

# ARE THE BANKS INFORMATIC OPEN FOR KNOWLEDGE IMPROVEMENT?

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## Abstract

In this paper we analyze the role of the developments in the banking sector, primarily financial liberalisation and deregulation, on banks informatics openness to knowledge sharing with finance students in Croatia. Following the rhythm of these changes in the banking sector it is becoming harder for teachers to establish the kind of knowledge and skills their students are going to need tomorrow. Are the old methodologies enough to show them the right way of putting and understanding things that have happened? At the same time the usage of information technology in finance is becoming a very important skill for finance students, potential future employees of banks. How much banks are open to the finance students and are giving them possibility to improve the finance knowledge and possibility apply for a job by using information technology? The purpose of this paper is to find out how banks in Croatia use information technology as a technique to increase the level of useful transfers of knowledge in the field of finances and banking.

**Keywords** - Transfer of knowledge, information technology, finance education, banking

## 1 INTRODUCTION

In the last two decades the key trend in financial markets worldwide has been the financial liberalization and deregulation. In Europe these developments have been accelerated by increased integration of European countries and deregulation of capital monuments in former communist countries of Central and Eastern Europe (CEE). Today, the banking systems of the majority of CEE countries are held by foreign owners. Studies have confirmed that the biggest positive effects of the entrance of foreign banks in CEE countries are much stronger competition, improved efficiency and better quality of products and services (Kraft, 2003, Haas, Lelyveld, 2006). New financial institutions, instruments and financial products have developed as a result of the stronger competition between market players and the changes in government policy. New investment funds, leasing companies and other financial companies have emerged. These changes have created demand for new knowledge and skills of the future bank employees. Results of empirical research presented in Buljan Barbača and Rimac Smiljanić (2007) confirm that banks, future potential employers of finance students from Croatian universities, are not satisfied with the skills and knowledge of finance students from the Croatian universities. Furthermore, they have expressed a strong willingness to collaborate more with the universities in developing more practical knowledge. In addition, the studies done in market competition have defined human resource strength as the most important competitive advantage and the force that makes a difference between successful and unsuccessful firms. Furthermore, the importance of e-recruitment has been highlighted in recent times. In addition, Rimac Smiljanić, Baran, Buljan Barbača (2008) compared the study programs of different finance fields on Croatian faculties of economics and business prior to and after the introduction of the Bologna process in high education. Their scope was to indentify the changes introduced with reform of high education in the field of

finance and how they corresponded with knowledge's and skills needed from future employees of finance students. Results have shown that new reformed programs are still not adequate to the needs of the banks and the need of greater bondage between the banking system and educational system in order to overcome the gap between the needs of the banking system and the skills and knowledge of the students that are graduating at our universities. Therefore, this research is meant to give an answer to the three basic questions:

- Do banks use internet communication for recruitment, and how do they use it?
- Do banks offer scholarship programs to finance students on their official web pages?
- Do banks offer internship to finance students on their official web pages?

By finding the answers to these questions we hope to review how banks are, in terms of informatics, open for knowledge improvement of finance students in Croatia.

The paper is organized as follows: Section 2 presents a historical framework and current condition of Croatian financial system and faculties of economics and business. Section 3 is devoted to the empirical research of the transfer of knowledge in field of finance and banking in Croatia. Section 4 concludes the paper with summary and policy recommendations.

## **2 HISTORICAL BACKGROUND AND CURRENT CONDITION IN CROATIAN BANKING SYSTEM AND FACULTIES OF ECONOMICS AND BUSINESS**

### **2.1. Privatization and Liberalization of Financial Markets**

Before 1990s, in Croatia there were high levels of regulation in all segments of financial markets, especially in the banking market. Banks were providing the main source for external funding for Croatian companies, with no existence of stock market financing. The banking system in Croatia has passed through very fast and invasive changes in the last two decades. In order to make a solid theoretical frame for our research we will try to explain the current situation in the Croatian banking system by giving a short reminder of the historical background of the Croatian banks. A plausible way of representing the changes in Croatian banking system could be by dividing these changes into 3 elementary phases. The 1<sup>st</sup> phase can be called the phase of foundation. It took place from the early years of 20<sup>th</sup> century until 1995. At that time Croatia and other CEE countries started building their national banking sectors. At the same time, banks from western European countries started entering international markets. The market of the banks in that period was focused on corporate banking while consumer banking was still undeveloped. The 2<sup>nd</sup> phase is called privatization because the period from 1995 until 2000 was mainly characterized by privatization of state owned banks. In this particular moment, foreign banks have entered Croatian market by buying some local banks. During this process, that took place at the end of the war that was going on in Croatia, several new local banks went through bankruptcy. Opening of this market to international participants has increased competition in corporate banking. Retail banking market underwent rather fast development too. The 3<sup>rd</sup> phase of consolidation has started in 2001 and it is still in progress. The characteristics of this phase are increased competition among new owners and the formation of new strategic plans of international banks in Croatia. At the same time many changes occurred in structures and needs of consumers of banking products. For example, small and medium enterprises (SME) started growing fast as a market segment and required banking institutions to follow their financial needs.

