E-TRANSPARENCY OF CROATIAN BANKS: DETERMINANTS AND DISCLOSURE CONTENTS

Ana Kundid* Andrijana Rogosic†

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Abstract

Banks are the most important financial intermediaries and major providers of institutionalized loan financing in the economic systems worldwide. Externalities of their activities affect the economy deeply. Therefore, regulation of their behavior is of utmost importance for the general public. In addition, national and supranational prudential authorities request various forms and extents of mandatory disclosure. Nevertheless, voluntary disclosure is being recognized by the banks as a mechanism of asymmetric expectations' reduction and confidence enhancement of current and potential both shareholders and stakeholders. Upgrading information availability and updating its quality might be a useful way of reducing the probability of systemic banking crisis as well as a useful tool for improving market discipline. However, the causes and consequences of banks' disclosure of

*Faculty of Economics, University of Split, Matice hrvatske 31, 21 000 Split, Phone: ++ 385 21 430 752 Fax: ++ 385 21 430 701, E-mail address: akundid@efst.hr

†Faculty of Economics, University of Split, Matice hrvatske 31, 21 000 Split, Phone: ++ 385 21 430 772 Fax: ++ 385 21 430 701, E-mail address: arogosic@efst.hr

accounting and other information are still challengeable issues in financial literature. In that regard, the purpose of the paper is to explore the determinants of Croatian banks' online disclosure of financial information. Bank specific and industry specific factors of disclosure are being empirically examined using univariate and multivariate statistical methods. Further research objective is to compare the volume and the structure of mandatory disclosed information using content analysis. It is expected that banks with higher transparency achieve significantly better financial performance. However, the paper does not empirically investigate benefits or drawbacks of both mandatory and voluntary disclosure. For all the aforementioned reasons the paper might be provide useful insights for academics, students of economics and, most of all, for the general public, especially depositors as major providers of bank funds.

1 INTRODUCTION

Increased financial transparency of banks and rise of their website reporting has recently been fostered by the adoption of Basel II Standard, or more precisely, its third pillar on market discipline. Market discipline "is a regulatory mechanism that delegates the monitoring and disciplining task not only to the national and international regulators but also to the market participants whose wealth is affected by the banks' conduct" (Ceuster and Masschelein, 2003, 753). It refers to "the way in which holders of bank liabilities, such as subordinated debt or uninsured deposits, 'punish' banks which take greater risks by demanding higher yields" (Baumman and Nier, 2003, 134). Furthermore, e-transparency refers to the "level of corporate information disclosed on the internet" (Serrano-Cinca et al., 2006, 312).

It is expected that market disciplining will be mostly conducted by the subordinated debt holders and other fund holders non-covered by the deposit insurance systems (Bliss, 2001; Baumann and Nier, 2003; Ceuster and Masschelein, 2003; Herring, 2003) which lose their assets when the bank defaults, but "do not have any benefits of any upside gain when the bank takes excessive risk" (Ceuster and Masschelein, 2003, 754-755). Their behavior could have signaling effect mostly

for the bank supervisors. In addition, Barth et al. (2002) empirically evidenced that the use of subordinated debt is strongly and positively connected with bank profitability which is supported by the data from more than 2 300 banks across 55 countries. This is why some authors reported findings on higher transparency regulation of banks as a substitute for the safety net creation (Hyytinen and Takalo, 2004) in order to prevent excessive risk taking by banks and occurrence of systemic crises. Moreover, governor Warsh (FED, Speech, 2010) has recently addressed the need for resurrection of market discipline as a complementary pillar of prudential regulation in order to reduce too-big-to-fail problem and use of the systemic risk exception.

For the above outlined facts, supranational Basel recommendations in its third pillar seem to be consistent with the empirical evidence on the relevance of regulation level and type (Demirgüç-Kunt and Detragiache, 1998; Barth et al., 2001a; Barth et al., 2001b; Nier, 2005; Tadesse, 2006) in prevention of banking crises and altering banking sector development. For example, in their cross-country analysis that included 107 countries in the period from 1998-2000, Barth et al. (2001b, 37) found out that "private monitoring is strongly positively linked with bank development and negatively associated with net interest margin and the level of nonperforming loans" while it is not statistically significantly connected with banking crises. However, one of the most powerful evidences of the positive impacts of bank-disclosure requirements in prevention of banking crises is provided in Tadesse's (2006) cross-country analysis that encompassed 49 countries over the period from 1990-1997. These research results are consistent with those of Nier (2005) that were obtained from the sample of 550 listed banks across 32 countries over the years 1994-2000. Nevertheless, Basel II Standards only promote and encourage more market monitoring of bank behavior believing that market participants have sufficient initiative to act as a disciplining mechanism. Likewise Kalfaoglou and Sarris (2006, 5) concluded: "Pillar III seems to focus on the availability of information and little concern has been shown whether the interested parties gather, process and interpret information in a consistent and appropriate manner". In such a manner, governor Tarullo (FED, Speech, Tarullo, 2010, 3) summarized that "there is a little point

– and the potential for considerable unnecessary cost – in compelling disclosure of massive amounts of information that cannot be effectively assimilated by investors and counterparties". Therefore, suggestions for enhancement of market supervision proposed by Herring (2003) should serve as the most complete framework that could be adopted by the prudential authorities in re-building safe and sound financial system.

