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Determinants of Internet Financial Reporting

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Abstract − During these last years, the use of the web technology in the field of financial reporting knew a considerable evolution. The main objective of this study is to identify empirically the determinants of internet financial reporting (IFR). The study's sample consists of 124 Tunisian firms. Results show that 57% of firms possess a web site. Logistic regression analysis was employed to predict the probability that a firm posses a web site. The predictor variables were firm size, industry type, financial leverage, ownership structure and firm performance. Results show that firm performance, financial leverage and industry type constitute determining factors of financial reporting through web site. However, firm size and ownership concentration have insignificant effect on the use of web sites as medium to disclose financial and others information. The results of this study provide a review as regards practices of online disclosure by Tunisian firms.

Keywords: Web sites; financial reporting; voluntary disclosure; agency theory; signal theory.

JEL Classification: M 41

1. Introduction

During these last years, there was a considerable increase in the use of the Internet. The increasing importance of Internet changes many aspects of financial reporting. The Internet occupies a major role in the production and the dissemination of information. It constitutes an informational resource whose place is improved among the various sources of information. Several firms implant their own web site to publish financial and non-financial information. Disclosure of information through web site is not regulated in much country, in particular the countries in the process of development, like Tunisia. However, in the developed countries the authorities of regulation set up rules for the revelation of information through the Internet. The first country is the United States. In May 1996, the SEC "*Securities and Exchange Commission"* adopted a system named EDGAR "Electronic *Data Gathering, Analysis, and Retrieval"*.

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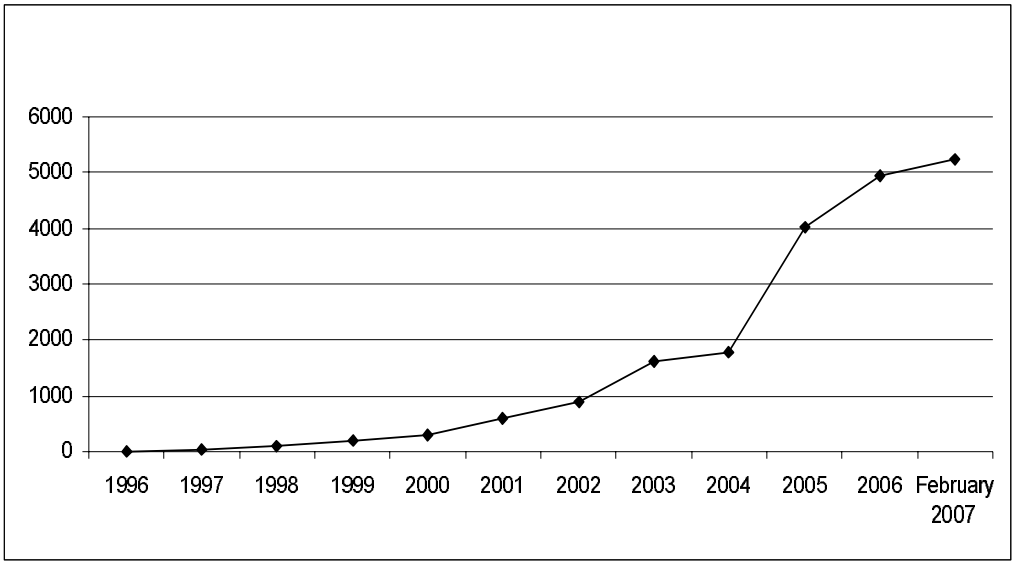

FIGURE 1. The evolution of number of web sites in Tunisia

Source: Web site of Ministry of Communication Technologies

Amalia, Manuel and Rafael (2005) argue that there is no regulation obliging businesses to have a Website and even less for them to publish information on it. In the majority of the cases the information revealed on the Web was already appeared in the traditional forms of communications (for example, annual reports published in the form of printed). However, online disclosure of information, a form of voluntary disclosure, has potential benefits over traditional paper-based financial reporting (Ashbaugh, Johnstone and Warfield, 1999).

The increased use of web technology in the field of the financial reporting was the subject of several empirical studies. By classifying these last according to their objective, we can gathered in two categories. The first category includes descriptive studies (Petravick and Gillet, 1996; Hussey, Gulliford and Lymer, 1999; Ettredge, Richardson, and Scholz, 2001), whereas the second gathers explanatory studies (Martin and Pénard, 2006; Xiao, Yang and Chow, 2004; Ettredge, Richardson and Scholz, 2002; Ashabaugh *et al.,* 1999). This study is integrated within the framework of the explanatory studies. In recent years, the number of web sites in Tunisian context knew a considerable evolution. During the period 2002-2007 the number of web sites jumped from 898 web sites to 5232 web sites (see Fig 1). Regarding the scarce of the studies that tested the determinants of Internet Financial Reporting in the case of countries in the process of development, the potential contribution of the current study, is to identify the determinants of the use of web site as medium to reveal financial information in Tunisian case.

The main objective is to examines the determinants of the use of web technology by firms to disseminate financial and others information. With this purpose, we use the theoretical and analytical discussions relating to the voluntary disclosure. It is hoped that the conclusions of this study make possible us to highlight the factors which stimulate firms to use web technology for the dissemination of information.

Our sample contains 124 Tunisian firms in the year of 2006. Results of this study show that 57% of firms possess a web site. Results of logistic regression show that the least indebted, the least powerful firms and those belong to the industrial sector are more encouraged to fit in the group of the firms which have a web site. However, firm size and ownership concentration do not constitute determining factors of financial reporting via the web.

This paper is organized as follows. The first section discusses the theoretical explanations of the voluntary disclosure. The second section presents literature review and hypothesis of the study. The third section exposes the methodology of research. The presentation and the discussion of the results

are the subject of the fourth section. The conclusion is the subject of the last section.

2. Voluntary disclosure: principal theoretical explanations

Verrecchia (2001) concludes that the reduction of the asymmetry of information constitutes a potential starting point for the development of a theory of disclosure. There is no theory of voluntary disclosure. However, there are explanatory theories of the voluntary disclosure. It acts, principally, of the agency theory (Watts and Zimmerman, 1978, 1990) and the signal theory (Ross, 1977; Morris, 1987).

2.1. Agency theory

The unity of analysis of the agency theory is the relation which links the various partners of the firm. This relation gives place to conflicts of interests between the *insiders* and *outsiders*. These conflicts of interests are central in the analysis of the modern corporation (Berle and Means, 1932; Jensen and Meckling, 1976).

Within this framework, to limit the agency conflicts, managers can use voluntary disclosure in order to reduce information asymmetry. In addition, it allows decreasing costs of manager surveillance by investors and creditors. Moreover, Diamand and Verrecchia (1991) and Kim and Verrecchia (1994) suggest that voluntary revelation reduce the asymmetry of information between informed and badly informed investors, and consequently an increase of liquidity. However, on a sample of industrial firms listed on the Copenhagen Stock Exchange, Christian and Thomas (2006) show that voluntary disclosure is negatively associated with proxies for information asymmetry.

Beyond its role in the reduction of agency conflicts between *insiders* and *outsiders*, voluntary disclosure makes it possible to manage the political visibility of the firm. As an example, the firm can voluntarily reveal information which shows that it is adhering to the standards of environmental protection, in order to avoid the reactions of the political environment. These reactions cause, generally, negative transfers of riches for the firm. Cooke (1989) and Raffournier (1995) find empirical evidence on the relation between political costs and disclosure.

In addition to its contribution on the reduction of political costs resulting from the relation between firm and the state, voluntary disclosure makes it possible to limit political costs resulting from the pressures exerted by the employees. Frantz and Wolker (1997) show that the pressure exerted by employees has a significant effect on the level of voluntary disclosure.

Apart its role in the reduction of agency conflicts between the *insiders* and the *outsiders*, voluntary offer of information can be regarded as being a signal.

2.2. Signal theory

In the case when managers have information unknown by the market and likely to have a positive effect on the share price, it is in their interest to indicate it to the market. In this sense, voluntary disclosure makes it possible, therefore, with the manager to influence, with their advantage, the perception of the investors as the prospects for profitability of the firm.

Marston and Polei (2004) assert that « *Voluntary disclosure is one possible way to achieve this distinction and could lead to a more efficient evaluation of the future prospects of the firm by the capital market and to a higher share price if the firm is perceived to offer good future prospects*». In this respect, Grossman (1981) shows that the holder of privileged information is obliged to pursue a voluntary policy of disclosure of information in order to avoid the risk of a bad interpretation on behalf of the external users. Indeed, the fact of not publishing the privileged information leads external investors to interpret such absence by the existence of bad news (Verrecchia, 1987).

Morris (1987) concludes that the combination of the agency theory and signal theory provided a "good" theoretical foundation for studies carrying on the political accounting choices, and more particularly practice of voluntary disclosure.

3. Theoretical background and hypothesis

Research relating to the disclosure of information through web sites can be gathered in two categories. The first category includes descriptive researches. In fact researches have the aim of giving an overall view on the state of the revelations via the web. They can be undertaken on only one country or in a form of comparison between several countries (Petravick and Gillet, 1996; Ettredge *et al.*, 2001; Hussey *et al.*, 1999).

Using a sample of 150 firms, Petravick *et al.*

(1996) show that 69% of the firms possess a web site. Four twenty percent of these firms reveal financial information via their web sites. In the American context Ettredge *et al.* (2001) show that 89% of the sample (490 firms) have a web site.

Hussey *et al.* (1999) carried a study relating to the state of the web sites through time. They show that, on a total of 100 firms, the number of the firms which use the web to reveal financial information increased by 54 firms to 63 firms between August 1997 and March 1998. That indicates a fast increase in the use of the Internet for the revelation of financial information.

Descriptive studies discussed above could not identify the reasons for which there are differences in quantity and quality of the information revealed via the web sites between firms and countries. According to Lymer (1999) the contribution of these studies to the bearing debate on the role of the Internet in the field of the financial reporting is limited. It underlines the need for deeper academic studies. It is for this reason explanatory empirical studies were carried to detect the factors which can influence the level of disclosure via the web.

The aim purpose of explanatory studies is to identify factors having an influence on the quantity and the quality of the information revealed through the web site of the firm. Generally, these factors include firm's characteristics. It is about the size of the firm (Ettredge *et al.* 2002; Xiao *et al*. 2004; Craven and Marston, 1999; Ashabaugh *et al.* 1999), the industry type (Ashabaugh *et al.* 1999; Ettredge *et al*. 2001; Peter *et al.* 2003), leverage, ownership structure, performance, liquidity and the systematic risk (Ashabaugh *et al*. 1999; Craven and Marston, 1999; Ettredge *et al.* 2002; Xiao *et al.* 2004).

In this study we develop our hypotheses while basing ourselves on the literature relating to the generally literature review on voluntary disclosure in annual reports and, in particular, literature review on disclosure through Internet. In what follows we try to explore the relation between some characteristics of the firm with the decision of use of the web in the field of the financial reporting, in order to develop the hypotheses of our study.

3.1. Firm size

The fast evolution of the Internet technology incites a large number of firms (small and large) to rush toward the Internet. Amalia *et al.* (2005) argue that large companies have greater communicative needs. In this sense, disclosure of information through web site constitutes a good mean to satisfy these needs.

Agency theory suggests that agency costs are positively related to firm size (Jensen and Meckling, 1976). Indeed, large firms have a greater information asymmetry between mangers and shareholders. In this case, managers can disclose more information to reduce agency costs arising from such asymmetry. Thus, larger firms have a greater need for capital and can therefore be expected to disclose at a higher level (Debreceny *et al.* 2002).

Most empirical studies show that firm size constitutes a strong factor of Internet financial reporting (Ashbaugh *et al.* 1999; Graven et Marston, 1999; Pirchegger and Wagenhofer, 1999; Brennan et Hourigan, 2000; Ettredge *et al.* 2002; Peter and Fawzi, 2003; Marston *et al.* 2004). Ismail (2002) examines the determinants of Internet financial reporting on a sample of 128 firms in Gulf Co-operation Council (GCC) countries (Qatar, Saudi Arabia and Bahrain). It shows that voluntary dissemination of financial information on the Internet is related to firm size. Indeed, Amalia *et al.* (2005) confirm the existence of relationship between firm size and the decision to possess a web site. Our hypothesis is therefore as follows:

Hypothesis 1: Larger firms are more encouraged to disclose financial information at web site.

3.2. Industry type

We take account industry type as a variable which can explain the decision to implant a corporate web site (Amalia *et al,* 2005; Martin *et al,* 2006). As regards voluntary disclosure, several studies show that industry type influences positively the level of voluntary disclosure in annual reports (Stanga, 1976; McNally et al, 1982; Wallace, 1987; Cooke, 1989a, 1989b; Wallace et al., 1994). However, such relation was not shown in other countries (Wallace in Nigeria, McNally et al. in New Zealand and Wallace et al. in Spain). This divergence of the results is due, according to Ahmed and Courtis (1999), to the variety of definitions allotted to classifications of industries.

As for the relation between industry type and the decision to implant a web site, Martin and al. (2006) show, in the British context, that firms belonging in industrial sector have frequently a web site that firms operating in the tertiary sector or the agro-ali-

mentary sector. Whereas, Marston and Leow (1998) found that there is no relation between the level of diffusion of financial information and industrial classification. However, when the authors classified the firms of the sample according to the level of disclosure of information through the Web, the results show that the type of industry is associated with the level of disclosure.

Brennan and Hourigan (2000) find that the revelation of information through the Internet is positively correlated with the type of industry. Moreover, Peter *et al.* (2003) show that industry type can be regarded as a determining factor of the use of the Internet for the revelation of financial information. The results of the study of Ashabaugh *et al.* (1999) show that 100% of the manufacturing firms have a Web site, whereas only 73% of the firms belonging to the mining and agricultural sector have a Web site. The results of these studies can be explained by the fact that firms belonging to different branches of industry do not support the same costs relating to the disclosure of information. Moreover, these firms have not the same level of technological development.

Enrique *et al,* (2002) found, in European context, a significant association between industry type and the extent of financial disclosure on the Internet. They argue that companies belonging to the same industrial type have similar practices voluntarily disclosing information. Our hypothesis is therefore as follows:

Hypothesis 2: Firms belonging to the industrial sector are more encouraged to disclose financial information at web site.

3.3. Leverage

According to Jensen and Meckling (1976), agency costs and debt are positively related. Indeed, the costs of monitoring of managers by the creditors will be high when the level of the debt is high. The management of the too involved in debt firms will seek to reduce these costs by revealing more information in the annual reports (Ahmed and Courtis, 1999).

As regards voluntary disclosure in annual reports, empirical studies show that a high level of debt encourages the firms to voluntarily reveal more information (Leftwich *et al.* 1982; and Wallace *et al.*1994). However, Eng and Mak (2003) show that the impact of the debt on the level of voluntary disclosure is negative. They justify this result by the fact that the debt is a mechanism of control of the problem of *free cash-flow* (Jensen, 1986) and consequently it reduces the need for disclosure.

Empirical studies on Internet financial reporting have not supported the hypothesis according to which there is a relation between IFR and leverage (Manuel *et al*. 2002; Peter *et al*. 2003; Mendes-da-Silva and Christensen, 2004). Peter *et al.* (2003) found that the debt do not explain the choice to use the Internet as a medium for corporate financial reporting by firms in New Zealand. Moreover, Mendes-da-Silva *et al.* (2004) show, in the Brazilian context, that the level of debt is not associated with the level of disclosure through the Internet. However, Ismail (2002) shows that a high level of debt encourages firms in Golf countries to reveal financial information *via* their web sites. Given that results of empirical studies are mixed, our hypothesis is therefore as follows:

Hypothesis 3: There is an association between leverage and disclosure of financial information at web site.

3.4. Ownership structure

According to agency theory conflicts of interests between shareholders and managers are more important when the property is dispersed, because the minority shareholders do not have the sufficient power to be opposed to manager's decisions. Within this framework, to limit the agency conflicts the managers can make recourse to voluntary disclosure. Empirically, it was shown that voluntary disclosure makes it possible to reduce informational asymmetry between informed and badly informed investors (Jung and Kwon, 1988; Diamand and Verrecchia, 1991; and Kim and Verrecchia, 1994).