In order to achieve better understanding of the motivations of banks currently present in Croatian financial market, it is useful to know who we are and how our financial market operates at this moment (Table 1). The financial market in Croatia is dominated by banks. They are holding over 79% of total assets of financial institutions. Other financial institutions are still developing. These facts underline the importance of the banking system for Croatia. According to the rules issued by CNB, 32 subjects are currently present in this particular market. The Croatian banking system is partially submissive to the global trends in the banking industry. This means that the number of banks present in Croatia has been reduced due to conglomeration and concentration in the banking sector, a trend that is present in all countries. A very important issue, when it comes to the banking industry in Croatia, is the problem of ownership. As in all of the economies in transition, the Croatian banks have been changed by going through previously explained phases and the result is ownership structure. Foreign owned banks are

dominating the banking sector in Croatia. This data itself doesn't have to mean anything, especially if we take into the consideration the increased rate of capital mobility as a result of the process of globalization. The foreign ownership does not necessarily imply a great difference in goals that a bank as an institution has, but the goal of a particular bank has an impact on the national economy.

**Table 1 Basic futures of the Croatian banking system 1999 - 2009**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number of banks	53	43	43	46	41	37	34	33	33	34	34	33	32
Total banking assets (in mil. HRK)	98	103	130	161	189	216	244	282	324	357	369	406	403
Number of foreign banks	13	20	24	23	19	15	14	15	16	16	15	15	17
Share of foreign banks in total assets	39.9	84.1	89.3	90.2	91.0	91.3	91.3	90.8	90.4	90.8	90.7	90.3	90.6
Share of 4 biggest banks in total asset	58	62	60	59	62	65	65	64	64	65	65	65	66
Capital-adequacy ratio (%)	20.6	21.3	18.5	17.2	16.2	15.3	14.7	14.0	16.4	15.2	15.9	18.7	19.5
ROA (before tax)	0.7	1.4	0.9	1.6	1.6	1.7	1.7	1.5	1.6	1.6	1.5	1.1	1.2
ROE (after tax)	4.8	10.7	6.6	13.7	14.5	16.1	15.1	12.4	10.9	9.9	9.3	6.5	6.9

Source: Croatian National Bank (CNB)

## 2.2 The Bologna process and its reflections on faculties of economics and business in Croatia

The purpose of the Bologna process is to achieve greater compatibility and comparability of the European higher education area. Its main notion can be summarised through the following objectives:

- adoption of a system of easily readable and comparable degrees,
- establishment of a system essentially based on two main cycles,
- establishment of a system of credits,
- promotion of mobility,
- promotion of European co-operation in quality assurance,
- promotion of the necessary European dimensions in higher education.

Although it was not one of the 29 European countries that originally signed the Bologna declaration in 1999, Croatia became a member of the European Higher Education Area in May 2001. As a legal framework and precondition for the following changes in the system of higher education, in July 2003 the Croatian Parliament passed The Act on Scientific Activity and Higher Education. In accordance with the Act, two-cycle and three-cycle study programs have been introduced since the 2005/2006 academic year as well as the national quality assurance system and the system of accreditation and certification.

Given the intention of this paper, which is to investigate the connection between the banking industry and education regarding the knowledge demanded by the banks and knowledge provided by the faculties in Croatia; it appears that the main providers of the potential employees for the banks are faculties of economics. Having in mind that banks are primarily financial institutions, it seems reasonable to concentrate on the influences of the Bologna process on the institutions providing business education. Faculties of economics as a part of the higher education system in Croatia adapted their study programs to the new system. Compared with the system prior to the Bologna declaration, the degree granted with a *diploma* has been transformed into a baccalaureus and the programs have been shortened from 4 years to 3 years. The degree granted with a "*magisterij*" has