Expected results of regulation moving toward the "invisible-hand" discipline (Herring, 2003) should lead to more prudent behavior of banks, reduced intervention of banks into the safety net and circumvention of banking crises. However, the recent financial crisis demonstrated the insufficiency of both regulatory and market supervision. Inefficiency of market discipline might be a consequence of underdeveloped market disciplining, exaggerated confidence in continuous market growth, self-destructive appetites of fund holders, their overreacted, synchronized actions or the quality of reported financial items. Thus, Baumann and Nier (2003) reported that the strength and effectiveness of market discipline depends on the generosity of the safety net, on the level of bank's uninsured liabilities and the transparency of bank's risks. In that line, Warsh pointed out that "the growing specter of government support threatens to weaken market discipline, confuse price signals, and create a class of institutions that operate under different rules of the game" leading to "quasi-public" financial institutions (FED, Speech, Warsh, 2010, 2). On the other hand, consequences and costs of bank runs caused by coordinated and excessive movements of disturbed creditors alter concern about efficiency of market discipline that "has a tendency to become lax late in economic booms and excessively tight in busts" (FED, Speech, Warsh, 2010, 3). With regard to this, Tadesse (2006, 33) summarized that the role of bank transparency in banking system stability is controversial and may result with positive informational externalities ("transparency-stability hypothesis") in the form of efficient allocation of resources or negative informational externalities ("transparency-fragility hypothesis") in form of individual bank run, systemic crises and stock market collapse. For the above outlined reasons issues on the socially optimal bank disclosure are challengeable and reaffirmed in mature financial systems, both among supervisors and academics

(Baumann and Nier, 2003 and 2004; Nier, 2005; Kalfaoglou and Sarris, 2006; Tadesse, 2006; Alexandre et al., 2010).

This paper aims to research the level of compliance to the normative disclosure requirements by the banks in the Republic of Croatia as well as their voluntary financial reporting. Review of the empirical background on this issue suggests that this is the first research of this kind for the Croatian banking sector since Credit Institution Act enactment. Previously, solely Huang (2006) on behalf of the World Bank reported research results on bank disclosure indexes for all 177 countries in the world, among which Croatia was ranked as 97^{th}. On the other hand, voluntary online corporate reporting has been vastly examined in Croatia (Pervan, 2006; Pervan, 2009; Rogošić et al., 2008). Moreover, the goal of this study is to evaluate disclosure content of the banks in Croatia in relation to their bank-specific characteristics. With respect to this, non-weighted disclosure indexes were built up in the paper, as dealt with in Bonsón-Ponte et al. (2006). In addition, Hossain (2008, 666) also implemented unweighted disclosure index methodology due to the notice that "the use of unweighted and weighted scores for the items disclosed in annual reports and accounts can make little or no difference to the findings". However, whether the disclosure is beneficial for banks and useful for market participants or banking system in its entirety is not intended to be answered in this paper, and is beyond its scope. Finally, Bonsón-Ponte et al. (2006, 728) concluded that "the next phase of voluntary disclosure will be extended to other topics of concern such as information on environmental protection or intangible assets". Therefore, our future empirical research will follow up on this prognosis.

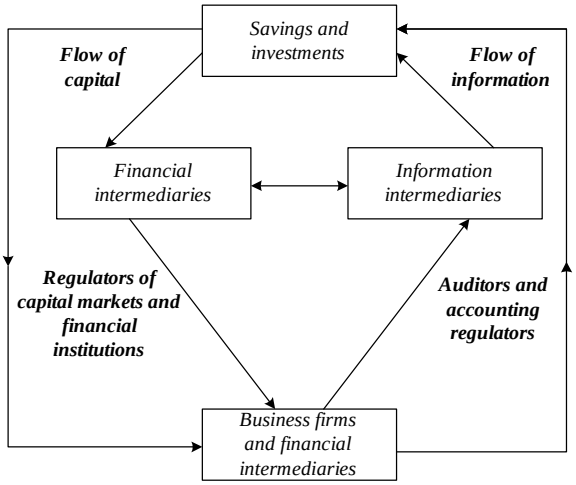
2 THEORETICAL AND EMPIRICAL BACKGROUND

2.1 INFORMATION AND EXPECTATIONS IN MARKET RELATIONS: THEORETICAL FUNDAMENTS

Why is public disclosure important in the market-based economy? Theoretical background on the relevance of public disclosure consists of few explanatory views. Theory of perfect competition and efficient market hypothesis are the most rudimentary ones. According to the theory of perfect competition promoted by neoclassical economists, market transparency, as one of the underlying theoretical assumptions, is achieved if two preconditions are fulfilled (Pojatina, 2000, 143). Firstly, information relevant for decision making should be distributed widely to the public and available at the lowest possible costs. Public disclosure can be mandatory or voluntary, free of charge or chargeable, self-disclosed by companies or disclosed by information intermediaries like credit rating agencies, financial analysts, investment advisors, auditors, financial press and supervisors. Therefore, private or market supervision of companies can be executed directly by investors or indirectly throughout information intermediaries (Figure 1). Mandatory disclosure requirements should be particularly useful for investors as they turn information into the public good (Prescott, 2008), reduce multiple costs and potential free-rider problem in information acquisition (Pojatina, 2004). Secondly, market participants should be capable of using this data in their decision making. Hereafter, it needs to be noticed, as Baumann and Nier (2004, 31) cite Greenspan, that public disclosure and transparency should not be treated as interchangeable, because "transparency challenges market participants not only to provide information but also to place that information into a context that makes it meaningful". Although transactional costs of acquiring information have been continuously at decrease in the last two decades, their interpretation still remains challengeable for external users. Thus, efficient market hypothesis or theory of informational efficiency