Several empirical studies show that the relation between ownership concentration and the extent of voluntary disclosure in annuals reports is negative (Chau and Gray, 2002; Leuz, 1999 and Arcay and Vazquez, 2002). Ho and Wong (2001) show that when ownership is concentrated, the interests of the minority shareholders will be injured and managers will be brought to publish less optional information.

In the same way, results of studies which tested the relation between Internet financial reporting and ownership concentration show that the relation is negative. This result can be explained by the fact that web site constitutes a significant source of information for the minority shareholders. On a sam-

TABLE 1. Distribution of firms by sector.

Industry type	Number of firms	
	Numbers	*Percentage (%)*
Trade	23	18
Services	47	38
Industry	54	44
Total	**124**	**100%**

ple of Austrian companies Pirchegger and Wagenhofer (1999) find that Internet financial reporting and ownership dispersion (measured by the percentage of free float) are negatively related. Peter *et al*. (2003) show that ownership concentration constitutes an impediment for the use of the Internet like a mean of financial communication in New Zealand case. Our hypothesis is therefore as follows:

Hypothesis 4: Firms having a concentrated capital are less encouraged to disclose financial information at web site.

3.5. Performance

According to signalling theory powerful firms tend to be distinguished from the non-powerful firms, in order to raise necessary funds with advantageous conditions. In this direction, financial reporting via web site can be regarded as a means to carry out this ambition. Lev and Penman (1990) assert that the non-disclosure of information can be perceived by external investors like a "bad news".

Singhvi and Desai (1971) argue that a high profitability encourages managers to provide more information, because this makes it possible to increase confidence of investors and by consequence the increase in their remuneration. While basing itself on this, we can affirm that the powerful firms, which have the significant financial resources, can reveal information beyond what is imposed by the law to show the public and the external investors who they are more profitable than the other firms of the same sector.

Concerning the relation between firm performance and disclosure level, Lang and Lundholm (1993) state that "the perception that firms' willingness to disclose information is related to their performance is widespread, but the direction of the relation is not clear".

Empirically, results of the studies having tested the relation between the performance of the firm and the disclosure of information through the Web are inconclusive. Marston *et al.* (2004), Peter *et al.* (2003) and Ashbaugh *et al.* (1999) could not confirm the existence of a significant relation between the performance and the contents as well as the presentation of web sites. It is for this reason we want to test this relation in the Tunisian context. Our hypothesis is therefore as follows:

Hypothesis 5: There is an association between firm performance and disclosure of financial information at web site.

4. Methodology of research

4.1. Sample and data

Our sample contains 124 Tunisian firms which belong to the following industry groups: trade, services and industry. Table 1 provides a distribution of firms by industry type. Our sample is dominated by industrial firms (44%). To select this sample we use two criterion of selection:

- Only firms which employing 50 workers or more were selected.
- After a visit of the web sites we retain only the firms which have to disseminate financial information in their web sites.

Table 2 shows the classification of our sample according to the existence or not of a web site. The result reveal that 57% of the firms posses a web site. Firms belonging to the service sector correspond to 47% of the firms which have a web site followed by industrial firms (37%) and those of the sector of trade (16 %).

Data used in the current study were obtained from two principal sources: annual reports and web sites. The data were collected during the year 2006.

4.2. Model of research

The purpose of the current study is to identify the antecedents of the financial reporting through the Web. With this objective we propose to test the fol-

TABLE 2. Distribution of web sites by sector.

Industry type	Firms with web site		Firms without web site	
	Numbers	*Percentage (%)*	*Numbers*	*Percentage (%)*
Trade	14	18	9	16
Services	25	36	22	42
Industry	32	45	22	42
Total	**71**	**57**	**53**	**43**

TABLE 3. Measurements of explanatory variables.

Variables	*Predicted sign*	*Adopted measure*
Dependent variable		
Internet Financial Reporting		Internet financial reporting is measured using a dummy variable. It takes the value of 1 if the firm posses a web site and zero otherwise.
Independent variables		
Firm size	+	We measure the size of the firm by the natural logarithm of the total assets for the year of the study. This measurement was used by several authors such as Eng and Mak (2003).
Industry type	+	Industry type is measured using a dummy variable. It takes the value of 1 if the activity of the firm is industrial and zero otherwise. This measurement was used by Cooke (1992)
Leverage	No predicted	Debt is measured by the leverage ratio: total of the debts divided by the total assets.
Performance	No predicted	Firm performance is measured by the return on equity (ROE).
Ownership concentration	-	In the present study we measure ownership concentration by the percentage of the capital held by the main shareholder.

lowing econometric specification:

$$IFR_i = \alpha_0 + \alpha_1 Size_i + \alpha_2 ROE_i + \alpha_3 Lev_i + \alpha_4 Sect_i + \alpha_5 Owcon_i + \varepsilon$$

Where;
$\alpha_0 \ldots \alpha_5$: parameters to be estimated, i = 1,…5
IFR: dummy variable which takes the value of 1 if firm possess web site and the value of zero otherwise.
Size: it is the natural logarithm of the total of assets for the year of the study.
ROE: firm performance is measured by the return on equity (ROE).
Lev: debt is measured by the leverage ratio (total of the debts divided by the total assets).
Sect: dummy variable which takes the value of 1 if firm belongs to the industrial sector and the value of zero otherwise.
Owcon: ownership concentration is measured by the percentage of the capital held by the principal shareholder.

5. Analysis and discussions of results

5.1. Descriptive statistics

The scope of the study went beyond the identification of the antecedents of IFR. We tried to provide, for the case of firms which have a web site, a general overview concerning the size and the content as well as the design of their web sites. Huizingh (2000) identifies two essential aspects of websites: content and design.

Web site size

Table 4 present descriptive statistics for the size

TABLE 4. The size of web sites.

Number of pages in web sites	*Number*	*Percentage (%)*
3 pages	8	11
4—10	13	18
10—20	19	27
>20 pages	31	44
Total	71	100.00

TABLE 5. Content and design of web sites.

Panel A: Content of web sites		
Items	*Item is present (%)*	*Item is not present (%)*
Firm background	94	6
Financial highlight	43	57
Ratios analysis	11	89
Information about corporate governance	26	74
Links to other useful sites	27	73
Panel B: Design of web sites		
Multilingual site	58	42
Annual reports	13	84
Video files	0	100
Sound files	6	94

of web sites of our sample. Following to Huizingh (2000) we measure the size of the web site by using the number of pages (we include only valid pages. We remark that the greater part of firms posses a web site contains more than 20 pages.

Web site content and design

For the content of web sites, we retained the following items; firm background, financial highlight, ratios analysis, corporate governance information and links to other useful sites. Concerning the design of web site, we tried to check the existence of the following items; multilingual site (web site in two language and more), annual reports (format PDF or HTML), video files and sound files.

As shown in table 5 panel A, the greater part of our sample provide in their web sites information about firm background (94%). Moreover, 26% of firms disclose information's about corporate governance. This information carries, for the majority of the firms, on the composition of the board of directors and capital structure. Only 11% of firms with web sites disclose financial information about ratios analysis.

It is noticed that 58% of web sites are conceived using several languages. Generally it is about the Arab, French and English language. We note that only 13% of firms reveal the annual reporting PDF form (*Portable Document File*). Indeed, web sites of our sample do not include video files (Table 5, panel B).

5.2. Multivariate tests

Given that dependent variable is a dummy variable: posses or not a web site. For this reason, we use logistic regression method. This method belongs to the non-parametric methods. Unlike ordinary least squares regression, logistic regression does not assume that the relationship between the independent variables and the dependent variable is a linear one. Nor does it assume that the dependent variable or the error terms are distributed normally. The major interest of this method is to quantify the force of association between each independent variable and

TABLE 6. Pearson correlations matrix.

Variables	Size	ROE	Lev	Sect	Owcon
Size	1				
ROE	0.07	1			
Lev	0.15***	0.39**	1		
Sect	-0.06	-0.70	-0.42	1	
Owcon	0.12	-0.06	0.01	0.08	1

***Significant at the 1% level; **Significant at the 5% level.

TABLE 7. Results of logistic regression.
The dependent variable is Internet financial reporting (IFR) and the five explanatory variables are the firm size (Size). performance (ROE). leverage (Lev). the industry type (Sect) and ownership concentration (Owcon).

Characteristics of the regression model						
Chi-Square of model = 25.303		5 df			p = 0.000	
Nagelkerke – R^2	0.583	Test of Hosmer and Lemeshow		7.111	7 df	p = 0.417
Variables in the model						
Variables	Parameter (B)	Standard deviation (B)	Criterion of Wald	df	p	Odds Ratio
Size	- 0.73	0.61	1.44	1	0.23	0.482
ROE	- 5.07	2.45	4.28	1	0.04**	0.006
Lev	- 6.21	3.13	3.92	1	0.05**	0.002
Sect	4.83	1.75	7.58	1	0.01***	125.190
Owcon	- 0.62	2.32	0.07	1	0.79	0.538
Constant	6.87	4.29	2.58	1	0.11	978.049

*** Significant at the 1% level; **Significant at the 5% level.

the dependent variable, by taking account of the effect of the other variables integrated in the model "adjusted measurement ". However, the use of this method requires the checking of the absence of a problem of multicolinearity.

We check the presence of a problem of multicolinearity using the coefficients of correlation of Pearson. The following table shows that all correlation coefficients are lower than 0.8. This report enables us to show the absence from problem from multicolinearity.

As shown in Table 7, the full model was statistically significant, $\chi^2(5, N = 124) = 25.30$, $p < .001$. The model was able correctly to classify 90% of those who posse's web site and 81% of those who did not, for an overall success rate of 87%.

The classification table (Table 8) shows that our model allows to correctly classifying 64/71 = 90% of the firms where the predicted event (possessing web site) was observed. This is known as the sensitivity of prediction, the P (correct event did occur), that is, the percentage of occurrences correctly predicted. Indeed, the model permit to correctly classify 43/53 = 81% of the firms where the predicted event was not observed. This is known as the specificity of prediction, the P (correct event did not occur), that is, the percentage of nonoccurrence correctly predicted. Overall our predictions were correct 107 out of 124 times, for an overall success rate of 87%.

Among the five explanatory variables introduced into the model only three variables are statistically significant. It is about the firm performance, the industry type and leverage ratio (Table 7).

Contrary to our first hypothesis results show that larger firms are not encouraged to posses a web site. A negative and no significant relation between the implantation of a web site and the size of the firm was shown ($\alpha_1 = -0.73$, $p = 0.23$). Moreover, it is

TABLE 8. Classification table.

Number provided by the model	The observed number	
	Firms with web site	Firm without web site
Firms with web site	64	10
Firm without web site	7	43
Total	71	53

Specificity = 81%; Sensitivity = 90%

shown that ownership concentration influences negatively, but no significant, the probability of having a firm which has a web site ($\alpha_5 = -0.62, p = 0.79$). Thus, when ownership concentration increases by a unity the probability that firm posses a web site decreases by 14%. These results allow us to reject completely and partially, respectively, the hypothesis n°1 and the hypothesis n°4.

5.3. Discussions of findings

The results obtained in this study are specific to the Tunisian context. The purpose of this section is to discuss these results and to compare them to the results of the previous studies. Progressively with this discussion we make an effort to explain the reasons for which we obtained these results.

Concerning the size of the firm, our results are not in conformity with the results obtained by previous studies. The majority of the studies show that the size of the firm is positively related with the adoption of the Internet like mean of communication of financial information (Ashbaugh *et al*., 1999; Pirchegger and Wagenhofer, 1999; Graven and Marston, 1999; Ettredge *et al*., 2002; Ismail, 2002; Peter *et al*., 2003). Moreover, our results do not corroborate with the results of the studies relating to the voluntary disclosure in the annual reports (Hossain *et al*., 1995; Raffournier, 1995; Ho and Wong, 2001). This divergence can be explained, in our opinion, by the measure used for the variable ″firm size”. In fact, being given that the decision to posses a web site is regarded as being a strategic innovation (Markides and Geroski, 2004) the use of the number of employee as measure of firm size can reveal more convincing results.

With regard to the influence of the industry type on IFR, results show that firms belonging to the industrial sector are more encouraged to use web technology for the revelation of financial information than the firms of other sectors. These results are in conformity with the results obtained by Ettredge *et al*., (2001) and Peter *et al*., (2003). In the American context, Ettredge *et al*. (2001) showed that the firms of the industrial sector tend to use the Internet to reveal financial information more than the firms of the sector of services.

The results of this study show that the most powerful firms are more tending to belong to the group “firms without web site”. This result is not in conformity with the results obtained by Marston *et al*. (2004), Peter *et al*. (2003) and Ashbaugh *et al*. (1999). Moreover, it is shown that the level of debt is negatively related with the IFR. This negative relation can be explained by the fact that the debt can be regarded as a mechanism of control of the problem of *free cash-flow* (Jensen, 1986). Consequently, the debt reduces the need for disclosure.

Lastly, the concentration of the capital does not encourage firms to use web technology like means of diffusion of information. However, this relation is no significant. Our results corroborate with the results of Peter *et al.,* (2003). This negative relation, between the financial reporting via the web and the concentration of the capital Confirm the idea according to which majority shareholders seek to preserve their own informational advantages. Consequently, the increase of ownership concentration decreases the probability that corporate implant a web site. Like to New Zealand case (Peter *et al*., 2003) in Tunisian context ownership concentration constitutes an impediment for the use of the Internet like a mean of financial communication.

Conclusion

By this research we try to deepen the literature relating to the antecedents of Internet Financial Reporting. The main purpose of this study was to identify empirically the antecedents of the use of web technology in the field of the financial reporting. Our empirical research was carried out on a sample of 124 Tunisian firms operating in various branches of industry (trade, services and industry). Descriptive statistics shows that 57% of firms posses a web site. Only 43% of theses firms disclose financial highlight in their web sites.

The results of the logistic regression show that firm performance, the debt and industry type constitute a strong explanatory factors of IFR. However, firm size and ownership concentration have a no significant effect on the probability to adopt web technology as a medium of financial reporting.

Like any research task, this study present some limits. Firstly, the dependent variable "Internet Financial Reporting" is measured using a dummy variable which takes the value of one if the firm posses a web site and zero otherwise. In others words, we suppose that corporate implant web site to disclose financial information. However, disclosure level is a complex variable. In addition, the study is limited to examine some factors which can explain the trend of firms towards the Internet. However, there are other factors which can influence the adoption of web technology in the field of IFR. It acts, as an example, organizational structure (Centralized versus decentralized), audit quality, corporate governance mechanisms…etc.

Future research can extend the extent of this study by undertaking comparative studies between countries. Additionally our sample includes firms which operate in various industry activities. However, the results show that industry type has an impact on the probability of possessing a web site. It results from this that future studies can be focused on a well defined industry sector. This makes it possible, in our opinion, to obtain more relevant results. Nevertheless, it is hoped that the results of this study provide a review as regards practices of disclosure online by Tunisian firms.

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The value relevance of the income components: an empirical study using greek data

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Abstract − In this study I test whether the earnings disaggregation provided in the Greek Annual Income Statement increases the explanatory power of the earnings-book value capitalisation model. The empirical findings suggest that replacing both the Net Income and the Income from Ordinary activities with Operating Income, increases the explanatory power of the earnings-book value capitalisation model by almost two percentage units. None of the financial income measures used in this study was found to be value relevant. Furthermore, this study provides evidence that, firms that are considered as more risky are valued differently than firms that are considered as less risky.

The results of this study give support to the value irrelevance assumption of the transitory income items. For standard setters, the results of this study suggest that transitory income items should be either shown separately from permanent income items or be excluded from the income statement.

JEL classification: M41

Key words: earnings, book value, value relevance, clean surplus accounting

1. Introduction

The purpose of this paper is to present empirical evidence on the value relevance of the income components that are disclosed in the Greek Annual Income Statement. More specifically, this paper provides evidence on whether the various income components, as they are shown in the Annual Income Statement, are evaluated differently by investors in the Athens Stock Exchange. I expect that earnings components that are less persistent, due to their nature, will be treated as of lower quality by investors. The empirical tests were carried out, on a cross section of firms listed on the Athens Stock Exchange for the period 1992 – 2000, using a version of the earnings-book value capitalization model developed by Ohlson (1995). The empirical findings from the levels tests suggest that operating income (OI) is the only earnings component that is value relevant; all other income components (such as financial income, securities gains and losses, extraordinary income and income tax are value irrelevant.