been transformed into a master's degree, achieved through two additional years of study. As far as Faculty of economics Zagreb is concerned, the first higher education degree under the new system still lasts four years, while master's degree is obtained through an additional one year. All faculties of economics under the scrutiny adopted doctoral studies lasting three years which lead to the doctoral dissertation and the awarding of PhD. Given the fact that Bologna process is a turning point for the Croatian higher education system, one cannot go without asking herself how deep this alternation is, i.e. are there any changes in the study programs regarding the courses taught or is this transition just a cosmetic transformation of the existing academic degrees. In the opinion of the researchers, the latter would cause long term consequences for the Croatian education system and economy likewise. In order to adjudge on this matter we decided to compare the number of teaching hours per year attributed to each course in the field of finance prior to and after the introduction of the new study programs at the faculties of economics and business. Analysing the number of teaching hours for different groups of financial courses for each faculty of economics and business, and assigning the grades and ranks to the number of average hours per group of courses, enables the following inferences. Financial courses, grouped to form Financial system grouping, remains the most important group of courses under the new study programs. An average grade attributed to this group of courses for all faculties of economics and business is 4.4, which represents a slight decline when compared with the number of teaching hours per year assigned to this group of courses under the old study programs (see Table 2).

**Table 2 Comparison of the old and new *Bologna* programs on the Faculties of Economics**

Group of subjects	Old program		Bologna	
	total grade	rang	total grade	rang
Financial system	5	1	4,4	1
Financial management	2	6	3,8	2
Financial institutions and payment system	3,2	3	3,2	3
Capital markets new financial instruments	2	6	3,2	3
Bank management	3	4	3	4
Tax system	3,2	3	2,6	5
International finance	3,4	2	2	6
Analysis of financial statement	1,8	7	1,4	7

Source: Rimac Smiljanić, Baran, Buljan Barbača (2008)

Further analysis reveals a significant change when it comes to the second most important group of courses at the faculties of economics and business. While, under the old study programs, this rank was taken by courses grouped as International finance, the Bologna process allotted this rank to the courses grouped as Financial management. This represents a prominent increase in the number of teaching hours attributed to this group of financial courses. At the same time International finance courses have suffered shrinkage of the number of teaching hours under the new programs which led to the downfall of this group of courses on the scale of courses' relevance. A sizable increase in the number of teaching hours can be noticed for the courses grouped as Capital markets and new financial instruments. While these courses have been slightly neglected in the old programs schemes, it seems that their relevance has been revealed in the new programs. As opposed to that, for Financial statement analysis courses such revelations under the new programs have failed. Not only do these courses remain with the lowest rank, but the number of teaching hours attributed to this group of courses has been reduced as well. Despite of these changes, the finance programs still do not match to the needs of bankers (Rimac Smiljanić, Baran, Buljan Barbača, 2008).

### **3 BANKS INFORMATICS OPENS TO THE FINANCE STUDENTS IN CROATIA**

In the next step of our research we wanted to find an answer how banks are informatics open to the finance students in Croatia. Namely, the results of empirical survey carried out amongst Croatian banks about their perception on finance education at universities in Croatia are presented in the Buljan Barbača and Rimac Smiljanić (2007). Results indicate that banks extremely appreciate PC literature

as expected skill demanded of the potential new employees, i.e. today's students of finance. This skill bank ranged with rang 4,5 of maximal 5. Results show no difference amongst banks about importance of this skill regardless of bank size or type of ownership. Also, in specified research banks were asked about their views on the important connections between the banking system and the educational system in order to overcome the gap between the needs of the banking system and the skills and knowledge of students that are graduating at our universities. In general, banks find that stronger bonds between educational institutions, students and banks are the right answer to this problem. This attention was more pronounced in answers obtained from large and foreign owned banks. In addition, they indicated activities that they might be interested in pursuing, for the purpose of improving the quality of the collaboration between the educational institutions and themselves. Among them was a very pronounced possibility to give the students an opportunity to gain more experience during the period of study by opening their door for practical lessons in banks.

Taking into the account the results of the research presented in Buljan Barbača and Rimac Smiljanić (2007) and Rimac Smiljanić, Baran, Buljan Barbača (2008) we wanted to find out how the banks today, five years after first empirical research, in practice follow their declaration to the openness of improving the knowledge and skills of finance students, their future employees by using information technology.