seems to overhaul more real and disputable research issues. It includes complementary empirical findings on the efficiency of price effects in the market with regard to the available information that are disclosed in a certain point of time (Pojatina, 2000, 181-185). According to its conclusions market disciplining is done in relation to the past, present and future or predictable information and expectations of company's performance. Thus, asset prices are nearly always an accurate and unbiased assessment of disclosed information. Despite of the shortcomings of the aforementioned theories and their failures in explanation of certain price movements, "corporate disclosure is critical for the functioning of an efficient capital market" (Healy and Palepu, 2001, 406).

FIGURE 1 Financial and information flows in a capital market economy.



Source: modified according to: Healy, P.M. and Palepu, K.G. (2001): Information asymmetry, corporate disclosure, and the capital markets: a review of the empirical disclosure literature, Journal of Accounting and Economics, Vol. 31, 408.

Healy and Palepu (2001, 405) summarized that "financial reporting and disclosure are potentially important means for management to communicate firm performance and governance to outside investors" as well as to other stakeholders.

What is the impulse to make private information publicly available, especially when there is possibility of their free riding by competitors? Theory of the firm suggests that a reduction in informational asymmetries between company, their managers and investors in order to prevent adverse market response is the key reason. Informational asymmetries show up before and after the investment process and amplify the problem of adverse selection and moral hazard, ex ante and ex post of the investment process, respectively. Thus, firms disclose their information to distinguish themselves from less successful firms, particularly in order to reduce "information" or "lemons" problem (Akerlof, 1970), "agency problem" (Jensen and Meckling, 1976) and higher funding costs (Myers, 1984). On the macroeconomic level, regulation prescribes minimal disclosure requirements in order to prevent systemic market failure in form of credit and equity rationing (Stiglitz and Weiss, 1981) caused by fears, disappointments and actions of uninformed and unsophisticated investors. More precisely, according to the contemporary theory of financial intermediation (Bisignano, 1998; Scholtens and van Wensveen, 2000, 2003) that is applicable to the corporate finance, asymmetrical expectations derived from asymmetrical information have pivotal role in investors' behavior (selection and monitoring of investments). Their risk management strategies or, so called, mechanisms of market discipline can be visible in price effects (risk-return adjustments of investments), quantity effects (additional investments, withdraw of funds, fire sales) and valuation techniques (changes in the market value). In addition, risk management strategies include several other techniques like adoption of restrictive clauses, required collaterals and guarantees as well as change of managerial structures. However, it should be noticed that public disclosure ex ante and ex post the investment decision is only one of the available tools that can be used in order to reduce asymmetrical information and thus asymmetrical expectations of the investors. Furthermore, the question on its efficiency remains open. With regards to this, Healy and Palepu (2001, 410-411) raise a number of questions on: the role of disclosure regulation in mitigating information and agency problems, the effectiveness of auditors and information intermediaries in increasing the credibility of management disclosures and uncovering new information, factors affecting managers'

disclosure decisions and economic consequences of disclosure.
Nevertheless, banks are extraordinarily opaque enterprises for their explicit and implicit fund holders due to information nature of their business and risks imposed by twofold imperfect information, between banks and their debtors as well as between banks and their creditors (Pojatina, 2004). However, if the financial markets were perfect, banks would not exist at all, according to the traditional theory of financial intermediation (Allen and Santomero, 1996, 1999). As delegated managers, both by their shareholders and creditors, banks are nowadays required to disclose their financial and annual reports and qualitative information with purpose to preserve bank shareholders and stakeholders from potential losses, banking system from the appearance of systematic risk case and governments from unnecessary public costs. Quantitative and qualitative disclosures of bank performance should, thus, reduce both uncertainty and transactional costs of the interested parties. However, the most useful information on bank management based on supervisors off-site and on-site controls is forbidden for disclosure for both supervisors and the examined banks. Possible explanations of such practice are given by Prescott (2008, 2): "the ability of a bank supervisor to accurately gauge the quality of a bank and the incentives of a bank to keep that information quiet in bad times are fundamental problems in bank regulation". If supervisor's ratings like CAMELS were disclosed, costs of cooperation of supervised banks to provide supervisor with information would increase with the consequences of either decreased quality of information that the supervisor receives or higher costs of collecting the information. This is why private companies like credit rating agencies have a strong incentive to inflate the ratings of their clients. Furthermore, Herring (2003) warned about several areas of concern on the issue of efficiency of market discipline in banking practice such as: lack of transparency, inadequate incentives to impose discipline of banks, biased prices and destabilizing flows due to herd-like or mimetic behaviour of market participants, and market discipline that may not influence bank behavior, both ex ante and ex post of public disclosure. In addition, Kalfaoglou and Sarris (2006, 6) conclude that "the effectiveness of the market discipline depends on three aspects, the bank's disclosure policy, the ability of the market participants

to assess bank's riskiness (ability to monitor) and the ability to impose discipline (ability to influence)". Therefore, direct costs of disclosure and potential indirect costs of disclosure, whether they are private (in form of cost of capital and market volatilities) or social costs (in form of financial system safety and soundness as well as fiscal costs) should be taken into consideration when setting up macroprudential disclosure framework and individual bank disclosure policy.