This study is of interest to both academics and standard setters for the following reasons:

(a) Greece, being a member of the European Union, will adopt the International Financial Reporting Standards, for both the individual and consolidated statements of all firms listed on the Athens Stock Exchange, from January 1st, 2005. Non-listed companies will continue to publish their annual accounts in accordance

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with the Greek Accountants Standards. The results of this study will provide, therefore, Greek accounting standard setters with useful information about the usefulness of the adopted format for reporting accounting income to the market participants.

(b) Recent theoretical developments in accounting literature have suggested that transitory accounting income should be value irrelevant and thus the income concept adopted in the valuation model should be cleaned up from such items (Ohlson, 1999). This paper, among other things, will test the empirical validity of this proposition.

(c) It appears that there is not an agreement among researchers as to which is the appropriate income concept to be adopted in the valuation process. This study will hopefully shed some more light on this issue.

In section 2 of the paper there is a review of the relevant literature. A short description of the structure of both the Income Statement and Table of Appropriation of Results is provided in section 3. In section 4, I present the models that will be tested in this study. A description of the data used is given in section 5, while the empirical findings are presented in section 6. The paper concludes with section 7.

2. Review of the Literature

According to Ohlson (1995), under clean surplus accounting and if certain conditions are fulfilled, it is the aggregate clean surplus earnings that matter in the equity valuation process, i.e.

$$P_t = a + \beta NI_t + \gamma bv_t \qquad \text{(I)}$$

where P_t is the market value of the equity at period t, NI_t is the clean surplus accounting income, bv_t is the book value of equity, β is the earnings response coefficient (ERC) and γ is the book value response coefficient (BVRC).

If equation (I) holds, then there is no practical benefit of disclosing the components of clean surplus accounting income separately. In other words, if total clean surplus income is disaggregated in any two (or more) components (such as NI_{1t} and NI_{2t} where $NI_{1t} + NI_{2t} = NI_t$) and the researcher estimates equation (II) below,

$$P_t = a + \beta_1 NI_{1t} + \beta_2 NI_{2t} + \gamma bv_t \qquad \text{(II)}$$

instead of equation (I), he should find that $\beta_1 = \beta_2 = \beta$.

Some authors argued, however, that non-recurring income items should be eliminated because, if they are included in the clean surplus income then the variability of the income series will increase and its predictive ability will be reduced (Brief and Peasnell, 1996). Furthermore, Stark (1997) demonstrated that, if the components of the clean surplus earnings have additional predictive ability over their sum, then their separate disclosure will improve the predictive ability of earnings. Along these lines, Ohlson (1999) split clean surplus income to core income and transitory income and developed a model according to which, as long as transitory income is not autocorrellated, it is core income (together with book value) that is value relevant and not transitory income.

Empirical evidence from the USA (Lipe, 1986) suggested that income components explain more of the variation of returns that is explained by earnings alone. Earnings disaggregation provides a small but significant amount of information that would be lost if only total earnings were reported. Ohlson and Penman (1992) and Fairfield et al (1996) reported similar findings.

In Europe, Ballas (1999), using a sample of U.K. companies reported evidence that exceptional and extraordinary income is priced differently than ordinary income, by investors. Giner and Reverte (1999), using data from the Madrid Stock Exchange, reported that neither financial income nor extraordinary income has any incremental informational content, after total net income is accounted for; it is only corporation income tax that increases the explanatory power of the earnings-book value capitalisation model.

In Greece, Ballas (1996) reported that, over the period 1990 – 1994, the market consistently priced Ordinary Income Before Depreciation and Net Financial Expenses positively and negatively respectively; the pricing of Extraordinary Income and Corporate Income Tax Expense, however, was rather circumstantial. This study differs from that of Ballas (1996) because: firstly, with the exception of extraordinary income, all other income variables are defined differently; and secondly, I use consolidated earnings instead of those published in the individual accounts.

TABLE 1. The Format of the Income Statement and the Table of Appropriation of Results according to the General Accounting Plan of Greece

	INCOME STATEMENT	
	Sales	XXX
	Less Cost of Sales	**(XXX)**
(1)	Gross Profit	XXX
	Plus Other Income	**XXX**
		XXX
	Less Administrative Expenses	(XXX)
	Selling Expenses	(XXX)
	Research & Development Expenses	(XXX)
(2)	Operating Income	XXX
(3)	Plus or Minus Financial Income	**XXX**
(4)	Income from Investment in Securities	
(5)	Gains from the Sale of Securities	
(6)	Other Interest Income	
	Less:	
(7)	Losses from the Sale of Securities	
(8)	Losses from the Valuation of Securities at year's end	
(9)	Interest Expense	
(10)	Income from Ordinary Activities	XXX
(11)	Plus or Minus Extraordinary Income	**XXX**
(12)	Total Income Before Tax	XXX

	TABLE OF APPROPRIATION OF RESULTS	
	Total Income (as reported in the Income Statement)	XXX
	Plus Reserves for Distribution & Profit Brought Forward	XXX
	Minus Losses Brought Forward	(XXX)
		XXX
(13)	Less Corporation Income Tax	(XXX)
	Profit for Appropriation or Loss Carried Forward	XXX
	Profit Appropriation:	
	Dividends	XXX
	Legal Reserves	XXX
	Tax Free Reserves	XXX
	Special Reserves	XXX
	…	…
	Profit Carried Forward	XXX
		XXX

3. Reporting Accounting Income in Greece

Greek accounting serves primarily the determination of taxable income as well as to facilitate the auditing of the accounting books and records by tax auditors. For this reason, firstly, it is based strictly on historic cost accounting and, secondly, since income tax is not tax deductible, the annual income reported on the income statement is the Income Before Tax; income tax is shown on the Table of Appropriation of Results and the Net Income is calculated by subtracting the Corporation Income Tax from the Income Before Tax.

The main income concepts that are presented in the Greek annual accounts, the value relevance of which will be examined in this study, are the following (in brackets I provide the rows of Table 1 used in the calculation of each income component):

(a) Gross Income (GP) that is a measure of the permanent income that results from the main activities of the firm [GP = (1)].

(b) Operating Income (OP) that is an alternative measure of the permanent income that results from all permanent operating activities of the firm [OP = (2)].

(c) Other Operating Income (OI) that equals the difference between Operating Income and Gross Income [OI = OP – GP = (2) – (1)].

(d) Net Financial Income (FI) that is a measure of the total income from the financing activities of the firm [FI = (3)].

(e) Income from Securities (SGL) that is a measure of the total income that results from the investment in securities. There is a widespread belief that the Income from Securities contains

many more transitory components and that is used by firm's management as an instrument to manage net income. Empirical evidence from the banking industry (Barth, Beaver and Wolfson, 1990) suggests that they are priced differently from other income [SGL = (4) + (5) – (7) – (8)].

(f) Other Financial Income (OFI) that is a measure of the net financial expense incurred for the financing of the operating activities of the firm. It is calculated by subtracting the accrued interest expense from the interest income accrued on credits provided to trade debtors [OFI = (6) – (9)].

(g) Ordinary Income (ORDI) that is a measure of the total income from the operating and financing activities of the firm [ORDI = (10)].

(h) Exceptional and Extraordinay Income (EXT) that includes both extraordinary income and prior year adjustments. It is also considered as containing many transitory components [EXT = (11)].

(i) Net Income (NI) which is calculated by subtracting the corporation income tax (TAX), shown on the Table of Appropriation of Results, from Total Income before Tax. This is a measure of the total accounting income of the reporting entity [NI = (12) – (13)].

3. The Models

The models that will be tested in this study are various versions of the earnings-book values capitalization model developed by Ohlson (1995). More specifically, the models that will be actually tested are the following:

$$P_t = a + bNI_t + cBV_t \quad (1)$$

$$P_t = a + bORDI_t + cEXT + dTAX + eBV_t \quad (2)$$

$$P_t = a + bOP_t + cFI_t + dEXT + eTAX + fBV_t \quad (3)$$

$$P_t = a + bGP_t + cOI_t + dSGL_t + eOFI_t + fEXT + gTAX + hBV_t \quad (4)$$

where

P_t = the common share price six months after fiscal's year end;

NI_t = the net income per share for fiscal year t;

BV_t = the book value per share for fiscal year t;

GP_t = the gross profit per share for fiscal year t;

OP_t = the operating income per share for fiscal year t;

$OI_t = OP_t – GP_t$;

OFI_t = the net financial income per share for fiscal year t;

SGL_t = the income from investments on securities per share for fiscal year t;

OFI_t = the other financial income per share for fiscal year t;

$ORDI_t$ = the income from ordinary activities per share for fiscal year t;

EXT_t = the income from exceptional and extraordinaries activities per share for fiscal year t;

TAX_t = the corporation income tax per share for fiscal year t.

4. The Data

The data were obtained from the Statistical Department of the Athens Stock Exchange and cover all non-financial sector firms for which data were available for the period 1993 – 2001. I identified 123 non-financial firms, which published consolidated annual accounts for at least one year in the period covered by this study. This gave me a total of 698 reporting firm years. From those, I eliminated all firm years in which a negative net income (i.e. an accounting loss) was reported, because there is evidence that loss reporting firms are valued differently from profit reporting firms (Hayn, 1995; Martikainen et al, 1997; Collins et al, 1999; and, Hevas and Siougle, 2004). The firms that did not report corporate income tax in their consolidated accounts were also eliminated. This left me with a sample of 369 firm years. I ranked the remaining firm years according to the value of the NI_t variable and I eliminated, as outlying observation, the top and low one percent (1%) of the observations. This left me with a final sample of 361 firm years. On Table 2 I present univariate statistics for all variables included in models (1) to (4).

From the figures listed on Table 2 it is evident that although Net Income may be positive, the income from permanent activities of the firm (i.e. GP and ORDI) may be negative and that the other income components (i.e. those with a high level of transitory items) play an important role in the reporting of a positive net income in the consolidated accounts. The mean value of the OI variable is negative, because the Other Income item of the Income Statement is

TABLE 2. Descriptive Statistics.

	Mean	Median	Max.	Min.	St.Dev.	n
P_t	1077.973	250.000	13550.00	98.817	2029.928	361
NI_t	180.792	123.345	1313.153	6.735	201.087	361
BV_t	1269.330	1016.184	6750.032	119.859	963.942	361
GP_t	624.988	402.771	3769.814	-127.601	650.620	361
OP_t	292.547	183.097	2158.413	-255.032	335.477	361
OI_t	-332.441	-189.755	-6.097	-2470.415	389.090	361
FI_t	-4.515	-10.345	725.851	-611.528	144.607	361
SGL_t	49.525	6.958	766.431	-358.066	99.206	361
OFI_t	-54.040	-28.758	529.388	-625.924	99.964	361
$ORDI_t$	288.066	182.827	2050.354	-372.436	318.570	361
EXT_t	-29.200	-11.921	425.265	-761.307	88.788	361
TAX_t	78.073	54.174	845.053	0.243	89.585	361

Definition of Variables: Pt = the price of common share six months after the end of fiscal year t; NIt = the net income per share for fiscal year t; BVt = the book value per share for fiscal year t; GPt = the gross profit per share for fiscal year t; OPt = the operating income per share for fiscal year t; OIt = OPt – GPt; OFIt = the net financial income per share for fiscal year t; SGLt = the income from investments on securities per share for fiscal year t; OFIt = the other financial income per share for fiscal year t; ORDIt = the income from ordinary activities per share for fiscal year t; EXTt = the income from exceptional and extraordinary activities per share for fiscal year t; TAXt = the corporation income tax per share for fiscal year t.

usually small, relatively to the size of the Selling, Administrative and R&D expenses.

4. The Empirical Results

Table 3 contains univariate parametric correlation coefficients among the different variables used in this study.

From the figures listed on Table 3 we observe that P_t is highly correlated with many of the independent variables. Moderate correlation coefficients are also observed among the various independent variables of our study. These results indicate the existence of collinearity among certain independent variables. For this reason, the condition index suggested by Belsley, Kuh and Welsch (1980) was calculated for each equation in order to examine the presence of multicollinearity· The values obtained are very low suggesting the absence of multicollinearity. We also corrected for heteroscedasticity using White's (1980) heteroscedasticity-consistent covariance matrix.

Table 4 contains the results from estimating models (1) to (4). The results presented on Table 4 were obtained using yearly dummies. Contrary to other studies (Martikainen et al, 1997), the inclusion of the yearly dummies improved drastically the explanatory power of all four models.

From the figures listed on Table 4 for model (1) we notice that the net income (NI_t) variable is statistically significant at a = 0.01. The book value (BV_t) appear to be value irrelevant not only in model (1) but also in models (2) to (4). It appears that for firms reporting a positive net income in the consolidated income statement, it is only consolidated net income that matters in the valuation process (although the fact that the constant term is statistically significant at a = 0.05 suggests the existence of missing variables not captured by the earnings-book value capitalisation model.

In model (2), I disaggregate the net income (NI_t) variable to its three components, i.e. Income from Ordinary Activities ($ORDI_t$), Exceptional and Extraordinary Income (EXT_t) and Corporation Income Tax (TAX_t). From the figures listed on Table (4) for model (2) it is clear that the decomposition of net income to that three components did not improve the explanatory power of the earnings-book value capitalisation model (as it is measured by the adjusted coefficient of determination). Corporation Income Tax (TAX_t), although it is negatively associated with share prices is statistically insignificant. This finding contradicts that reported by Giner and Reverte (1998) for Spain, but it is not much different from that reported by Ballas (1996), who found only circumstantial evidence in support of the value relevance of the Corporation Income Tax variable. Exceptional and Extraordinary Income (EXT_t) is also value irrelevant, a finding not surprising as long as the market treats this item as transitory in nature. Income from Ordinary Activities ($ORDI_t$) is the only income component that is statistically significant at a = 0.05.

In model (3), I disaggregate the Income from Ordinary Activities ($ORDI_t$) variable to its two components, i.e. Income from Operating Activities (OP_t) and Income from Financing Activities (FI_t). From the figures listed on Table (4) for model (3) we notice that the decomposition of net income to those two components improved the explanatory power of the earnings-book value capitalisation model by two percentage units. This increase is attributed solely to the income from operating activities since the OP_t variable is statistically significant

TABLE 3. Spearman Correlation Coefficients.

	P_t	NI_t	BV_t	GP_t	OP_t	OI_t	FI_t	SGL_t	OFI_t	$ORDI_t$	EXT_t	TAX_t
P_t	1											
NI_t	0,357*	1										
BV_t	0,436*	0,524*	1									
GP_t	0,382*	0,575*	0,388*	1								
OP_t	0,400*	0,670*	0,409*	0,914*	1							
OI_t	-0,318*	-0,440*	-0,335*	-0,937*	-0,737*	1						
FI_t	-0,156*	0,046	0,009	-0,462*	-0,476*	0,397*	1					
SGL_t	0,000	0,197*	0,224*	-0,216*	-0,202*	0,191*	0,607*	1				
OFI_t	-0,231*	-0,176*	-0,180*	-0,441*	-0,478*	0,365*	0,702*	0,062	1			
$ORDI_t$	0,411*	0,880*	0,528*	0,688*	0,778*	-0,544*	0,026	0,205*	-0,200*	1		
EXT_t	-0,246*	-0,207*	-0,181*	-0,371*	-0,415*	0,284*	0,000	-0,163*	0,154*	-0,515*	1	
TAX_t	0,386*	0,738*	0,467*	0,651*	0,702*	-0,066*	-0,066	0,027	-0,169*	0,826*	-0,312*	1

Definition of Variables: Pt = the price of common share six months after the end of fiscal year t; NIt = the net income per share for fiscal year t; BVt = the book value per share for fiscal year t; GPt = the gross profit per share for fiscal year t; OPt = the operating income per share for fiscal year t; OIt = OPt – GPt; OFIt = the net financial income per share for fiscal year t; SGLt = the income from investments on securities per share for fiscal year t; OFIt = the other financial income per share for fiscal year t; ORDIt = the income from ordinary activities per share for fiscal year t; EXTt = the income from exceptional and extraordinary activities per share for fiscal year t; TAXt = the corporation income tax per share for fiscal year t.
Notes: *: significant at a = 0.01; ** significant at a = 0.05, ***: significant at a = 0.10

TABLE 4. O.L.S. Results for the Basic and the Disaggegated Models.