### 3.1 Methodology

For the purposes of this paper, an empirical research has been carried out with the attempt to evaluate the set research objectives. The secondary research was conducted during the autumn 2012. It was conducted by evaluating the official web pages of all the banks 32 doing business in Croatia. We used the official list of banks web pages taken from the official web page of the Croatian National Bank – CNB (<http://www.hnb.hr/supervizija/o-bankama/e-vise-o-bankama.pdf>, 20.12.2012). In our investigation we concentrated on the electronic recruitment (existent or non existent), the possibility of filing electronic applications to student practice (existent or non existent) or to bank scholarships (existent or non existent). Also, the financial data about bank size and type of ownership were collected.

The statistical processing of gathered data was made on a PC using Excel and SPSS 17.0 software for data processing. The research results are analyzed by the use of descriptive statistics as well as the use of a nonparametric test - Chi-Square Test.

### 3.2 Empirical results

Our data set comprises the selected data of all the banks operating in the Croatian banking market in 2012 year. For the purpose of analyzing the banks by their ownership structure they were divided in domestic and foreign owned. For the purpose of analyzing the banks by their size they were divided to small and large sized banks. With this classification of banks we followed out the classification in Buljan Barbača and Rimac Smiljanić (2007) and Rimac Smiljanić, Baran, Buljan Barbača (2008). Therefore, by using this approach in population classification we get the possibility to compare our results with results presented in these papers, i.e. to find the answer whether banks indeed follow their declaration to improve connections with finance students by using the mode, judged by them extremely important, PC technology. Our data set comprises the data from all banks in Croatia, i.e. our sample is the same as whole population. As can be seen in Table 3 only 48,38% of banks in Croatia have a category careers/employment on their official web page as a form of electronic requirement.

**Table 3 Summary of results**

	<i>Category career/employment</i>	<i>Possibility of online applying to the open position</i>	<i>Online information about banks scholarships</i>	<i>Possibility of online applying to the Internship in</i>
Have	15	11	1	2
Do not have	16	20	30	29
	48,38%	55%	3,33%	6,89%

Source: Survey results

Note: Međimurska banka d.d. was merged on 1.12.2013 to the Privrednoj banci Zagreb.

By using of a nonparametric test - Chi-Square Test we founded statistical difference between small and large size banks. In general, larger banks, more often have on their web pages category careers/employment (Table 4).

**Table 4 Chi-Square Test for testing the relationship between bank size and the existing the category careers/employment**

Crosstabulation		Bank size		Total
		0 (large)	1 (small)	
Category career / employment	0	2	13	15
	1	9	7	16
Total		11	20	31

  

Chi-Square Tests	Value	df	Asymp. Sig.	Exact Sig.	Exact Sig.
			(2-sided)	(2-sided)	(1-sided)
Pearson Chi-Square	6,229	1	,013		
Continuity Correction <sup>b</sup>	4,495	1	,034		
Likelihood Ratio	6,614	1	,010		
Fisher's Exact Test				,023	,016
Linear-by-Linear Association	6,028	1	,014		
N of Valid Cases	31				

Source: Survey results

One of the main characteristic of the Croatian banking market is a high share of foreign ownership. Often the foreign owned banks are presented as banks with better finance and information technics, i.e. better know-how (*Kraft, 2003*). Therefore, in the next step of our research we tested, by using of a nonparametric test - Chi-Square Test, whether foreign owned banks were more information open via their web page to electronic requirement? As presented in Table 5 we find no statistical evidence about existing connection between the category careers/employment and the bank domestic or foreign ownership.

**Table 5 Chi-Square Test for testing the relationship between type of bank ownership and the electronic recruitment**

Crosstabulation		Bank ownership		Total
		0 (domestic)	1 (foreign)	
Category career / employment	0	9	6	15
	1	5	11	16
Total		14	17	31

  

Chi-Square Tests	Value	df	Asymp. Sig.	Exact Sig.	Exact Sig.
			(2-sided)	(2-sided)	(1-sided)
Pearson Chi-Square	2,584	1	,108		
Continuity Correction <sup>b</sup>	1,553	1	,213		
Likelihood Ratio	2,619	1	,106		

Fisher's Exact Test				,156	,106
Linear-by-Linear Association	2,501	1	,114		
N of Valid Cases	31				

Source: Survey results

It is obvious that larger banks have more complex managerial structure, invest more in human resources management and therefore appreciate more the possibility of their openness to new potential employees. When looking for the best employees they use the possibilities of internet technologies. Taking into consideration that fact the largest banks in Croatia are foreign owned banks it can be said that these banks brought to Croatia a common way of recruiting the future employees by using the internet and that is common in large banks.