2.2 INTERDEPENDENCE OF DISCLOSURE POLICY AND BANK PERFORMANCE: EMPIRICAL BACKGROUND

Empirical examinations on the public disclosure have usually been executed in two directions: ex ante and ex post of mandatory and voluntary disclosures. Ex ante literature contains complementary explanations on the determinants of the level of public disclosure (Bonsón-Ponte et al., 2006; Serrano-Cinca et al., 2006; Hossain and Reaz, 2007; Hossain, 2008; Spiegel and Yamori, 2004). Ex post analyses investigate the effects of corporate reporting on market volatility and cost of capital in order to examine benefits and drawbacks of public disclosure for the banking firm (Baumann and Nier, 2003; Baumann and Nier, 2004; Nier, 2005). Taking into consideration the research scope of the paper, the first group of papers will serve as a building block for our research.

Bonsón-Ponte et al. (2006) analyzed the compliance of voluntary disclosed data of 54 internationally active European banks that were included in Dow Jones EuroStoxx index with mandatory requirements that were announced to be enforced with Basel II Standard. The research results proved statistically significant impact of size on disclosure index. The largest banks turned out to have higher degree of e-transparency that included approximately 37 % of the required data from the Basel's third pillar.

Serrano-Cinca et al. (2006) reported research results on determinants of internet disclosure for 70 Spanish financial institutions. Using the structural equation model, the authors obtained results on statistically significant impact of financial institution's size on e-transparency and internet visibility while financial

performance was not statistically significant to e-transparency due to demonstrated size-performance dependence in the model. Thus, influence of financial performance to online reporting is proved to be indirect.

Hossain (2008) examined the level of mandatory and voluntary disclosure for 38 listed banks in India in relation to selected bank-specific characteristics in the period 2002-2003. It turned out that selected banks on average disclose 60 % of overall observed disclosure contents out of which 88 % are mandatory and 25 % are voluntary items. Bank size variable as well as profitability, credit risk, own funds financing and board composition proved out to be statistically significantly connected with disclosure index, whilst bank age, complexity of business and assets-in-place proved irrelevant for disclosure index explanation. Estimated parameters were positive for bank size, profitability and board composition while for non-performing loans and capital adequacy ratio they were negative. In addition, previously Hossain and Reaz (2007) provided empirical evidence that diversification and multiple exchange listing do not affect bank voluntary disclosure for the same sample of banks.

Spiegel and Yamori (2004) analyzed the determinants of voluntary disclosure by Japanese Shinkin banks[1] for the 1996 and 1997 and provided empirically evidenced justification for mandatory disclosures that followed. On the data sample of slightly less than 400 Shinkin bank, the hypothesis that the poorly capitalized, small banks operating in less competitive markets with weak credit risk policies avoid voluntary disclosures on non-performing loans issue, was verified.

Baumann and Nier (2004) set up empirical evidence for the relationship between the volatility of bank's stock price and the amount of information the bank discloses to the market. They reported that higher level of disclosure content (measured with disclosure index) reduces stock volatility as it was ex-

[1] Shinkin banks "are relatively small financial institutions that are privately held by members living or operating near a bank's headquarters" (Speigel and Yamori, 2004, p. 6). These mutual credit associations mostly finance small and medium size enterprises and can grant a maximum of 20 % of their loans to non-members. Deposits can be accepted both from members and non-members.

pected. Thus, information disclosure may be useful to investors and banks. The research was conducted on the data from about 600 banks across 31 countries over the period 1993-2000. However its limitations are related to the use of averaged bank data. Previously, Baumann and Nier (2003) also evidenced on the effect of market discipline on bank risk-taking. They concluded that the level of capital buffers that are proxies for bank's ultimate risk absorption are weakened with adverse effects of deposit insurance systems while strengthened by larger interbank deposit financing and higher disclosure indexes. Thus, market discipline may reduce banks´ incentives to increase their risk profile. Finally, Nier (2005) verified that net effects of bank disclosure, as difference between ex post (reduced market volatility and banking system stability) and ex ante effects (prevention of excessive risk taking) substantially contribute to prevention of banking crises.

3 REGULATORY FRAMEWORK OF BANK FINANCIAL REPORTING

Convergence in regulation of banking business has moved into the direction of promoting market discipline. Supranational prudential regulation conducted mainly by the Basel Committee on Banking Supervision stressed the importance of public disclosure of the internationally active banks. Thus, the third pillar of Basel proposals is focused on market discipline and is complementary with the minimum capital requirements (first pillar) and supervisory review process (second pillar)[2]. The European Parliament and the Council of the European Union adopted Basel "International Convergence of Capital Measurement and Capital Standards: A Revised Framework" from 2004 into its Capital Requirements Directives 2006/48/EC and 2006/49/EC. As a candidate for the European Union, Croatia adopted the abovementioned directives into Credit Institutions Act (Official Gazzette, 117, 2008). This Act was put into the effect 1^{st} January

[2] "...such disclosures have particular relevance under the Framework, where reliance on internal methodologies gives banks more discretion in assessing capital requirements" (Bank for International Settlements, 2004, 175).