Model	Depend. Variable	Constant	NI_t	BV_t	$ORDI_t$	EXT_t	TAX_t	OP_t	FI_t	GP_t	OI_t	SGL_t	OFI_t	Adj. R^2
(1)	P_t	-345.077	3.168	0.246										0.625
		(-1.958)***	(3.120)*	(1.324)										
(2)	P_t	-340.939		0.229	3.148	1.297	-3.536							0.630
		(-1.925)***		(1.287)	(2.191)**	(0.705)	(-0.851)							
(3)	P_t	-373.037		0.183		1.359	-4.953	3.757	1.805					0.647
		(-2.219)**		(1.155)		(0.869)	(-1.374)	(2.803)*	(1.289)					
(4)	P_t	-361.933		0.188		1.356	-4.602			3.771	3.939	1.919	1.561	0.648
		(-2.203)**		(1.160)		(0.895)	(-1.242)			(2.713)*	(2.638)*	(1.042)	(0.865)	

Definition of Variables: Pt = the price of common share six months after the end of fiscal year t; NIt = the net income per share for fiscal year t; BVt = the book value per share for fiscal year t; GPt = the gross profit per share for fiscal year t; OPt = the operating income per share for fiscal year t; OIt = OPt – GPt; OFIt = the net financial income per share for fiscal year t; SGLt = the income from investments on securities per share for fiscal year t; OFIt = the other financial income per share for fiscal year t; ORDIt = the income from ordinary activities per share for fiscal year t; EXTt = the income from exceptional and extraordinariy activities per share for fiscal year t; TAXt = the corporation income tax per share for fiscal year t.
Notes: *: significant at a = 0.01; ** significant at a = 0.05, ***: significant at a = 0.10

at a = 0.01, while the (FI_t) variable is statistically insignificant. The remaining two income items, i.e. Exceptional and Extraordinary Income (EXT_t) and Corporation Income Tax (TAX_t), are again statistically insignificant.

In model (4) I disaggregate, firstly, the income from operating activities (OP_t) to gross income (GP_t) and other operating income (OI_t) and, secondly, the income from financing activities to income from securities (SGL_t) and other financial income (OFI_t). From the figures listed on Table 4 for model (4) we notice that the disaggregation of the two income measures to their components did not improve the explanatory power of the earnings-book value capitalisation model compared to the income disaggregation provided in model (3). With the exception of the (GP_t) and the (OI_t) variables that are statistically significant at a = 0.01, all other income variables are value irrelevant. The insignificance of the (SGL_t) variable is also consistent with the

TABLE 5. O.L.S. Results for the Basic and the Disaggegated Models.

Panel A: More Risky Firms

Model	Depend. Variable	**Constant**	**NI_t**	**BV_t**	**$ORDI_t$**	**EXT_t**	**TAX_t**	**OP_t**	**FI_t**	**GP_t**	**OI_t**	**SGL_t**	**OFI_t**	**Adj. R^2**
(1)	P_t	137.805	-1.683	0.339										0.400
		(2.07)**	(-3.94)*	(3.95)*										
(2)	P_t	214.806		-0.223	5.165	3.778	-12.273							0.491
		(1.77)***		(-0.65)	(1.96)**	(1.41)	(-2.43)*							
(3)	P_t	-25.428		-0.402		1.162	-10.196	5.776	2.741					0.557
		(-0.13)		(-1.34)		(0.44)	(-2.17)**	(2.29)**	(1.09)					
(4)	P_t	-129.169		-0.208		1.903	-8.638			6.006	6.612	1.630	3.747	0.572
		(-0.55)		(-0.63)		(0.79)	(-1.69)***			(2.34)**	(2.53)	(0.57)	(1.45)	

Definition of Variables: Pt = the price of common share six months after the end of fiscal year t; NIt = the net income per share for fiscal year t; BVt = the book value per share for fiscal year t; GPt = the gross profit per share for fiscal year t; OPt = the operating income per share for fiscal year t; OIt = OPt – GPt; OFIt = the net financial income per share for fiscal year t; SGLt = the income from investments on securities per share for fiscal year t; OFIt = the other financial income per share for fiscal year t; ORDIt = the income from ordinary activities per share for fiscal year t; EXTt = the income from exceptional and extraordinariy activities per share for fiscal year t; TAXt = the corporation income tax per share for fiscal year t.
Notes: *: significant at a = 0.01; ** significant at a = 0.05, ***: significant at a = 0.10

Panel B: Less Risky Firms

Model	Depend. Variable	**Constant**	**NI_t**	**BV_t**	**$ORDI_t$**	**EXT_t**	**TAX_t**	**OP_t**	**FI_t**	**GP_t**	**OI_t**	**SGL_t**	**OFI_t**	**Adj. R^2**
(1)	P_t	-231.484	1.919	0.379										0.713
		(-1.20)	(1.80)***	(1.89)***										
(2)	P_t	-143.545		0.170	-0.185	-3.458	7.407							0.734
		(-0.79)		(1.01)	(-0.19)	(-1.11)	(2.25)**							
(3)	P_t	-61.806		0.122		-2.244	-0.845	2.237	-0.567					0.756
		(-0.41)		(0.85)		(-0.70)	(-0.24)	(1.84)***	(-0.75)					
(4)	P_t	-103.582		0.027		-1.689	-0.014			1.910	1.272	-0.201	3.331	0.760
		(-0.73)		(0.19)		(-0.54)	(-0.01)			(1.81)***	(0.88)	(-0.25)	(-1.09)	

Definition of Variables: Pt = the price of common share six months after the end of fiscal year t; NIt = the net income per share for fiscal year t; BVt = the book value per share for fiscal year t; GPt = the gross profit per share for fiscal year t; OPt = the operating income per share for fiscal year t; OIt = OPt – GPt; OFIt = the net financial income per share for fiscal year t; SGLt = the income from investments on securities per share for fiscal year t; OFIt = the other financial income per share for fiscal year t; ORDIt = the income from ordinary activities per share for fiscal year t; EXTt = the income from exceptional and extraordinariy activities per share for fiscal year t; TAXt = the corporation income tax per share for fiscal year t.
Notes: *: significant at a = 0.01; ** significant at a = 0.05, ***: significant at a = 0.10

assumption that this income item includes many transitory components. Furthermore, we performed a Wald test of equality of the estimated coefficients of the (GP_t) and the (OI_t) variables and the results supported the equality of the two estimates.

Prior empirical findings (Barth et al , 1998; Giner and Reverte, 1999), have shown that the informativeness of earnings and book value depends on the financial health of the firm that it is valued. Barth et al (1998) reported that risk may affects the market valuation of bottom line figures, earnings and book value; Giner and Reverte (1999) reported that for those firms that are classified as more risky, corporation income tax has an incremental information content, over and above that provided by bottom line earnings and book value. For this reason we split the sample into two sub-groups, i.e. the more risky and the less risky firms. As a

proxy for risk we use the Debt to Equity Ratio and we define as more risky those firms whose debt to equity ratio is greater than the median debt to equity ratio of the firms in our sample; as less risky we define all those firms whose debt to equity ratio is smaller than the median debt to equity ratio of the firms in our sample.

In Panel A of Table 5 I report the results from estimating models (1) to (4) for the more risky firms in our sample. From the figures listed in Panel A of Table 5, we notice that for the more risky firms model (4) exhibits the highest explanatory power of all four valuation models. Gross Profit (GP) and Corporation Income Tax (TAX) appear to be the most value relevant earnings components while bottom line earnings appear to be of reduced relevance.

In Panel B of Table 5 I report the results from estimating models (1) to (4) for the less risky firms in our sample. From the figures listed in Panel B of Table 5, we notice that while operating income (OP) is more value relevant than bottom line earnings (see model 3), further disaggregation of operating income into gross profit (GP) and other operating income (OI) does not provide more value relevant earnings items.

Another important finding is that the earnings - book value capitalization model exhibits a much better fit for the less risky group of firms than for the more risky group of firms. The values of the adjusted coefficients of determination (R^2) of the estimated models lie in the range (0.713, 0.760) for the less risky firms; it is restricted to the range (0.400, 0.572) for the more risky firms. This finding suggests that investors, when valuing firms that are considered as more risky, either use additional fundamental variables that are not included in the earnings – book value capitalization model or make extensive use of non-accounting information too.

Overall, the empirical results of this study suggest that, firstly, the Income from Operating Activities is more value relevant than both bottom line earnings and other line income items and, secondly, non-accounting information are used more extensively in the valuation of firms that are considered as more risky by investors.

6. Conclusions

In this study I tested whether, substituting net income with alternative income measures increase the explanatory power of the earnings-book value capitalisation model. The empirical findings suggest that:

(a) Consolidated net income is value relevant.
(b) Consolidated book value is value irrelevant.
(c) The income from ordinary activities is not more value relevant than net income in explaining cross-sectional variation in share prices.
(d) Replacing either Net Income or Income from Ordinary Activities with the Income from Operating Activities increases the explanatory power of the earnings-book values capitalisation model by almost two percentage units.
(e) Firms that are considered as more risky are valued differently than firms that are considered as less risky. For the more risky group of firms, earnings and book value appear to be of reduced importance in explaining the observed cross – sectional differences among share prices.

The results of this study give support to the value irrelevance assumption of the transitory income items.

For standard setters, the results of this study suggest that transitory income items should be either shown separately from permanent income items or be excluded from the income statement.

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Norms as Indicators of Human Capital Investments Effectiveness

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Abstract − This paper analyses Individual Labor Supply (ILS) survey data gathered on various russian labor markets. Institutional parameters of the ILS schedule, their influences on ILS elasticities as well as the shapes of the ILS curves have been the special points of interest of the researches. Besides the canonical C-shaped and the S-shaped curves their mirrored reflections and also L-shaped and J-shaped forms were observed. The "backward bend" concept for poor households and the S-shaped LS curve concept for the household with primary, secondary and tertiary workers helped to find explanations for the cases. The dummies for regions and professions as well as "institutional numbers" were successfully used in order to improve the regression quality. It was revealed that threshold effects, noted as changes in the market strategies – shifts to a different ILS curve type, take place because workers behavioral patterns are framed by certain types of conventions. So behavioral patterns change when a convention, that a worker positions him(her)self in, is changing. The degree of such effects probability increase, when households are forced by external factors to review their economic strategies. Thus assuming that the shape of an ILS function as well as current wage value (roubles per hour) characterizes the economic agent strategy, a hypothesis has been worked out: *The strategy choice made by a worker in standard labor market situations may be predicted with a certain degree of accuracy, if the combination of the individual institutional norms values distribution is known.* Hence following Douglass North's proposition that institutions are not only carries of history but also accumulators and means of education, the author suggests that the combination of institutional norms might be regarded as a signal of Individual Human Capital Investments Effectiveness.

JEL classification: A13, D02, J22, R29

Key words: Household Labor Supply, Institutional Parameters of Labor Supply, Hunan Capital Quality

Introduction

Coming back to the dispute about the essence of education between ancient philosophers Socrates and Protagoras, we can now say that it could neither be only a means of a joyful leisure for aristocrats nor an object of effective investments, but it is becom-

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Fields of interest:
National economy, institutional economics, methodology of economic education, economic sociology

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ing now a unique delicate and powerful instrument, which may be used for constructing an effective economic system. Another thesis concerning the modern educational paradigm is that it is useless to spent years trying to acquire more and more knowledge, but it is necessary to be competent in managing informational and communicational systems of contemporary knowledge-based society. Moreover the UNESCO standards claim that any change in a man's behavior, knowledge structure, mutual understanding, values, and beliefs may be considered as a result of learning (to be judged as education this learning should be executed in a planned manner) [UNESCO, 1997]. Thus the idea that communications patterns, institutional norms, distribution of beliefs and values can be regarded as educational quality as well as human capital investments effectiveness indicators should not be put aside as an excessive one.

Besides the methodology of measuring the returns to education developed in the economics of education is often facing problems caused by institutional factors bias. Going back at least to Mincer (1970) and Rosen (1977), a number of authors have pointed to the sensitivity of wage regressions to changes in the years of schooling, teachers and school quality, experience etc., and to the failure of these coefficients to pass the test of an uncertainty period (see for example [Björklund/Kjellström 2002]). Griliches (1977) pointed to various econometric issues that arise in estimating a relation between the logarithm of wages, schooling, and other variables and focuses on the problem of "ability bias", which in the estimated schooling coefficients is "even reversed". Similar results were obtained in our research of workers' "rationality". We also paid much attention to the ideas of one of the most experienced researchers of Education production function – Eric Hanushek (at least from 1986). He noted in his later papers that characterizations of worker skills by traditional factors do not capture important aspects of workers' and country's welfare and equity [for example – (Hanushek/Somers 1999)]. Works of Heckman, Glewwe, Hoxby, Fernandez, Rosen and their colleagues made us think that institutional factors were to be taken into account in addition to traditional regression variables. "With whom one goes to school or work, who one's neighbors are, and who is a member of one's household are all likely to be important ingredients both the resources devoted to and the returns to human accumulation" (Fernandez 2003: 1). Detailed reviews of the mentioned above literature on the quality of education can be found in (Hanushek 1986; Burtless 1996; etc.). The latest ideas in the research area, which is really multidisciplinary, are represented in the Handbook of Labor Economics (1999) and the Handbook of the Economics of Education (2004).

So in view of the voluminous research on the subject, we couldn't help ignoring the fact that so many authors, using varying methods, have all arrived at the same conclusion – institutional (social, psychological etc.) factors should be taken into account while examining the returns to education and agents' behavior on local labor markets. "Don't we learn something from the cumulative evidence, even if individual papers have shortcomings?" (Hanushek)

According to the social capital literature usually dated from the works of Coleman (1990) and Putnam (1993) one should mind values and beliefs in order to describe the regularities of human behavior and the coordination mechanism in market interactions. But it is difficult to formally describe the coordination mechanism when values and beliefs are changing. Such phenomena often take place in transitive economies and/or when we are considering educational phenomena.

Some suggestions may be made with the help of psychological and social forms evolution theories. Ideas of Pitirim Sorokin, Max Weber, Tullckot Parsons, James Colmen and other scholars form a basement for such a theory, but they are not quite suitable to predict quantified results. More formal econometric models have been elaborated within the heterogeneous human capital conceptional framework [Wolpin 1977; Stokey 1990; see also the review in McFadden 2000]. These models made the consideration of economic choice psychological parameters possible, but the results were gained owing to strict limitations such as a certain class of utility functions.

The cross section survey results presented in this paper show that one can look further, beyond these limitations, if the revealed interdependence between individual labor market strategies and the values and beliefs distributions is taken into account.

I. Research design

The project "Individual Labor Supply Parameters

Survey" (ILSPS) was realized by the author in 2003-2005. The project's objective was to determine typical individual strategies of workers on local labor markets in various Russian regions, the influence of values and norms distributions and other parameters on the revealed strategies. The initial assumption included a thesis that workers strategies may be revealed with the help of the individual labor supply (ILS) schedules, that were later classified.

Another project's goal was to develop a methodology of individual norms values measurement and to test it on the sample of more than 1400 respondents in order to estimate the parameters of their individual labor supply function. The data was collected during an experimental field survey in several Russian regions: Central (Moscow, Moscow region, Tula, Tver etc.), Northern (St.Petersburg), The Urals (Chelyabinsk, Perm etc.), Siberia (Krasnoyarsk, Novosibirsk etc.) and others. These are usually the places where students of the HSE and the REA come from[1]. The results gained in Moscow region were also enriched by supplementary psychological and organizational investigation data.