**Table 6 Chi-Square Test for testing the relationship between bank size and the possibility of sending online (by e-mail) open CV**

Crosstabulation		Bank size		Bank size	
		0 (large)	0 (large)		
Possibility of sending online open CV	0	4	16	20	
	1	7	4	11	
Total		14	11	20	

  

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Continuity Correction <sup>b</sup>	4,151	1	,042		
Likelihood Ratio	5,888	1	,015		
Fisher's Exact Test				,023	,021
Linear-by-Linear Association	5,712	1	,017		
N of Valid Cases	31				

Source: Survey results

**Table 7 Chi-Square Test for testing the relationship between bank ownership and the possibility of sending online (by e-mail) open CV**

Crosstabulation		Bank ownership		Total	
		0 (domestic)	1 (foreign)		
Possibility of sending online open CV	0	13	7	20	
	1	1	10	11	
Total		14	17	31	

  

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Continuity Correction <sup>b</sup>	6,842	1	,009		
Likelihood Ratio	10,084	1	,001		

Fisher's Exact Test				,007	,003
Linear-by-Linear Association	8,668	1	,003		
N of Valid Cases	31				

Source: Survey results

Obtained results about offered scholarships and the possibilities of applying for internship in banks are very disappointing. As can be seen from Table 3 only one bank is offering the possibility of scholarship and two of them possibility of internship in the bank for the finance students on their official web pages. Namely, these results are quite opposite to their declaration given five years ago (Buljan Barbača and Rimac Smiljanić, 2007) to development of higher collaboration with the universities and finance student with the goal of more practical education of the future employees. Moreover, the Croatian universities by implementing the Bologna process still did not fulfil all expectations about knowledge's and skills demanded from the future employers of finance students from the finance industry (Rimac Smiljanić, Baran, Buljan Barbača, 2008). Nevertheless, high efforts can be seen. Unfortunately the same cannot be said for the bank internet openness to the knowledge improvement of the finance students in Croatia.

#### 4 CONCLUSION

The results of our research are showing that the banks in Croatia are still not informatics open for knowledge improvement of finance students in Croatia. Taking in to account that only in synergy between banks and educational institutions there is a possibility to increase mutual efficiency this results are quite disappointing. In order to achieve their mutual goals it is necessary to minimize the time gap between bank needs and demands and educational programs.

#### References

- [1] Brencic V., Norris J.B. (2008): *Online Job Boards as an Employer Recruitment Tool*, for 2008 World Congress on National Accounts and Economic Performance Measures for Nations, Arlington VA, May 12- 17, [www.indexmeasures.com/dc2008/papers/BrencicNorrisDC2008.pdf](http://www.indexmeasures.com/dc2008/papers/BrencicNorrisDC2008.pdf)
- [2] Bresfelean, Veres, Bologa (2010): *Competencies and online recruiting for banking occupations*, COMATIA'10 Proceedings of the 2010 international conference on Communication and management in technological innovation and academic globalization, 2010, pp. 117-122
- [3] Buljan Barbača D., Rimac Smiljanić, A. (2007): *How Fast Changes in Developing Countries as Croatia Interfere With Transfer of the Knowledge in Field of Finance and Banking*, Proceedings 18th SPACE Annual Conference "Learning by Sharing in Higher Education" (ed. G. Vandeborne), SPACE, Cipar, 2007, pp. 1-11.
- [4] Croatian National Bank, *Statistical Survey*, Different Issues
- [5] Haas, R., Lelyveld, I. (2006): *Foreign banks and credit stability in Central, and Eastern Europe. A panel data analysis*, Journal of Banking & Finance, NO. 30, pp.1927–1952
- [6] Kraft, E. (2003.): *Foreign Banks in Croatia: Another Look*, Croatian National Bank, Working Paper, February.
- [7] Kraft, E., and Vodopivec, M., (2003): *The New Kids in the Block: The Entry of private Business Schools in Transition Economies*, Education Economics, Vol. 11, No. 3. pp 239-257.



- [8] Rimac Smiljanić, A., Buljan Barbača D., Baran D. (2008): *The Influence of Transition and Financial Liberalization on Transfer of Knowledge in Croatia*, Global Business & Economics Review - Anthology 2008 (ed. D. Kantarelis), Vol. II, Business & Economics Society International, Worcester, SAD
- [9] Verhoeven H., Williams S. (2008) *Advantages and Disadvantages of Internet Recruitment: A UK Study into Employers' Perceptions*, International Review of Business Research Papers, Vol.4 No.1 January 2008, pp.364 – 373
- [10]<http://www.ebankingcareers.com/>, 20.11.2012.