2009 and thus its requirements for the mandatory website disclosures of financial and annual reports while mandatory online reporting of other required data was postponed for 30^{st} September 2010 in the Republic of Croatia (Decision on the public disclosure of creditworthiness requirements of credit institutions, Official Gazzette No. 1/2009, No. 75/2009 and No. 2/ 2010). According to the Credit Institutions Act (Official Gazzette, 117, 2008, Article 175, Paragraph 3) "credit institution is obliged to disclose its revised non-consolidated financial statements together with its annual report on its websites and is obliged to make them available at the latest within five months since the end of business year for which they are related to". The Act prescribes additional requests related to this issue in form of organization of internal control system that must have a function of monitoring compliance in order to manage compliance risk. Croatian National Bank has a right to charge penalty from 500 000 to 2 000 000 HRK for not fulfilling these disclosure requirements.

According to the Croatian Accounting Act, banks are considered (classified) as large entrepreneurs and obligated to prepare financial statements respecting the International Accounting Standards and International Financial Reporting Standards (Official Gazette, 109, 2007). The latest Accounting Act (applied from January 1st 2008) determines the publication of an additional report, Annual report, for medium and large entrepreneurs. The content of the Annual Report is compliant to the Article 46 of the Fourth European Union Directive and is given in the empirical framework of the paper.

Also, the Annual Report of banks, as large entrepreneurs, has to contain the rules of Code of Corporate Governance. The banks that are listed on Zagreb Stock Exchange must apply the rules of Code of Corporate Governance prepared by Croatian Financial Services Supervisory Agency and Zagreb Stock Exchange (Official Gazette, 46, 2007). Banks are required to fill in annual questionnaire (once a year) that is part of the Code, for the period covered by the annual financial statements, and submit the completed annual questionnaire with the annual financial statements.

Banks are obliged to submit the annual financial statements, Annual report and audit report to the Financial Agency for public release (according to Article 20 of

Accounting Act). The Decision on the structure and content of annual financial statements issued by the Croatian National Bank (Official Gazette, 62, 2008) prescribes the preparation of the financial statements (Balance sheet, Income statement, Cash flow statement, Report of changes in equity and Notes to the financial statements) in the forms required by that Decision.

4 EMPIRICAL EVIDENCE ON INTERNET DISCLOSURE IN CROATIN BANKING SECTOR

4.1 HYPOTHESES

Accounting information relevant to economic decision-making is available in the fundamental financial statements. Since the Internet disclosure of financial statements and Annual report is obligatory for banks in Croatia, the first hypothesis is therefore as follows:

H1: Banks in the Republic of Croatia generally disclose mandatory financial statements and annual report on their websites in which small banks publish less information.

According to the results of the previous researches (Serrano-Cinca et al., 2006; Hossain, 2008) it is expected that more profitable banks are more willing to disclose their financial results on the Internet in order to distinguish themselves from their competitors on sufficiently competitive market. Self-disclosure on good rather than adverse news is expected to be proved with the second hypothesis:

H2: Bank profitability is positively related to voluntary financial reporting.

Since larger banks have a wider financial public (among all the mentioned reasons), the assumption is that the bank size is statistically significantly related to the level of voluntary and mandatory disclosure, likewise proved in Spiegel and Yamori (2004), Bonsón-Ponte et al. (2006), Serrano-Cinca et al. (2006),

Hossain and Reaz (2007) and Hossain (2008). One of the possible explanations is that "large firms need to raise capital in the market more frequently and are under great pressure from shareholders and market analysts for increased disclosures" (Spiegel and Yamori, 2004, 11). Thus, large banks are more oriented towards subordinated debt than deposit based smaller banks and should therefore publicly disclose more data in order to reduce total cost of capital. Bearing in mind the above, the third hypothesis is:

H3: Bank size determines level of public disclosure.

Hence, the latter hypothesis might provoke the question of the existence of structure-conduct performance or efficiency structure hypothesis that relates bank market share to its profitability, whereas large banks are more profitable due to their higher market concentration or their efficiency in providing services. Thus, bank size could determine its level of disclosure indirectly through affecting its profitability as proved in Serrano-Cinca et al. (2006).

Furthermore, higher capital adequacy ratio as an internationally accepted indicator of bank stability should be negatively related to the volume of disclosed information, likewise in Hossain (2008). However it is questionable whether this is caused with lower monitoring or bankruptcy costs or the fact that large banks can hold smaller amounts of own funds as they are too-big-to-fail and have better risk management practices including higher diversification opportunities. Therefore, the final hypothesis is:

H4: The level of Croatian banks e-transparency is determined by market share and capital adequacy.

4.2 DATA AND METHODOLOGY

The research is focused on the banking sector operating in Croatia and includes all 32 banks. Mandatory and voluntary disclosure of financial and non-financial information on the Internet was monitored twice, in September 2010 and in October 2010. According to the Credit Institution Act, banks should have published their financial statements and annual report on their official websites by the end of May 2010 but our empirical study carried out during September 2010 showed that five small banks did not disclose basic accounting information.