Several data bases on the Russian labor market are becoming available nowadays. Russian Longitudinal Monitoring Survey (RLMS) is one of the most frequently used. But one can hardly find information about workers' expectations, beliefs, and about the elasticity of ILSF in these data bases. It is really rather difficult to get such an information, mainly because it is not enough just to let a respondent to fill the questionnaire; an interview and an explanation of basic economic concepts (such as alternative costs, time allocation for example) are needed in most cases. So the interview often turns into an improvised lesson. It happens to be a good practice for students-interviewers by the way.

More than 100 students of the HSE and the REA conducted more than 2000 interviews with employers in different Russian regions up to now. But only 1420 cases have been found valid for the sample because of the above mentioned difficulties. The validity of the sample was also proved by the significant correlation of our calculations of traditionally estimated coefficients with those published in the subsequent literature [Нестерова/Сабирьянова 1998; Roshchin/Markova 2004; etc.].

1. HSE – Higher School of Economics, Moscow; REA – Russian Academy of Economics, Moscow.

II. The methodology

We ague that an agent's expectations, choices, behavior patterns depend on the conventional conditions she is aware of. We suggest that the revealed shape of an individual labor supply function (ILSF) can serve as a proxy for agent's beliefs and strategies on the local labor market. At the same time the relative values of Empathy, Rationality, Interpretative Rationality and Trust form a certain type of a convention according to which an economic agent is making her decision (so suggests the conventional theory [Boltanski/Theveno 1991]).

We also use the behavioral and organizational theories explanations for individual labor supply curves deviations from the neoclassical textbook model (the canonical C-shaped curve which is in fact mirrored C). The textbook labor supply model actually comes on the scene when an independent, rational worker is making the choice between the good 1 (the leisure) and the good 2 (the set of goods that can be bought for his earnings). His income is considered to be the only resource for buying any other goods and services besides the leisure, and the individual is free from any other duties (especially from those of his household). The labor supply of such a worker (the canonical) can be shown as the dotted line above the E-F zone on fig. 1. The reservation wage (the minimum – not lower than the point E level) is also an important concept of the classical labor supply theory. Otherwise (below the reservation wage) it would not work. The substitution effect domination is responsible for the positive slope (E-F zone), while the negative slope (when raising wages decreases work hours: above F zone) is due to a stronger income effect. There is in fact no difference between an individual and a family (household) labor market behavior in the classical concept.

The negative slope cases (the "backward bend" or L – shaped ILS curve: the B-C-D zone on fig.1) at much lower levels of income, as they had been primarily observed in Indian and African colonized countries, were explained by colonialists and other experts as the cases of non-responsiveness to prices of the poor, of their limited wants and aspirations which determined consumption and behavioral patterns, different from those in industrialized societies (Chelintsev, Berg, Murdal, Lipton). Other sets of explanations for negative or zero labor supply elasticities at low wage levels in agricultural sector

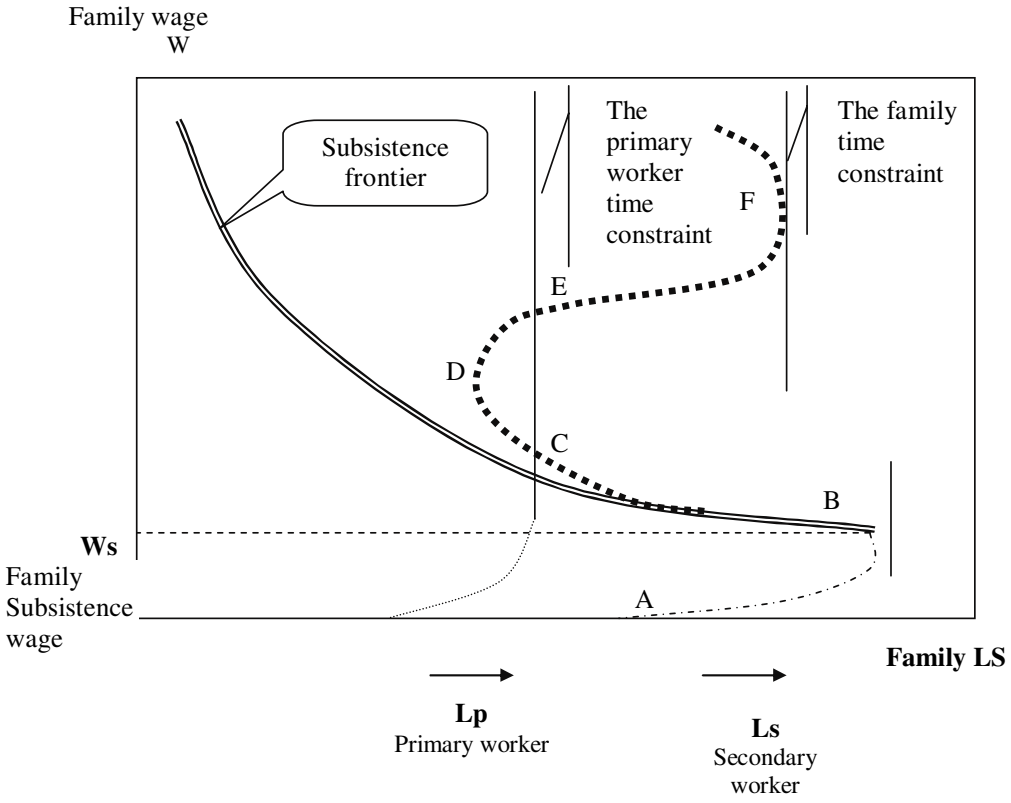

FIGURE 1. The S-shaped labor supply curve of a household.

were offered by labor surplus (Lewis, Leibenstein, Shultz, Sen) and nutrition-productivity-based theories (Leibenstein, Rodgers, Stiglitz).

The family joint labor supply model (Dessing 2002) offers a summary of the cited above theories. According to this concept one may consider a family (a household) as an organization which is to provide their members with a certain amount of goods and services. By various reasons some of the goods and services are home-made, but others can be bought at the market only. So the family needs a "target income" to buy them. Certain family members are sent to the labor market to earn this income. The "subsistence frontier" line on fig.1 depicts the constraint along which the family income remains constant. So, if the family's primary worker is not able to gain enough money even by increasing the working hours, the secondary and maybe the tertiary workers are sent to the labor market (see the A-B part of the line on fig.1).

The secondary worker demonstrates the L-shaped curve for her labor supply (with negative elasticity) because household duties are more important for her than market activities, and she returns home as soon as her income makes it possible. As her income increases there occurs a possibility to substitute some of the home-made goods and services by those from the market. Thus the secondary worker ILS may become less elastic and even turn to a positively sloped line (see the B-C-D part of the line on fig.1 and C-shaped stroke line on fig.2, type 1).

A primary worker is in most cases a person with a comparative advantage in market activities and who does not have much to do at home as a rule. But his working potential is constrained by the physical conditions, and an always positive ILS slope demonstrated by some of our respondents from "poor" households may be considered as a "distress" labor supply (see J-shaped forms on fig.2, type 2).

Besides type 1 and type 2 ILS, which were revealed in the vicinity of the households' subsistence constraints in our cases, types 3, 4 and 5 were also found out. These were the ILS curves from "richer" households' members, peculiarities of which are discussed below.

As far as the relative values of Empathy, Rationality, Interpretative Rationality and Trust had been also measured as regression parameters for

ILS types one may conclude that the classical and the institutional methodologies were combined in our survey.

Thus assuming that the shape of an ILS function as well as current wage value (roubles per hour) characterizes the economic agent strategy, a hypothesis has been worked out: *The strategy choice made by an individual in standard economic situations may be predicted with a certain degree of accuracy, if the combination of the individual institutional norms values distribution is known*. Then, following North's proposition that institutions are not only carries of history but also accumulators and means of education (North 1990), we may suggest that the combination of institutional norms might be regarded as a signal of Individual Educational Quality.

III. Findings in the field of behavioral patterns

ILS elasticities as well as the shapes of the ILS curves have been the special points of interest of the researches. Besides the canonical C-shaped and the S-shaped curves their mirrored reflections and also L-shaped and J-shaped forms were observed. The "backward bend" concept for poor households and the S-shaped LS curve concept for the household with primary, secondary and tertiary workers helped to find explanations for the cases (Dessing 2002). One can observe the same phenomena once found out in India and Africa. The dummies for regions and professions as well as "institutional numbers" were successfully used in order to improve the regression quality.

Some of Norms' indicators turned out to be valid regression independent variables for the ILSF shape as well as for the wage function. Moreover the correlation between target variables and norms' values in some age strata were even stronger than between target variables and traditionally measured educational parameters.

It was found out that the probability for a certain ILS curve type depends on regional labor market conditions, ages, years of schooling and on norms also. It was revealed that threshold effects noted as changes in the market strategies, – shifts to a different ILS curve type, take place because workers behavioral patterns are framed by certain types of conventions. So behavioral patterns change when a convention, that a worker positions him(her)self in, is changing. The degree of such effects probability increase when households are forced by external factors to review their economic strategies.

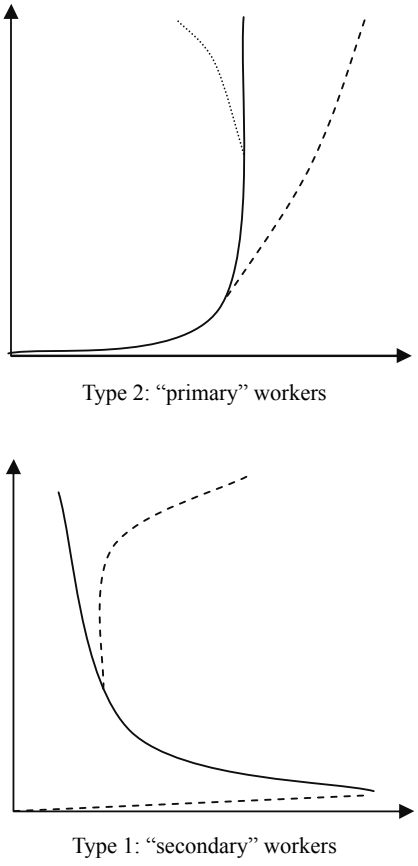

FIGURE 2. ILS curves types for "poor" households

The household labor supply conceptional framework and the expertise of ILS schedules prepared by the interviewers were the guidelines in elaborating the ILS curves classification and in analyzing the corresponding workers' strategies.

Primarily the respondents were divided in the groups of "poor" and "rich" households' representatives. Workers with hour wages less than 50 roubles were regarded as "poor" households' representatives for all regions except Moscow. The "richness" point for Moscow workers was established at 150 roubles per hour. It should be taken into account that relatively high hourly wages do not always prove high monthly income (they usually count monthly wages in Russia and in other post-soviet countries). Thus, a Moscow high school teacher working 24 hours a week for 150 roubles per hour, receives about 14400 roubles a month ($500 approximately), that is not so much for Moscow. In such cases, when the weekly

FIGURE 3. ILS curve types for "rich" households

working hours were small, the sorting was made according to the corresponding monthly income per household member.

The ILS curves of primary and secondary workers were marked in the category of the "poor" households. These were J-type curves with positive elasticity for primary workers (fig.2); the rare cases with negative elasticity for much higher proposed wages were neglected. The ILS curves of secondary workers were usually L-type ones. But they could be a C-type also. The revealed negative elasticity section of LS schedule in the "working" zone and a relatively higher supply for low wages were the decision criterion in this case.

Thus the other respondents were considered "non-poor". Three ILS curve types were defined for this category: L – type ILS curve with negative elasticity for "artists"; J - type ILS curve with positive elasticity for "institutional" workers (Weblen's type); mirror reflected C – type for "classical" workers (REMM[2]) (fig.3).

"Artists" are usually more concerned about their social status on the work place, they are trying to satisfy their needs in creating and pay more attention to public opinion than to rationality. "Institutional" (Weblen's type) workers do not consider wages as the key incentive, they usually work just because "that's the way things are". Their occupation is often listed among the Higher Level Goods they consume in order to satisfy their needs in gaining reputation, self-expression etc.

The market patterns of "classical" workers are widely discussed in economic theory manuals but our research helped to find out some peculiarities of their behavior.

A more detailed research shows that behavioral patterns, implicit in market strategies and revealed in ILS schedules, depend on professional occupation, gender, marital status, number of children and other parameters. Table 1 shows that married women are more likely to act as "secondary" workers than men, but single men and women demonstrate similar patterns.

For the purpose of a more detailed analysis a cross-section regression for "Elasticity" with the following specifications had been worked out:

Elasticity	- explained variable: elasticity estimation by the respondent[3];
Scale	- dummy for ILS type;
Gender	- dummy for gender (0- women, 1 – men);
Childrs	- number of children;
MaSta	- marital status (0 – not married, 1 – married);
HHIncom	- income of a household member (thousand of roubles a month);
LnW	- log of hour wages (income);
LnLh	- log of working hours recalculated for 5-day week;
ExpT	- work experience (total years of work);
ExpS	- work experience according to specialty (years of work);
Time	- time on the current workplace (years);
EdT	- Total yeas of schooling (including high school);
EdS	- Special education (i.e. learning while doing, courses etc.);

2. REMM – Resourceful Evaluating Maximizing Man (Brunner, Meckling, 1977).

3. When the respondent answers the question: «You would increase/decrease your working time by ___% if your daily income increases by 10%» the value is divided by 10%. The result is checked and corrected according to the expert estimation of ILS curve type. A more detailed interview is conducted if necessary.

Age	- years of age;
Region	- dummy for regions[4];
Profession	- dummy for professions[5];
Empathy	- Institutional value of Empathy
Util	- Institutional value of Utilitarianism
RatioIn	- Institutional value of Interpretative Rationality
Trust	- Institutional value of Trust
e	– Unexplained residual.

TABLE 1. Average ILS type numbers sorted according gender and marital status

	Married	Singles
Men	2,59 (1,07)	2,50 (1,10)
Women	2,27 (0,99)	2,50 (1,11)

Other possible variables were not included in the regression in view of 5% level of accuracy. Table 2 presents the regression results for Elasticity differentiated according to ILS curves types.

The results in the most parts prove the preliminary observation conclusions about the behavioral patterns of different types of the workers. Thus the log of the working hours turns out to be the only valid variable for the "secondary" workers of the "poor" households (t-statistics shown in brackets). The negative influences of the same variable and also of the working week's length and the regional and profession's dummies should be noted, while regarding the results for the "primary" workers of the "poor".

"Artist", as more inclined to meditation and reflection, demonstrate valid parameters of Utility, Interpretative Rationality and Trust in their regression. One ought to note the different (negative) influence of Trust. The "primary" workers of the "richer" households demonstrate more "utilitarian" attitudes than their colleagues from the above mentioned strata (the Utility value is more valid in their regression).

It might seem strange, but the "classical" workers pay less attention to wages, to the working week's length, nonetheless they are rational enough – with the most valid negative Utility value. The reductions of the Interpretative Rationality level, as well as of the Utility's one, cause such workers ILS elasticity to increase. But let us note the different influence of the Empathy.

One can expect more accuracy for the Scale than for the Elasticity regression. And the table 3 data support this expectation. The differences in adjusted R^2 values may be explained by the above mentioned difficulties in gathering data. But we still continue to consider the conclusions based on the table 2 data useful, because they are proved by other observations including deeper interviews with the respondents.

Additionally from the table 3 one can find out that married women, while determining their market strategies, pay more attention to wages than representatives from other categories (the maximum t-stat. corresponding to LnW beta). A higher degree of Empathy helps them in their carrier success, but that of Utilitarianism does not, although these respondents are the most inclined to utilitarian thinking. The influences of Trust and Interpretative Rationality for this stratum are uncertain.

Empathy is a valid parameter for the market strategies of married workers – both men and women, but the influence is positive for women and negative – for men. The revealed negative influence of ages on the strategy levels seems to be quite obvious (it is less expressed for unmarried women), but the negative influence of special education - EdS (significantly expressed for married workers), needs more explanations. Presumably this fact reflects the shortcomings of the professional education system, that is not able to properly satisfy the needs of the economy. The thesis that "life is the best teacher" is actually supported by positive values of the regression coefficients for total work experience (ExpT) and for the experience of work according to the specialty (ExpS) – first significantly expressed for unmarried, second – for married men.

