** Comparison of the rankings of access to electronic banks for individual clients in the period before and after the crisis (2008, 2010/2011, 2013)

Source: own work.



**Figure 3.** Ranking of criteria for assessing electronic access to individual accounts in selected banks in Poland at the beginning of 2013

Source: own work.

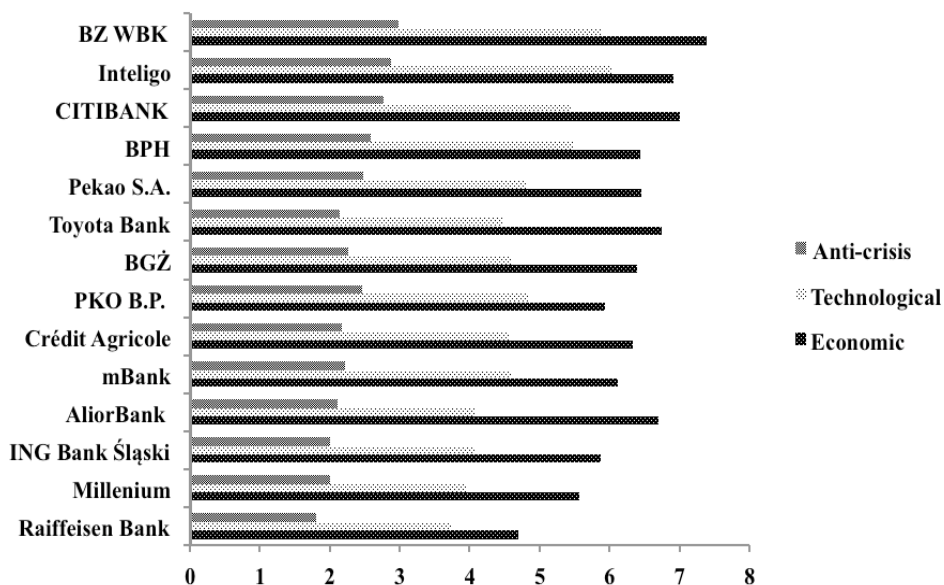
#### 4. Comparative analysis of internet access to e-banking accounts by means of a scoring method with preferences

One of the methods limiting a specific subjectivity in the experts' or users' evaluations (apart from the previously used averaging of scores) is applying unitary preferences with regard to particular criteria or sets of criteria. For each group the author applied one dominant variant:

- economic (70% for economic criteria and 15% for the remaining ones),
- technological (70% for technological criteria and 15% for the remaining ones),
- anti-crisis (70% for anti-crisis criteria and 15% for the remaining ones).

In the first case the three leading positions are taken by BZ WBK, CitiBank and Inteligo. Toyota Bank and Alior Bank are among the best banks with regard to economic factors. Raiffeisen, Millenium and ING Bank Śląski occupy the last positions out of the fifteen analyzed banks. In the leading positions CitiBank moves by one place, Alior Bank records the greatest shift (it moves 6 places upwards) and Toyota Bank (2 positions). PKO BP records the greatest fall.

In the second case the leaders are as follows: BZ WBK, Inteligo and BPH, and further positions are taken by: CitiBank and PKO BP. The last positions were occupied by: Raiffeisen, Millenium and Alior Bank.



**Figure 4.** Ranking of the scores according to various types of preferences for 15 selected banks in Poland in the beginning of 2013, according to the order of technological criteria

Source: own work.

In the third case the order is identical to the evaluation without preferences. All in all, multiplying the values by preference coefficients did not bring about any significant changes in the analyzed cases, because the order of the examined websites offering access to e-banking services remained basically the same. The results for the groups are presented in Figure 4.

## 5. Conclusions

The present analysis has shown that the crisis situation, whose signs are visible in various industries, does not apply to electronic banking. While in 2010/2011 it could be a one-off phenomenon, after four years we may conclude that it starts to be seen as a clear trend. Also, it confirms the changes concerning the banking customers' awareness. The choice of access to an account starts to be a matter of an informed choice, not a chance or habit. The decision is determined by both economic and technical conditions. The result is the choices made by clients reflected in the presented study and commented on in the surveys. It is true that some of the opinions indicate – despite the awareness of certain shortcoming of the

bank where they hold an account – resistance to changes, but it is the first step to move their account to another bank.