The situation regarding obligatory reporting improved in October 2010 when three banks had no fundamental financial statements disclosed.

The practice of Internet financial reporting shows that annual report usually contains the Balance Sheet, Income Statement, Cash Flow Statement, Report of changes in equity and Notes to the financial statements as well as mentioned mandatory information typical for this report. It must be emphasized that the main content of the annual reports for the year 2009 of Croatian banks are financial statements but the extent of disclosure of required elements is heterogeneous and the subject of this study.

4.2.1 THE SELECTION OF PUBLIC DISCLOSURE ITEMS

In order to determine disclosure level unweighted (scoring) indexes were used. Those indexes are calculated to determine the level of mandatory and voluntary disclosure of banks. Mandatory items are the elements of annual report required by Accounting Act, and are as follows:

1. important events that have occurred since the end of the financial year (mi1),
2. the company's likely future development (mi2),
3. activities in the field of research and development (mi3),
4. the information concerning acquisitions of own shares, existence of a subsidiary companies (mi4),
5. existence of a subsidiary (or subsidiaries) (mi5),
6. information on used financial instruments if it is important for assessing the financial position and business performance (mi6),
7. goals and policies related to companies´ ability to manage financial risk, together with the policy of protection of any significant forecast transaction for which protection is used (mi7),

8. the company's exposure to price risk, credit risk, liquidity risk and cash flow (mi8),
9. the declaration of acceptance of Code of Corporate Governance (mi9) and
10. the propositions of Code of Corporate Governance or the answered questionnaire provided by Croatian Financial Services Supervisory Agency and Zagreb Stock Exchange (mi10).

Voluntary disclosure index contains:

1) general corporate information (such as brief narrative history of the Bank, basic organization structure/chart/description of corporate structure, addresses, general description of business activities),

2) information on corporate governance (details about the chairman like academic, professional and business experience, the same details about the members of the Board of Directors and the members of supervisory board) and

3) information on financial performance (graphical presentation of performance indicators, profitability ratios like return on asset and return on equity, capital adequacy ratio, asset growth, revenue growth, profit growth, and the information on methodology of calculation of all these financial ratios)

4.2.2 RESEARCH METHODOLOGY

The research was conducted in three stages. First, existence of financial and annual reports published on banks' web sites was researched. Observation and thus data collection was made in September and October of 2010. In this period due to the fulfilling obligations regarding the Decision on the public disclosure of creditworthiness requirements of credit institutions, banks reporting profiles changed. Second, differences in content of annual reports were examined following Accounting Act and Credit Institutions Act. Finally, analysis of determinants of banks voluntary disclosures in 2009 was done.

Annual reports for the year 2009 were collected through the Internet in PDF format and analyzed to determine the level of mandatory disclosure on the Internet. The most of the voluntary disclosure items were found in those annual

reports, like information on financial performance, but this study included also the information published on banks' official websites.
Data regarding banks' market share, capital adequacy ratio, total asset, profit and loss amount in 2009 are taken from the Croatian National Bank´ website and are considered as independent variables in this research.

4.3 RESEARCH RESULTS

4.3.1 ON BANKS' COMPLIANCE WITH MANDATORY PROPOSITIONS

The first observation showed that small banks that operate at loss are the ones that did not publish any annual report or financial statement. Correlation between online reporting and financial result is 0,368 and significant at the 0,05 level.
Among all required elements of annual report (observed in October 2010), the information on financial instruments and financial risk management are the most transparent (87,5 %) due to demands of both Acts (Table 1).
TABLE 1 Frequency of mandatory items disclosure[3]

	mi1	mi2	mi3	mi4	mi5	mi6	mi7	mi8	mi9	mi10
N	32	32	32	32	32	32	32	32	32	32
Frequency (%)	34,38	53,13	62,5	71,88	71,88	87,5	87,5	87,5	34,38	28,13

Source: Authors' calculation.

The least frequently published mandatory items are ones regarding Code of Corporate Governance and important events that have occurred since the end of the financial year (published only by 11 banks).

[3] Mandatory items are distributed according to the explanation (4.2.1. The selection of public disclosure items).

Statistically significant correlation between bank size and mandatory disclosure index (r = 0,389; Sig.= 0,028) suggests that small banks disclose less information than required in the annual report (Table 2).

TABLE 2 Descriptive statistics for mandatory disclosure index regarding bank size

Mandatory disclosure index			Statistic	Std. Error
Small banks	Mean		5,5652	0,58244
		Upper Bound	6,7731	
	Median		6,0000	
	Variance		7,802	
	Std. Deviation		2,79327	
	Range		9,00	
	Skewness		-1,111	0,481
	Kurtosis		0,157	0,935
Medium banks	Mean		8,0000	0,57735
		Upper Bound	10,4841	
	Median		8,0000	
	Variance		1,000	
	Std. Deviation		1,00000	
	Range		2,00	
	Skewness		0,000	1,225
	Kurtosis		0,000	0,000
Large banks	Mean		7,6667	0,76012
		Upper Bound	9,6206	
	Median		8,0000	
	Variance		3,467	
	Std. Deviation		1,86190	
	Range		5,00	
	Skewness		-0,392	0,845
	Kurtosis		-0,943	1,741

Source: Authors' calculation.