4. The following administrative-geographic classification is applied: 1 – for Moscow; 2 – for Moscow region; 3 – for regional centers (+1 – for West and East Siberia); 5 – for district centers; 6 – for villages besides Moscow region. This method provided better regression results than official living standards data from Roscomstat.

5. The following classification is applied: 1 - for low skilled workers; retired, part time workers; 2 – sellers; 3 – students, part time workers; 4 – teachers, trainers, skilled workers; 5 – officers, managers, doctors; 6 – accountants, engineers; 7 – financial officers, economists; 8 – top managers; 9 – entrepreneurs; heads of organizations.

TABLE 2. Values of regression for Elasticity and other parameters sorted according to ILS types (Scale)

Scale	1		2		3		4		5	
	Means	Beta	Means	Beta	Means	Beta	Means	Beta	Means	Beta
Gender	0,325 (0,470)	0,09 (1,20)	0,437 (0,496)	0,024 (0,65)	0,336 (0,475)	0,098 (1,12)	0,518 (0,500)	0,05 (0,81)	0,472 (0,506)	0,157 (0,72)
LnW	3,699 (0,807)	**0,21** (2,09)	3,692 (0,866)	**-0,094** (-2,04)	4,762 (0,796)	-	5,062 (0,891)	-0,07 (-1,13)	4,847 (0,663)	-
LnLh	3,636 (0,337)	-	3,524 (0,450)	**-0,100** (-2,69)	3,592 (0,379)	0,166 (1,84)	3,544 (0,481)	**-0,235** (-4,05)	3,462 (0,425)	-0,404 (-1,80)
ExpT	15,593 (11,47)	-0,20 (-0,85)	16,274 (11,84)	-0,214 (-1,68)	15,389 (11,02)	-0,300 (-1,47)	14,661 (10,61)	-0,044 (-0,71)	17,139 (9,992)	1,018 (1,65)
ExpS	10,726 (10,32)	-	11,109 (10,71)	0,069 (1,19)	11,301 (10,14)	0,211 (1,11)	9,717 (9,971)	-	12,944 (10,99)	-
Time	6,564 (7,097)	0,071 (0,74)	6,957 (7,812)	-0,043 (-0,98)	5,338 (5,461)	-0,101 (-0,99)	5,134 (7,780)	0,05 (0,91)	7,222 (7,680)	-0,312 (-1,42)
EdT	14,896 (3,308)	-0,103 (-1,07)	14,599 (3,412)	-0,054 (-1,39)	15,292 (2,043)	-	15,309 (2,299)	-0,08 (-0,96)	15,611 (2,207)	-
EdS	1,218 (1,232)	0,07 (0,70)	1,086 (1,029)	-	1,637 (1,165)	-	1,549 (1,107)	0,11 (1,36)	1,750 (1,228)	-
Age	36,762 (11,71)	0,17 (0,69)	36,845 (12,47)	0,220 (1,72)	36,841 (11,27)	-	35,065 (10,98)	-	38,528 (9,878)	-0,956 (-1,62)
Empathy	1,044 (1,472)	-0,14 (-1,35)	1,179 (1,468)	-	1,056 (1,381)	-	0,860 (1,450)	-0,11 (-1,45)	0,951 (1,518)	**0,792** (2,66)
Util	0,315 (1,395)	0,14 (1,62)	0,481 (1,311)	-	0,456 (1,357)	**0,249** (1,99)	0,108 (1,578)	**0,21** (2,87)	0,116 (1,472)	**-0,622** (-3,22)
RatioIn	1,221 (1,503)	-	1,493 (1,476)	0,025 (0,42)	1,656 (1,498)	**0,391** (2,96)	1,110 (1,495)	-0,08 (-0,98)	1,731 (1,513)	**-0,921** (-3,20)
Trust	0,836 (1,234)	-0,07 (-0,69)	0,923 (1,235)	-	0,923 (1,467)	**-0,742** (-4,96)	0,754 (1,127)	0,11 (1,22)	0,840 (1,206)	0,484 (1,60)
Region	2,374 (1,482)	0,11 (1,26)	2,649 (1,473)	**-0,184** (-4,02)	2,664 (1,449)	-	1,958 (1,358)	-	2,500 (1,342)	0,181 (1,07)
Profession	3,864 (1,781)	-0,12 (-1,44)	3,742 (2,026)	**-0,087** (-2,12)	5,504 (1,937)	-	5,664 (1,877)	0,04 (0,60)	5,056 (2,013)	-0,237 (-1,37)
HHIncom	4,775 (3,979)	-0,10 (-1,05)	4,126 (3,926)	0,031 (0,64)	8,925 (9,448)	0,216 (2,39)	18,177 (128,0)	-	8,500 (9,070)	-
MaSta	0,617 (0,487)	-	0,689 (0,463)	0,042 (0,91)	0,566 (0,498)	-	0,612 (0,488)	-	0,639 (0,487)	-0,162 (-0,70)
Childrs	1,029 (1,017)	-	1,059 (0,903)	-0,042 (-0,86)	1,071 (0,952)	0,059 (0,56)	0,990 (0,920)	-	1,500 (1,108)	0,311 (1,54)
Elasticity	-0,047 (0,131)	-	0,059 (0,124)	-	-0,017 (0,087)	-	0,042 (0,070)	-	0,046 (0,095)	-
Adjusted R^2	-	0,036	-	0,043	-	0,167	-	0,061	-	0,314
N	206		749		113		307		36	

TABLE 3. Values of regression for ILS types (Scale) and other parameters sorted according to gender and marital status

Gender	1				0			
Marital Status	0		1		0		1	
	Means	Beta	Means	Beta	Means	Beta	Means	Beta
LnW	4,23 (1,01)	**0,47** (5,77)	0,431 (1,02)	**0,55** (9,99)	4,05 (1,08)	**0,57** (10,15)	3,92 (1,03)	**0,54** (11,15)
LnLh	3,47 (0,59)	**-0,14** (-2,30)	3,64 (0,34)	-	3,47 (0,51)	-	3,54 (0,38)	**-0,11** (-2,90)
ExpT	6,61 (7,31)	**0,38** (2,75)	19,17 (10,78)	0,23 (1,66)	11,68 (11,96)	-	18,8 (10,1)	0,11 (1,08)
ExpS	3,85 (5,57)	-	13,08 (11,84)	**0,15** (2,47)	7,28 (9,88)	-	13,6 (10,2)	-
Time	2,79 (291)	0,08 (1,14)	6,68 (6,64)	-	5,70 (9,10)	-	7,87 (7,96)	0,08 (1,76)
EdT	14,3 (3,48)	-	14,9 (2,75)	-	14,5 (2,64)	0,10 (1,64)	15,3 (3,38)	-
EdS	1,03 (1,08)	0,07 (0,97)	1,36 (1,21)	**-0,10** (-2,18)	1,11 (1,09)	-0,06 (-0,99)	1,38 (1,04)	**-0,08** (-1,87)
Age	26,4 (8,29)	**-0,44** (-3,19)	39,8 (10,8)	**-0,40** (-2,95)	32,1 (12,8)	-0,05 (-1,09)	40,1 (10,2)	**-0,22** (-2,04)
Empathy	0,71 (1,37)	-0,17 (-1,98)	1,03 (1,48)	**-0,13** (-2,47)	0,98 (1,39)	-	1,31 (1,49)	**0,09** (2,09)
Util	0,22 (1,38)	-	0,26 (1,40)	-	0,23 (1,49)	-0,08 (-1,54)	0,60 (1,32)	**-0,09** (-2,02)
RatioIn	1,12 (1,50)	0,12 (1,28)	1,39 (1,55)	-	1,21 (1,42)	**0,13** (2,05)	1,60 (1,47)	-
Trust	0,72 (1,19)	0,17 (1,67)	0,90 (1,24)	0,10 (1,88)	0,75 (1,26)	-0,08 (-1,21)	0,98 (1,21)	-
Elasticity	0,05 (1,19)	**0,13** (2,12)	0,923 (1,235)	0,06 (1,51)	0,02 (0,11)	**0,14** (3,11)	0,03 (1,14)	**0,18** (4,65)
Region	2,12 (1,38)	0,08 (1,20)	2,57 (1,51)	**0,15** (3,40)	2,42 (1,47)	**0,24** (4,98)	2,50 (1,46)	**0,15** (3,35)
Profession	3,88 (2,21)	**0,25** (3,36)	4,44 (2,41)	**0,16** (3,33)	4,39 (2,09)	**0,21** (4,04)	4,43 (1,83)	**0,16** (3,52)
HHIncom	9,60 (2,21)	-	5,80 (10,85)	0,06 (1,22)	13,6 (125,6)	-	5,48 (15,8)	-
Childrs	0,13 (0,43)	-	1,44 (0,82)	0,05 (1,26)	0,50 (0,80)	-	1,40 (0,82)	**0,11** (2,76)
Scale	2,50 (1,09)	-	2.59 (1.08)	-	2,50 (1,11)	-	2,27 (0,99)	-
Adjusted R^2	-	0,390	-	0,330	-	0,416	-	0,318
N	181		428		312		491	

IV. Discussion: Norms' and Education's Influences on Market Choices

If we return again to the table 2 data, we can find no significant correlation between years of schooling (EdT), professional learning (EdS) and the ILS elasticities (Elasticity) at different levels of labor market choices. Although correlations between some of the Institutional Values and the target function are marked by significant values of t-statistics.

The influence of EdT on labor market choices (on ILS types), as shown in table 3, is insignificant. Only special education (EdS), which is desired to correct the mistakes of general education and to improve it, influences the market decisions. But this influence is negative (except insignificant positive influence for unmarried men)! Assuming that higher levels of strategies are correlated with higher incomes one has to admit that education, if it is not desired to form norms and make the workers' adaptation to communications systems easier, is useless if not harmful for economic agents' success on labor markets.

Consequently the conclusion may be formulated as follows: the quality of education, above other criteria, can be measured by estimating the distribution of man's individual norms.

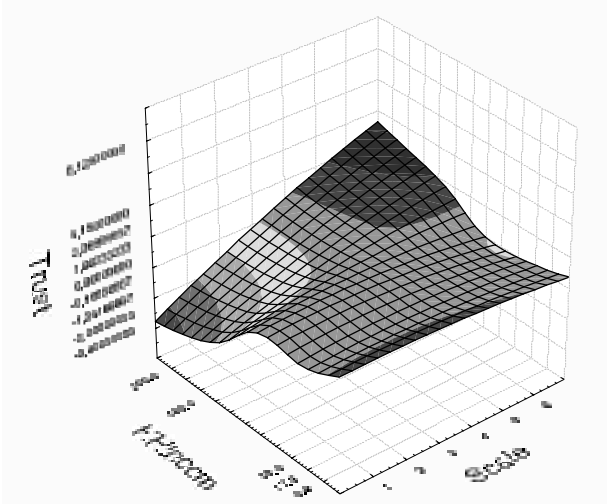

FIGURE 4. Interdependence between Trust values, household incomes and ILS curve types.

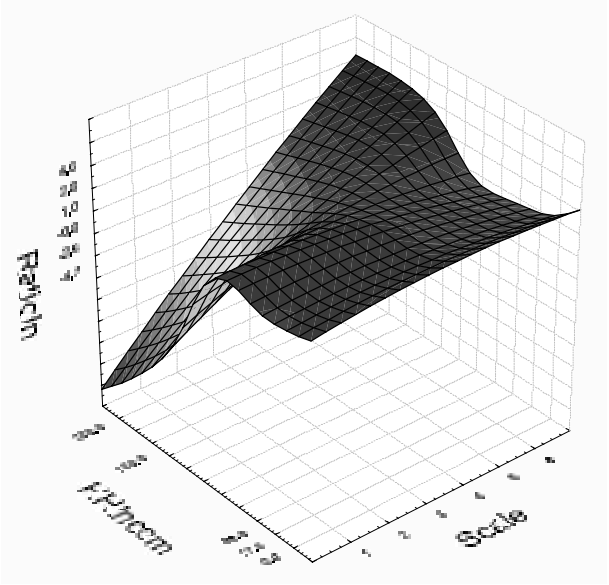

FIGURE 5. Interdependence between Interpretative Rationality values, household incomes and ILS curve types.

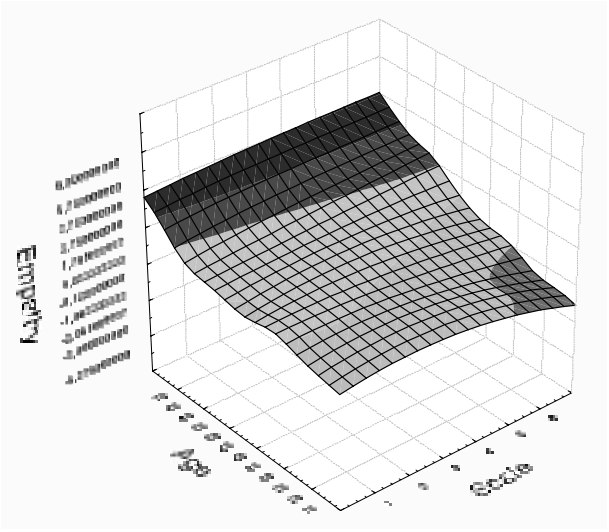

FIGURE 6. Interdependence between Empathy values, ages and ILS curve types.

Except other results our research demonstrates that changes in strategic choices are caused by or at least correlated with changes in individual institutional matrixes. This observation can be illustrated by 3D graphics made with the help of the distance weighted least squares method. Thus as shown on fig.4 workers from "richer" households demonstrate higher degrees of Trust for higher strategy levels, but the revealed correlation between Trust and household income (HHIncom) is negative for lower strategy levels.

The same kind of interdependence has been revealed for other norms (see for example fig.5). These interdependences differ in details but similar in common features.

Thus one may conclude that a change in strategy choice is preconditioned by changes in person's expectations and beliefs besides other factors.

But a worker's values and expectations structure is obviously expected to be changing with years. Surely it does, as the fig.6 and fig.7 show.

But this dynamic has almost nothing to do with the strategic choices on labor markets.

There is one more educational effect that deserves attention. The graphic on fig.8 demonstrate that the total years of schooling influence on norms differs at various strategy levels. It turns out that an individual institutional matrix may react negatively on surplus education. This reminds of the idea, once expressed by a russian XIX century publicist Belinsky, that surplus education spoils people.

But there arises a question, whether years spent at school or at another educational organization are really useful investment to the intellectual capital of an individual. And another question is about the results that one should expect from a "proper" education. It is impossible of course even to try to come closer to the understanding of the last question's essence in this paper, but we can mark a certain feature of the problem.

We should admit as a fact that people use worldly

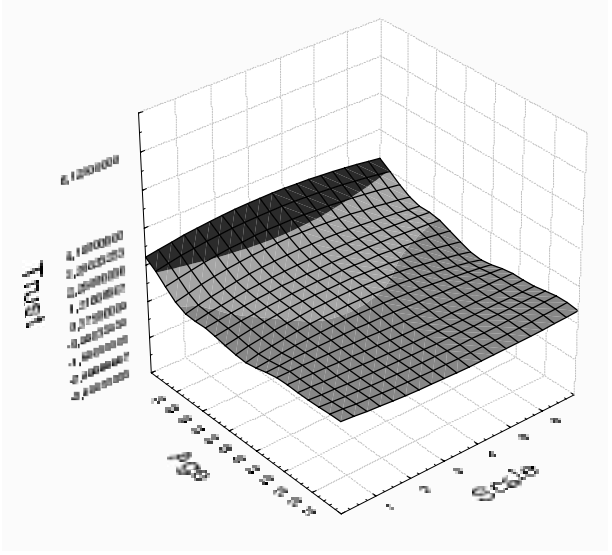

FIGURE 7. Interdependence between Trust values, ages and ILS curve types.