Taking into consideration the conducted analyses, we may draw the following conclusions:

a) in the minds of users of electronic banking a clear distinction between the virtual banks (electronic access only) and the electronic access services of traditional banks lost its importance, and it appears to be a continued trend. It is caused by the following phenomena<sup>12</sup>:

- virtual and traditional banks try to maximally increase the number of communication channels,
- it is difficult to separate a virtual bank from a traditional one,
- e-banking websites of traditional banks are just as technologically advanced and modern as those of virtual banks,
- we observe lowering of the prices of basic e-banking services in traditional banks, sometimes below the prices of virtual banks,

b) users have higher expectations with regard to the quality of e-services. The averages from the rankings – previously relatively constant – have become dynamic and fluctuate,

c) entering the market (see the case of Alior Bank) and allocating significant resources to a clever advertising campaign does not guarantee an automatic promotion to the top position in the rankings (see Credit Agricole),

d) having two accounts in two or more banks to perform various financial transactions is still a rare phenomenon,

e) too few clients dynamically respond to changes in on the banking services market,

f) vast majority of active bank customers consider economic criteria to be the most important criteria in the evaluation of electronic access to banking services – usually the prices of the most frequently used services. More and more people admit, however, that when selecting a website, to a certain degree, they tend to focus on user-friendliness and intuitiveness as well as the visual attractiveness of a website,<sup>13</sup>

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<sup>12</sup> Quotation from the students' survey: "...as we can see the results are comparable. This is due to the large similarity of services offered by banks with regard to visualization and 'starting package', that is all for 0 zł."

<sup>13</sup> Quotation from the students' survey (original phrasing): "...personally, when selecting banking services, I am more influenced by economic factors than the visualization or the simplicity or complexity of navigation. Visual qualities depend on a personal taste, and I think they should not be a decisive factor in the selection of a financial institution to which we entrust our own money. With regard to the technical and functional level of the service, it does not determine my choice – especially since the current market seems to have developed a certain standard, below which banks can no longer operate because customers are bound to verify it quickly and leave..."



g) users of electronic banking services more frequently notice anti-crisis measures of banks and even though they do not influence their choices in any considerable degree, they can note and identify them.

This confirms the author's thesis about the inadequacy and a specific superficiality of standard, unified, quantitative methodologies used for the evaluation and selection of e-banking websites. It also points to the need of further studies into constructing multi-dimensional, multi-criteria, hierarchical and multi-faceted system for websites' evaluation, with the consideration of additional, more specific information, e.g. customer profile.<sup>14</sup>

Nevertheless, despite the problems related to using e-banking services, which the article presents, from year to year we observe that the Internet tends to assume the role of the main (also for an individual client) channel of communication with the bank. Undoubtedly, this development irrevocably changes the expectations, perceptions and habits related to using banking services which users have had so far, and also, simultaneously, it urges banks to introduce quick changes of the medium which would take into account holders' requirements.

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<sup>14</sup> W. Chmielarz, Koncepcja ekspertowego systemu oceny i selekcji witryn internetowych, Część 4.2, rozdz. 4, *Koncepcje zastosowań Systemów ekspertowych*, [in:] J. Gołuchowski, B. Filipczyk (eds.), *Wiedza i komunikacja w innowacyjnych organizacjach. Systemy ekspertowe – wczoraj, dziś, jutro*, Prace Naukowe UE w Katowicach, Wydawnictwo UE w Katowicach, Katowice 2010, pp. 183–190.

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## **ANALIZA PORÓWNAWCZA WYBRANYCH SYSTEMÓW BANKOWOŚCI ELEKTRONICZNEJ W POLSCE W 2013 ROKU**

**Streszczenie:** Zasadniczym celem niniejszego artykułu jest identyfikacja najlepszych witryn internetowych banków z elektronicznym dostępem do konta z punktu widzenia klienta indywidualnego. Po krótkim wprowadzeniu określono najpierw założenia prowadzonych badań. Następnie przedstawiono różnorodne analizy rozpatrywanego zagadnienia i zaprezentowano wnioski z nich wynikające.

**Słowa kluczowe:** bankowość elektroniczna, banki wirtualne, zdalny dostęp do konta bankowego, ocean stron internetowych, czynniki rozwoju witryn internetowych.