On the other hand, large banks are more transparent regarding their research

and development activities (Table 3) as well as their plans for the future development (Table 4).

TABLE 3

Chi-Square test for bank size and research and development activities disclosed in annual report

	Value	df	Asymp./Approx Sig. (2-sided)
Pearson Chi-Square	7,513	2	0,023
Likelihood Ratio	10,499	2	0,005
Linear-by-Linear Association	6,549	1	0,010
N of Valid Cases	32		
Cramer's V	0,485		0,023
Contingency Coefficient	0,436		0,023

Source: Authors' calculation.

TABLE 4 Chi-Square test for bank size and development perspectives disclosed in annual report

	Value	df	Asymp./Approx. Sig. (2-sided)
Pearson Chi-Square	6,655	2	0,036
Likelihood Ratio	8,041	2	0,018
Linear-by-Linear Association	4,931	1	0,026
N of Valid Cases	32		
Cramer's V	0,456		0,036
Contingency Coefficient	0,415		0,036

Source: Authors' calculation.

Since more than 90% of Croatian banks disclose their financial statements on the Internet, it can be stated that disclosure requirements (that are of issue here) of both acts are generally fulfilled.

4.3.2 ON DETERMINANTS OF BANKS' DISCLOSURE CONTENTS

The disclosure of financial performance information is tested by Mann-Whitney U-test assuming that profitable banks are more transparent in that context (Tables 5 and 6).

TABLE 5 Mann-Whitney U-test for financial performance disclosure and financial result

P/L		N	Mean Rank	Sum of Ranks
Financial Performance Information	Loss	8	10,69	85,50
	Profit	24	18,44	442,50
	Total	32		

Source: Authors' calculation.

TABLE 6 Test statistics for financial performance disclosure and financial result

	Financial Performance
Mann-Whitney U	49,500
Wilcoxon W	85,500
Z	-2,052
Asymp. Sig. (2-tailed)	0,040

Source: Authors' calculation.

The second hypothesis can be considered as valid since there is statistically significant difference in financial performance disclosure ranks between banks that have made profits and those which recorded losses.

As already noted, bank size can be related to e-transparency. To confirm the third hypothesis, One way ANOVA test was performed (Tables 7 and 8).

TABLE 7 Public disclosure of mandatory and voluntary information in banks ranked by size

Bank size	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Small	23	13,7826	5,74422	1,19775	11,2986	16,2666	1,00	22,00
Medium	3	20,0000	5,56776	3,21455	6,1689	33,8311	14,00	25,00
Large	6	21,1667	5,70672	2,32976	15,1778	27,1555	11,00	28,00
Total	32	15,7500	6,40060	1,13148	13,4423	18,0577	1,00	28,00

Source: Authors' calculation.

TABLE 8 One way ANOVA test of banks' public disclosures

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	319,254	2	159,627	4,869	0,015
Within Groups	950,746	29	32,784		
Total	1270,000	31			

Source: Authors' calculation.

Table 7 shows that large banks have mean value of public disclosure rated as 21,17 and small banks as 13,78. The difference in public disclosure index between large, medium and small banks is statistically significant (sig.= 0,015) so the third hypothesis can be accepted.

In Croatia, profitability, bank size and foreign ownership are correlated (Table 9) in the way that large banks are in dominant foreign ownership and are the ones resulting higher profit. On the other hand, most of small banks are domestic and are the ones that recorded loss in 2009.

TABLE 9 Correlation between bank size, ROA, ROE, domestic ownership and profit or loss

			size	ROA	ROE	domestic ownership	P/L
Spearman's rho	size	Correlation Coefficient	1,000	0,372(*)	0,333	-0,588(**)	0,644(**)
		Sig. (2-tailed)		0,036	0,062	0,000	0,000
		N	32	32	32	32	32
	ROA	Correlation Coefficient	0,372(*)	1,000	0,942(**)	-0,239	0,863(**)
		Sig. (2-tailed)	0,036		0,000	0,188	0,000
		N	32	32	32	32	32
	ROE	Correlation Coefficient	0,333	0,942(**)	1,000	-0,252	0,856(**)
		Sig. (2-tailed)	0,062	0,000		0,163	0,000
		N	32	32	32	32	32
	domestic ownership	Correlation Coefficient	-0,588(**)	-0,239	-0,252	1,000	-0,519(**)
		Sig. (2-tailed)	0,000	0,188	0,163		0,002
		N	32	32	32	32	32
	profit /loss (P/L)	Correlation Coefficient	0,644(**)	0,863(**)	0,856(**)	-0,519(**)	1,000
		Sig. (2-tailed)	0,000	0,000	0,000	0,002	
		N	32	32	32	32	32

** Correlation is significant at the 0,05 level (2-tailed).*

*** Correlation is significant at the 0,01 level (2-tailed).*

Source: Authors' calculation.

The following linear regression model is to be fitted into the data in order to assess the effect of market share and capital adequacy ratio on the general disclosure level:

$$Y = ß_0 + ß_1 x_1 + ß_2 x_2 + e \quad (1)$$

where Y is total disclosure rank received for each bank, $ß_0$ is the intercept, E is error term, $x_1$is market share and x_2 is capital adequacy ratio.