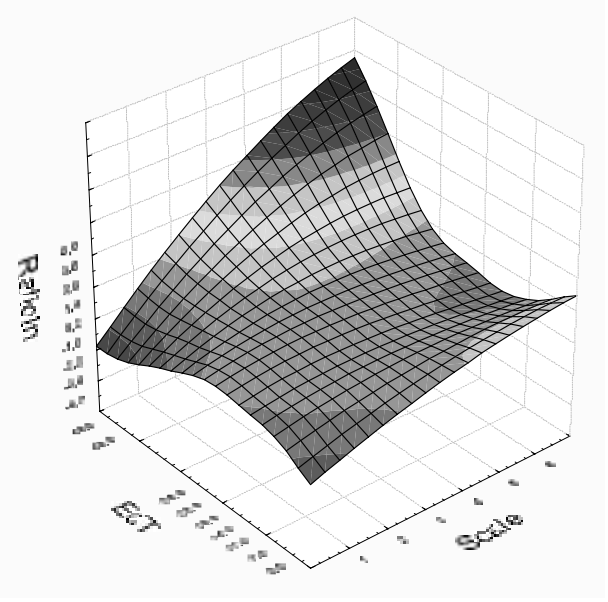

FIGURE 8. Interdependence between Interpretative Rationality values, years of schooling and ILS curve types.

knowledge and common cognition methods in their everyday activities. But common knowledge reflects only external showy characteristics of things and processes, that attract attention but are not always significant. The knowledge gotten from everyday observation is helpful in describing processes, in fixing their sequential stages, but it can not explain why something happens the certain way. This worldly knowledge guides the so called value-rational and traditional actions. We can address to the article of Zafirovski (Zafirovski 2003) for a more detailed description of social and economic actions types.

This state of nature may cause effects which are described as cognitive dissonances in economic psychology, threshold effects in labor economics, "institutional traps" etc. The matter is that in modern russian economy people use (and correlate their behavior according to) commonly known concepts, which do not correspond to their economic definitions. These are for example "money" that is often taken for "value" (or "capital"), "firm" which is frequently mixed up with a "household enterprise" (or the other way out) etc.

The situation becomes aggravated when the conditions change, which often happens in a transitive economy, and a person has to address the true essence of the word. But when, after having done a transaction or acting within the frameworks of a certain convention, as he thinks so, the person can not find the real object behind the false concept, the person finds himself puzzled in a cognitive dissonance situation.

Such was for example the voucher privatization case in the mid 1990-s in Russia. People had been told that this would be a market convention deal, – everybody would have a chance to get his or her own share of the former soviet economy welfare, and the public property ownership system would be exchanged for a good portion of Economic Freedom for new proprietors. But when the entire event was over, the reformers explained to the mass media and to the public, that this had been just an experiment, although certain groups of interest had gained much profit within the communitarian conventions frameworks. Consequently the overall level of Trust went as low as about 34%, when russian people discovered that newly self-made shareholders would not spend their positive external effects results on providing effective management and faire income distribution.

Intuitively or concisely people try to avoid such situations in their everyday activities. This argument might serve as an explanation for threshold effects observed on labor markets. Obviously one would expect that qualitative and quantitative characteristics of such thresholds, a worker is facing (or which matter for him), depend on quality of this

worker's education, on his work experience, on his experience of acting within the market conventional framework. But as we can see in the paper the effect of education is uncertain.

An explanation may be suggested, that in view of transition period uncertainty, aggravated by the inflation, behavioral patterns of russian workers (at least of those from "poor" households) shift downwards Veberian scale of rationality with the loss of welfare (measured as household income), as for example from a value-rational and Veblen-instinctive types to Hobbesian rational behavior or even to monade-type one.

In view of these findings the role of Education in economic socialization may be expressed in such a way, that one should teach norms especially market convention norms at earlier ages as possible. And no less attention must be paid to adult's awareness of professional and vocational economic norms as an element of professional education. Unfortunately it is not a common practice in Russian Educational System.

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A proposed methodology for development, mapping and performance measurement of customer relationship management strategies

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Abstract − One of the hot topics in business strategy today is the transformation of enterprises, large and small, to become customer-centric, while growing revenues and profits. This strategy is known as Customer Relationship Management (CRM). However, many of the CRM initiatives fail for a number of reasons, some of the most significant ones are the following (Gartner 2002):
− The board has little customer / CRM understanding or involvement
− Corporate culture does not have a relentless focus on the customer
− Lack of specifically designed, mutually reinforcing processes, i.e., strategy
− No measures or monitoring of benefits derived from CRM
The paper exhibits a methodology for the development, mapping and performance measurement of Customer Relationship Management (CRM) strategies. In the context of this methodology, a CRM framework and the related strategic performance measurement system are introduced. Both of them are based on the principles of the Balanced Scorecard (Kaplan & Norton). They are substantially variants of the Strategy Map and the Balanced Scorecard templates, shaped in such a way that meet the special needs and characteristics of CRM, as well as the new conditions of the contemporary business environment.

JEL classification: M15

Key words: CRM Strategy, Strategic Management, Customer Relationship Management

Introduction

CRM is a strategy whose outcomes optimize values as profitability, revenue, and customer satisfaction (*what* and *why*) by organizing around customer segments, fostering customer-satisfying behaviors and implementing customer-centric business models (*how*). CRM technologies should enable greater customer insight, increased customer access, more-effective customer interactions, and integration throughout all customer channels and back-office processes (*outcomes*).

The vast majority of firms do not understand how CRM creates value in their customer base. They have, therefore, failed to develop the unifying CRM strategy to build up this asset. Instead, CRM has been implemented in a piecemeal fashion, concentrating on building up capabilities from which, it is presumed, valuable customers will flow — without a CRM strategy, they won't. Setting up a call center or creating a portal on a Web site are capabilities that can be used, but in themselves they do not deliver more-valuable customers. A CRM strategy is required to give a coherent and structured approach to delivering more value to the business from its customers.

The question then is "What is a CRM strategy?" There is much confusion between a CRM business strategy and a CRM implementation plan. Many or-

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ganizations think they have a CRM strategy when, in fact, what they have is a plan to build capabilities. A CRM strategy is a blueprint for turning an organization's customers into an asset by building up their value, based on an understanding of how an organization's competencies can be used to create value propositions for customers and market segments that offer the most value potential, and then systematically developing that potential. An implementation plan states how an enterprise will build the new capabilities it needs to achieve this.

Moreover, measurement is increasingly being looked upon as the "missing ingredient" in today's CRM strategies. The enormous failure rate of CRM initiatives is forcing many organizations to look beyond the promises of technology and return to a basic tenet of business management - *what gets measured gets done,* or, better expressed*, in order to improve something you must first measure it*. But, to drive CRM performance, not just any measurement system will do. What's needed is a strategic measurement system that specifically links CRM strategy and customer profitability objectives to metrics that drive CRM performance throughout the organization.

A. Proposed Methodology for development & mapping of CRM Strategies

The development and mapping of a CRM Strategy is proposed to include the following steps:

1. Development of CRM vision

The CRM vision is the picture of what the customer-centric organization aims to look like and what intends to be to its target customers. Without a CRM vision, customers and other stakeholders will not have a clear image of what the organization offers in relation to the competition, or an idea of what to expect when they deal with it. Additionally, employees will not know what to deliver, and organizational collaboration will be difficult.

A CRM vision starts with understanding what drives market demand, as well as the market position of the organization and its competitors, relative to those drivers. CRM vision is a core business proposition to customers, which they will really value and which stand out from the competition. It should be a clear declaration of intent around which a distinctive customer value proposition and organization culture can be built.

2. Segmentation of the customer base, and selection of the target segments

CRM focuses on strategically significant customers. Not all customers are equally important for a firm. The Pareto principle suggests that 80% of a firm's profits is generated by 20% of its customers. McKinsey, the consultancy, reports that some 30-40% of the typical firm's revenues are from customers who would be unprofitable if treated on a fully costed, stand-alone basis.

Depending on their attractiveness, customers can either be segmented according to their profitability potential (profitability - oriented customer segmentation) or in terms of their regaining probability (success oriented customer segmentation). Methods for analyzing the profitability of customers are for example ABC analyses (e.g. classification of customer segments in order of their contribution), scoring models (evaluation by means of several weighted criteria) or customer-lifetime-value (*CLV*) calculations (considerations of future contributions).

CLV is widely used as the basis for classification of customers, and is recently identified as a standard by the Database Marketing Institute (Hughes 2002). Given that the CLVs address the future values and consequently are not known in certainty, it is important for a firm to be able to assess these specific customers that have the best prospects for a high CLV. One method for the assessment of the potential of a customer to have high CLV is the Customer Portfolio Analysis (CPA) (Buttle 2000).

3. Setting of CRM objectives for the chosen segments

At the heart of a CRM strategy are the objectives. These give measurable and specific targets for how corporate financial goals are to be achieved efficiently through acquiring, developing and retaining customers of value. It is the achievement of corporate goals through customer objectives that makes an enterprise customer-centric.

Without an active connection to the business strategy, the CRM strategy is quickly viewed as an academic exercise and disregarded. The objectives of a CRM strategy should arise from and be linked with the corresponding ones of the overall business strategy. They may be financial (like cost reduction) or relationship objectives (like enhancement or development) focusing, in either cases, to the custom-

ers who meet the segmentation criteria and fall into the target segments which resulted from the previous step.

4. Setting of Customer Value Propositions for the selected segments

The aim of all businesses is to create a value proposition, be it implicit or explicit, which is superior to and more profitable than those of competitors. In specific usage, a 'value proposition' is the offer defined in terms of the target customers, the benefits offered to these customers, and the price charged relative to the competition (Bower and Garda 1985).

The Customer Value Propositions (*CVPs*) should always be determined from the customers' point of view rather than the company's.

M. Treacy and F. Wiersema (1995) argue that enterprises that use a business strategy to emerge as market leaders excel in at least one of the following three generic value disciplines, and are as good as competition in each of the others:

1. *Operational excellence*
2. *Product/service leadership*
3. *Customer intimacy*

Lessons can be learned from the model that can be applied to CRM. The trap many firms fall into is in equating customer intimacy with CRM itself when, in reality, the customer may not value intimacy and may set a higher value on a low price or a superior product. Firms that develop a CRM strategy should identify the balance of needs by each selected customer segment in the above three areas – disciplines. The initial CVP should at a later stage be turned into an outline of what the customer experience should be for different situations and contact points / channels. Ideally, this should be the desired future customer experience.

5. Mapping and translation of the CRM Strategy through development of the proposed framework

The strategic framework comes in consecution to map and to frame all the above in a structured and coherent strategy. This framework virtually constitutes a Strategy Map (Kaplan & Norton 2004), suitably formed and altered in order to satisfy and address the specific needs and particularities of CRM.

Its main alteration lies in the adoption of 4 perspectives that are differentiated from the ones that constitute the original Strategy Map template and the corresponding Balanced Scorecard (*BSc*) (Kaplan & Norton 1996, 2004). These altered perspectives visualize in a better and neater way a CRM strategy, which is focused in the relationship with the customer. The choice of them was based on the BSc principles in order to be as balanced as possible.

It is a common practice, the perspectives of a BSc, and consequently of a Strategy Map, to be altered from the original ones, depending on the specialties of a strategy or a class of strategies (Tiwana 2001). Based on this concept, we deem that the prospect for success of a CRM strategy will rise via the proposed strategic framework and the related BSc. This argument relies on the fact that a CRM strategy has several particularities and incorporates the majority of recent business trends of digital economy. Moreover, a CRM strategy is relevant for most of the companies that wish to succeed in the contemporary business environment, which is increasingly demanding and competitive. Thus, this proposal is based on the specific CRM needs and characteristics while, at the same time, incorporates the new trends and aspects that are imposed by the contemporary business environment and the transition towards a digital and customer-focused economy.

The perspectives of the proposed framework are the following:

- Financial
- Relationship Capital
- Structural Capital
- Human & Organization Capital

While the corresponding perspectives of Strategy Map template (Kaplan & Norton 2004) are the following:

- Financial
- Customer
- Internal Processes
- Learning & Growth

The alteration regarding the Strategy Map is described in the following strategic perspectives:

- Financial

The financial perspective mimics that of Strategy Map, reflecting the strategic financial objectives for the targeted customer segments. However, it focuses on the financial results that are derived from CRM, that is, from the relationship with the selected customers.

- Relationship Capital

The Relationship Capital perspective focuses on the relationship between the company and its chosen customer segments, since this constitutes the focus of CRM. It reflects the strategic relationship objectives, which are to be achieved through addressing the suitable Customer Value Proposition to targeted customer segments. Still, it does not neglect the relationship with suppliers as well as the other factors that are related to the customer perspective, as much as they affect the relationship with the customer.

- Structural Capital

The Structural Capital perspective includes not just internal business processes but business models in whole. Business models are comprised of internal business processes and the corresponding affiliated informational technology and other systems, which act as their enablers and enhancements. Consequently, it focuses on customer relationship affined business models, that is, process and technology systems related objectives.

- Human & Organization Capital

The Human & Organization Capital comprises of the Human Resources development and the Organization's culture evolvement. These two categories of intangible assets enable the organization implement its CRM strategy. Their alignment to the relationship with the customer is a prerequisite for the strategy implementation. The customer knowledge formation, management and sharing throughout the organization is also included in this perspective.

The CRM strategy framework is a powerful instrument for mapping and understanding the CRM strategy. It clearly and visually outlines the specific objectives of an organization's CRM strategy and the specific cause-and-effect links by which these objectives will be achieved. Like Strategy Maps, the proposed framework is a powerful communication tool, giving everyone in the organization a clear picture of what their organization's CRM strategy is and how they can contribute to CRM success.

CRM strategy framework consists of three key components:

- Strategic perspectives
- Strategic themes
- Strategic linkages

A graphical representation of the CRM strategy framework template is shown in Figure 1. Together with the above-mentioned three key components of the framework, the Customer Value Proposition and the Key Success Factors (*KSFs*) are represented, as they are also important components of the framework.

CRM strategy objectives and Key Success Factors

Key Success Factors (KSFs) represent the strategic objectives and reflect the critical outcomes desired for each CRM strategy perspective. The exact number of success factors will be dependent upon an organization's unique CRM strategy. A typical norm is two to five key success factors per perspective, which will lead to about 20 to 30 measures being required in the associated CRM BSc (Kaplan & Norton 2004).

Additionally, in order to maximize the effectiveness of the associated CRM BSc, the KSFs selected should meet all of the following criteria (Brewton 2001):

- Be measurable and controllable by the organization
- Be devoted to a single perspective
- Be individually necessary and collectively sufficient to achieve the CRM vision
- Begin with "We must…"

Cause-and-effect linkages

The directional arrows presented in figure 1, indicate that the KSFs are linked together in a specific sequence forming cause-and-effect chains through which the CRM strategy objectives will be achieved. In that way the strategic drivers result to strategic outcomes.