TABLE 10 Summary of linear regression model's statistics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df 2	Sig. F Change	
1	0,544(a)	0,296	0,247	1,08470	0,296	6,097	2	29	0,006	2,623

1. *Predictors: (Constant), market share, capital adequacy ratio*

Source: Authors' calculation.

To detect the presence of autocorrelation in the residuals from a regression analysis, the Durbin-Watson statistics was used. It was found that there are no indications of autocorrelation since d-value is 2,623 (Table 10).

TABLE 11 Analysis of variance for linear regression model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14,348	2	7,174	6,097	0,006
	Residual	34,121	29	1,177		
	Total	48,469	31			

Source: Authors' calculation.

TABLE 12 Statistics for model coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Stand. Error	Beta			Tolerance	VIF
1	(Constant)	4,415	0,528		8,362	0,000		
	Market share	0,093	0,034	0,426	2,735	0,011	0,998	1,002
	Capital adequacy ratio	-0,058	0,028	-0,321	-2,061	0,048	0,998	1,002

Source: Authors' calculation.

Taking into consideration that regression model is statistically significant (Tables 10, 11 and 12) it can be expressed by the following equation:

$$Y = 4{,}415 + 0{,}093x_1 - 0{,}058x_2 \quad (2)$$

The mentioned model shows that if market share increases by 1 %, general disclosure rank (mandatory and voluntary information included) can be improved by 0,093 and if capital adequacy ration decreases by 1%, general disclosure rank can be improved by 0,058.

Comparing scoring indexes of mandatory and voluntary information (Table 13), it can be stated that banks with good practice of mandatory disclosure are more transparent about their financial performance, corporate governance and other general business information.

TABLE 13 Correlations between disclosure of general information, financial performance information and annual report items

		General information	Financial performance	Mandatory information
General information	Pearson Correlation	1	0,506(**)	0,505(**)
	Sig. (2-tailed)		0,003	0,003
	Sum of Squares and Cross-products	52,875	50,438	54,875
	Covariance	1,706	1,627	1,770
	N	32	32	32
Financial performance	Pearson Correlation	0,506(**)	1	0,468(**)
	Sig. (2-tailed)	0,003		0,007
	Sum of Squares and Cross-products	50,438	188,219	95,938
	Covariance	1,627	6,072	3,095
	N	32	32	32
Mandatory information	Pearson Correlation	0,505(**)	0,468(**)	1
	Sig. (2-tailed)	0,003	0,007	
	Sum of Squares and Cross-products	54,875	95,938	222,875
	Covariance	1,770	3,095	7,190
	N	32	32	32

*** Correlation is significant at the 0,01 level (2-tailed).*

Source: Authors' calculation.

5 CONCLUDING REMARKS AND POLICY IMPLICATIONS

Online disclosure of financial and annual reports of banks in the Republic of Croatia is highly aligned to the requests of domestic prudential authorities in which websites are obligatory form of presenting financial information. However, some banks still do not fulfill their legal obligation for internet reporting as is being requested by the Credit Institutions Act since 2009. Furthermore, heterogeneity of the level of disclosure content can be explained with some bank-specific indicators. According to the results obtained, large banks (measured with market share), banks with higher profitability and lower capital adequacy ratio have higher both mandatory and voluntary disclosure indexes. Thus, banks with the previously mentioned attributes use their websites to the wider extent for voluntary financial performance disclosure, probably to differentiate themselves from those that are less successful and less transparent. If additional bank performance indicators were publicly available, more detailed analysis could be obtained. However, correlations presented in the research results do not imply the causality of the selected variables. In addition, quantity of disclosed data does not imply their quality although it is expected that these two should be positively correlated. Still, disclosures indexes do not necessarily indicate lower level of web transparency and mandatory compliance due to non existence of some required data in practice of an individual bank. Nevertheless, it can be concluded that the unity and compliance of statistical and economic significance on the determinants of bank disclosure level is achieved, as well as the consistency with some of the mentioned empirical researches and research hypotheses. Although requirements for higher e-transparency is consistent with the goal of promoting more intensive market discipline, identification of potential pitfalls and blunders of such regulatory policies can not be omitted. Some of them are being discussed in the introductory section of the paper and are common for both developed and developing countries. The key question is who will use the disclosed data and how financial public will interpret them. Thus, higher disclosure level might imply more volatility in the volume and structure

of bank fund holders as well as in stock prices. In case of bad publicity and disclosure deficiency of some banks it can lead to an extreme situation of bank run. Hereafter, it should be noticed that public disclosure requirements put small banks in Croatia in unfavorable position due to their continuously weaker performance than banks that are either bigger than the bank in question. Thus, in order to decrease possibility of misuse of online reports a special (separate) bank report for depositors that are generally non sophisticated fund holder could be required for website disclosure by Croatian National Bank. The Board of directors should be responsible for this report. In addition, due to heterogeneity of annual reports which reduce their comparability even among the peers it is expected that this should also be standardized report as well. Research on the web traffic of banks in Croatia was not considered in the research and even if it were, it could not be understood as the ultimate measure of the use of the presented data. However, it could be assumed that despite of the promotion of the "invisible hand" mechanism by the regulatory requirements, disclosure efforts still outweigh wider use and benefits of the disclosed data, at least in the Republic of Croatia, where more than 90 % of depositors are protected by the deposit insurance system while subordinated debt holders are marginal in financial sources and are mostly parent banks.

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