Strategic themes

Strategic themes are defined as those critical few processes that are the most important for creating and delivering the differentiating CVP (Kaplan & Norton, 2004). In our proposal we extend this definition in order to include the supporting and enabling systems of these processes, which are closely linked with them, forming the critical few business models. Strategic themes, i.e. value-creating models, articulate the dynamics of a strategy. Each of them composes a distinct, yet not independent and often overlapping, cause-and-effect chain of driv-

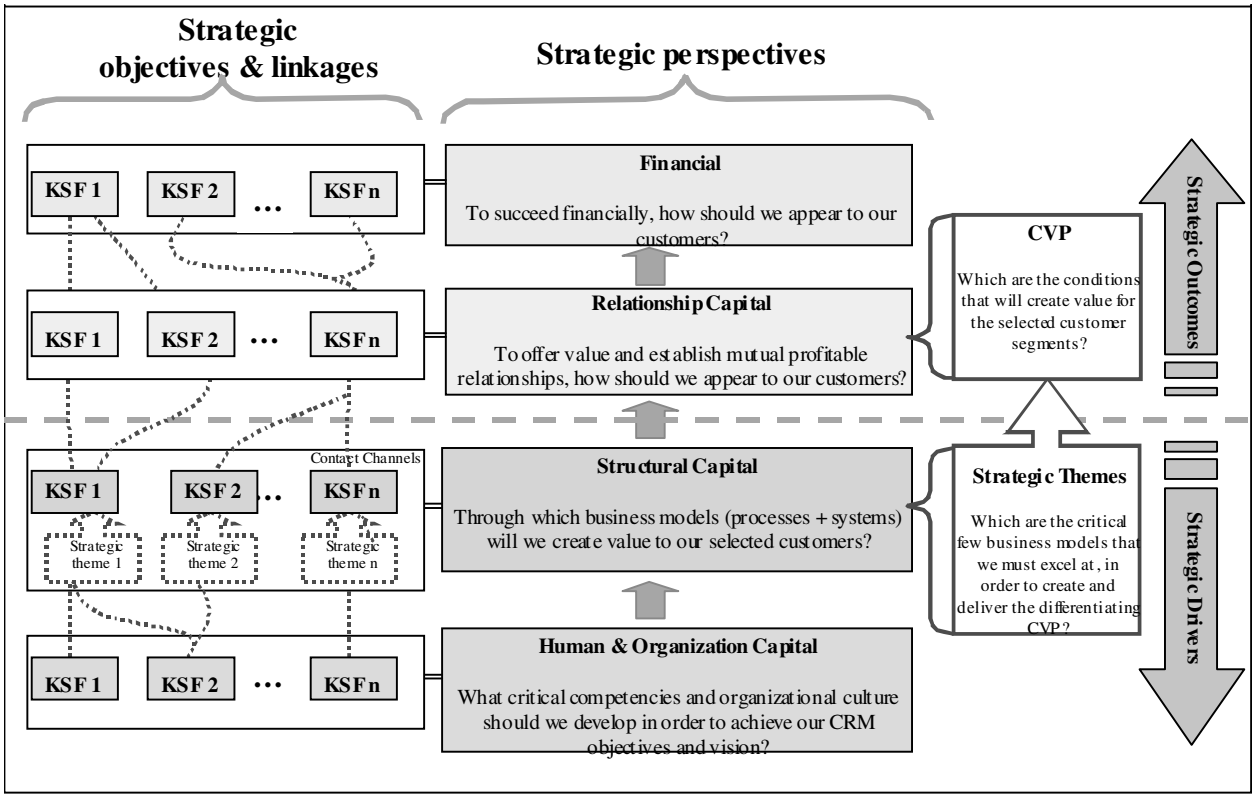

FIGURE 1. CRM strategic framework template.

ing and resulting objectives. This chain consists of the related to a certain theme objectives that derive from the four perspectives and the strategic linkages between them. Thus, CRM strategy consists of simultaneous, complementary themes**.**

The objectives and the corresponding KSFs are derived from a top-down systematic process driven by the CRM vision and the overall objectives of the CRM strategy. The directional arrows on the CRM strategy framework indicate that the KSFs combine to create a cause-and-effect chain of events that drive strategic CRM outcomes. It must be stressed that in selecting CRM strategy KSFs, great care must be used to ensure that those chosen are both necessary and sufficient for maximizing CRM strategy success for targeted customer segments through delivering the defined value propositions. This sequential, top-down process will usually reveal entirely new business models - processes plus systems - at which an organization must excel.

B. Proposed Methodology for CRM strategic performance monitoring and measurement

For a CRM strategy, which has been developed and mapped based on the proposed framework, to be successful it is necessary a suitable strategic performance measurement framework to be developed. Such a framework should not only enable the organization to monitor and measure the performance of a CRM strategy, but also drive the strategy itself, increasing its success potential. It should also clarify and translate CRM strategy by linking strategic objectives and measures and communicating them to all organization's stakeholders.

The proposed framework virtually constitutes a Balanced Scorecard (Kaplan & Norton, 1996), suitably formed and altered in order to address the specific needs of CRM, and follows the structure and content of the proposed CRM strategic framework. Substantially, this framework, namely CRM Balanced Scorecard (*CRM BSc*), forms a new proposal for the strategic performance measurement of CRM strategies.

The perspectives that constitute the proposed CRM BSc are, respectively to those of the proposed CRM strategic framework, the following:

- Financial
- Relationship Capital

- Structural Capital
- Human & Organization Capital

The steps of development and building a CRM BSc are the following:

1. Selection of CRM strategic measures
   a. Selection of Key Performance Indicators for CRM BSc
   b. Creation of CRM Scorecard
   c. Establishing Key Performance Targets for CRM BSc
2. Development of the overall final CRM BSc
3. Design an action plan with strategic initiatives needed for the implementation of CRM strategy

The paper covers steps 1 and 2, whilst for the third, as for the complementary steps that are proposed in the end, a simple reference is made, because they extend beyond its scope. An implication for further research is to look at the issues involved in these steps in relation to CRM.

1. Selection of CRM strategic measures

The process of building the BSc follows the successful completion of a CRM strategic framework and, like developing an effective CRM strategic framework, it should follow a systematic approach.

a. Selection of Key Performance Indicators for CRM BSc

The first step is to select the strategic CRM measures, that is the Key Performance Indicators (*KPIs*) of CRM strategy. In selecting CRM KPIs, it is important to keep in mind the two criteria of good strategic measurement systems (Kaplan & Norton, 1996):

- Measures (KPIs) selected should accurately measure current performance of the objectives (KSFs) for which they are intended
- Measures (KPIs) selected should predict future performance for desired strategic outcomes

The basic questions that needs to be answered is the following:

"which are the KPIs for each defined CRM strategy KSF;"

Substantially, KPIs comprise the specific measures that most accurately represent the performance that is achieved for every selected KSF. There are two basic types of KPIs: *leading indicators* and *lagging indicators*. Leading indicators are "cause" indicators – performance drivers, while lagging indicators are "effect" indicators - outcomes. Leading indicators are a critical component of CRM BSc as they serve as early warnings of potential problems in achieving selected KSFs. In actuality, most KPIs serve as both lead and lag indicators (Brewton 2001). The linkage of these two types of KPIs form a cause-and-effect chain of the following form:

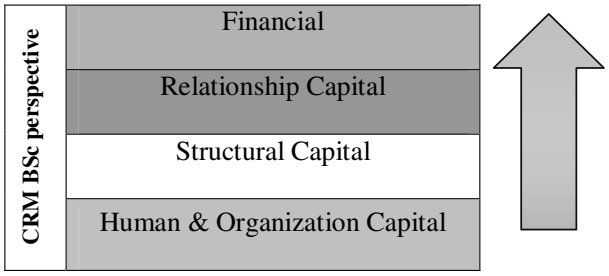

FIGURE 2. Flow of KPIs selection process (bottom-up).

"If leading indicator (cause), then lagging indicator (effect)"

To ensure that only the best KPIs are selected for use in the CRM BSc, the number of them should be limited to no more than two KPIs for each KSF. Additionally, the ideal is to have one leading and one lagging KPI for each KSF.

An important issue to be faced is the organization's current capabilities for capturing and reporting performance for selected measures. At the start of a strategic CRM measurement initiative it is unlikely an enterprise will have in place the capability to capture and report performance for every strategic measure (KPI) necessary to manage and maximize CRM performance. This shortfall, however, should be considered only temporary and not deter an organization from selecting the best measures for monitoring its CRM strategy. Overtime, the ability to track performance for all of an enterprise's strategic CRM measures can be implemented.

The process of KPIs selection follows the inverse path of the KSFs selection process. That is, the KPIs are derived from a bottom-up process (Figure 2) beginning with the Human & Organization Capital perspective, up to the Financial perspective. The process is completed when all strategic measures (KPIs) for all CRM strategy perspectives have been discussed, evaluated and selected. With KPIs selected, a corresponding Measure Profile that describes key information about each selected KPI should be completed.

The evaluation of each KPI is based on the clear substantiation it supports the performance of its perspective's key success factors and, as a result, drives desired strategic CRM outcomes, through the cause-and-effect chain.

b. Creation of CRM Scorecard

Once all recommended KPIs have been discussed and approved, the creation of a preliminary CRM Scorecard follows. A design principle that refers to the building of a BSc, and therefore applies to the CRM BSc, is the following (Kaplan & Norton 1996):

"Measures in the (CRM) BSc should be both necessary and sufficient to drive and maximize enterprise (CRM) performance"

Once the preliminary CRM Scorecard has been developed, the overall review of the selected KPIs follows, guided from the above-mentioned principle, until a consensus is reached on those to be used in the CRM BSc.

c. Establishing Key Performance Targets for CRM

With CRM strategy KPIs selected, the next step is selecting and establishing Key Performance Targets (*KPTs*) for each CRM Scorecard measure. To maximize CRM strategy performance, selecting the right performance targets is as important as selecting the best measures. This process should begin with the establishment of performance targets (KPTs) for each measure (KPI) in the financial perspective, following a top-down flow (Figure 3), Then, it should proceed through the CRM BSc, selecting performance targets for each measure in each perspective that will enable the achievement of desired strategic CRM outcomes. This process flow is critical in effectively aligning performance targets with their intended goals.

A key performance target (KPT) is the desired performance level for a single KPI. Careful thought must be used to arrive at performance targets that will positively and measurably support the achievement of the organization's CRM vision. To select the proper KPTs, a variety of performance target scenarios should be examined and modeled accordingly. Performance targets should represent what is needed and not necessarily what is currently possible.

When calculating performance results, the use of different types of metrics (i.e., percents, integers and monetary values) can present a challenge. To remedy this a standard 1 - 10 scale for each KPI can be employed, that will "normalize" the score. Normalization allows for easy averaging of all performances for selected KPIs within each perspective and for determining overall CRM strategy performance.

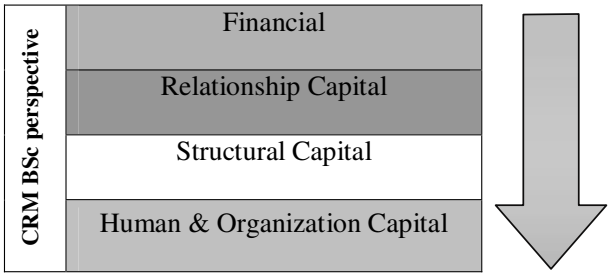

FIGURE 3. Flow of KPTs establishing process (top – down).

To provide the greatest accuracy in performance results, the KPIs selected for use in the CRM BSc can be weighted based upon their relative importance in maximizing performance in their respective CRM BSc perspective.

Once selected, KPIs should be reviewed on an overall level, until a consensus can be reached on the performance targets for each CRM BSc perspective. Having completed the process of establishing KPTs, a complete CRM Balanced Scorecard is ready to be developed.

2. Development of the overall final CRM BSc

With performance targets selected for each CRM BSc measure, the development of the complete CRM Balanced Scorecard follows, to communicate and drive CRM strategy performance. The CRM BSc template structure is presented in figure 4.

While the CRM strategic framework maps the linkages through which the strategic objectives and key success factors will be achieved, CRM Balanced Scorecard defines the measures – key performance indicators and the key performance targets that will drive and contribute to the success of CRM strategy.

3. Design an action plan with strategic initiatives needed for the implementation of CRM strategy

After the completion of building a CRM BSc, the design and selection of an action plan of strategic initiatives follows. These initiatives will drive the implementation of CRM strategy and, consequently, the accomplishment of its strategic objectives. Specifically, the chosen initiatives will enable the achievement of the selected KPTs that relate to corresponding KPIs of the CRM BSc.

The paper does not cover this important step as well as the equally important complementary steps

which are outlined below, and, all together, are necessary for the establishment of a complete strategic performance measurement framework for CRM strategies. The reason is that they extend beyond this paper's scope. Nevertheless, they form an interesting field for further research, and as such they are proposed.

Complementary Steps

The greater effectiveness of CRM BSc will be achieved through its farther development, which can be accomplished with the following steps:

- Cascading of CRM BSc through the organization
- Selection and Implementation of CRM performance reporting system
- Entrenchment of CRM strategy measurement in Organizational Culture

Conclusions and Implications

The proposed methodology and the corresponding models resulted from the need for development of successful CRM strategies. CRM is a strategy focused on the customer, which heavily relies on mutually beneficiary, long term relationships between the organization and its customers, while based on proper organizational culture, business models and customer knowledge. It includes new business practices and exploits new technology applications and systems. Therefore, classical Strategy Map and BSc cannot fully align, map, and evaluate the performance of CRM strategies.

This paper contributes to the body of academic literature on CRM strategy development, mapping and performance measurement by combining the Strategy Map and Balanced Scorecard models with the new theories for Digital Capital and Knowledge Management into a methodology using a proposed CRM strategic framework and CRM BSc. Managers faced or will face with CRM strategies and CRM in general may also find the methodology, in whole or some of its parts, useful. An implication for further research is to look at the proposed steps for further developing the CRM BSc.

The proposed methodology is an attempt to help organizations on one hand to realize how to develop and exploit CRM, and on the other hand to be in a position to evaluate and improve its outcomes, through a thorough understanding of what CRM offers and how it contributes to their business vigor and success.

A CRM Strategy Framework and the corresponding CRM BSc enable an organization to clearly define and communicate its CRM strategy to all stakeholders. While requiring some effort, they provide an organization with many additional and strategically important benefits. Specifically, they can help organizations to:

- Communicate strategy throughout the organization
- Clarify confusing aspects of CRM strategy
- Forge alignment among the CRM strategy team
- Discover costly "strategic misalignment" of key success factors and objectives
- Identify missing key success factors and objectives critical to CRM success
- Illustrate the integrated and holistic nature of a successful CRM strategy
- Develop a common language for discussing CRM strategy
- Align departmental and personal goals to the strategy
- Identify and align strategic initiatives
- Obtain feedback to learn about and improve strategy
- Outline what should be measured to manage and continuously improve strategic CRM performance
- Link strategic objectives to long-term key performance targets and annual budgets

Still, a case study should be used in order to practically confirm the usability and adequacy of the proposed methodology and the two models, CRM strategic framework and CRM BSc, that is composed of.

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NOTES FOR CONTRIBUTORS

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Magdalinos, M., 1990, "The Classical Principles of Testing Using Instrumental Variables Estimates", *Journal of Econometrics,* 44, 241-279.
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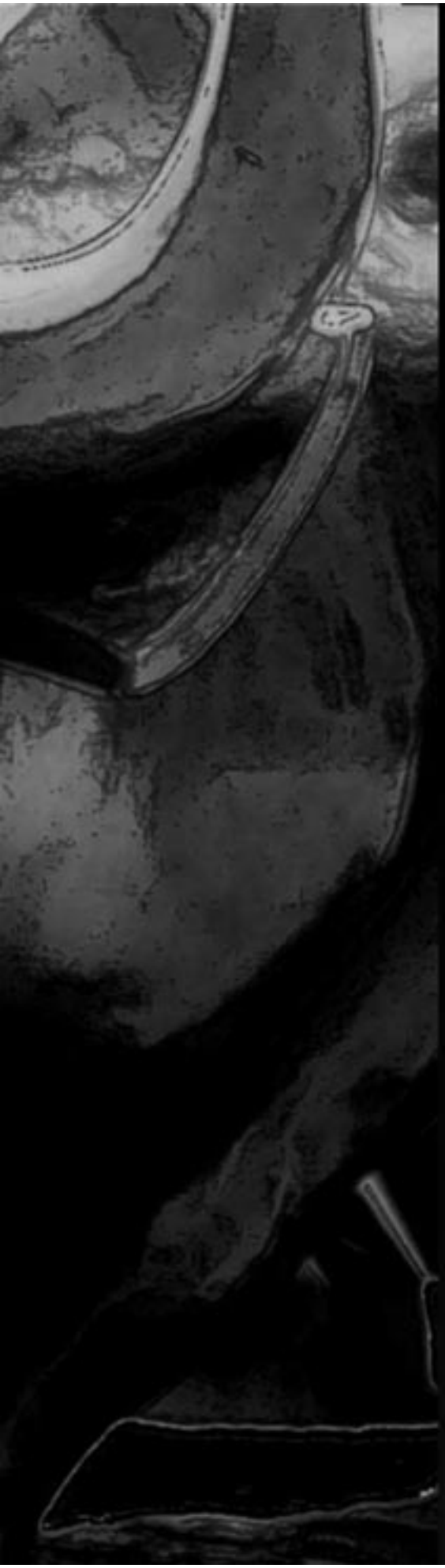

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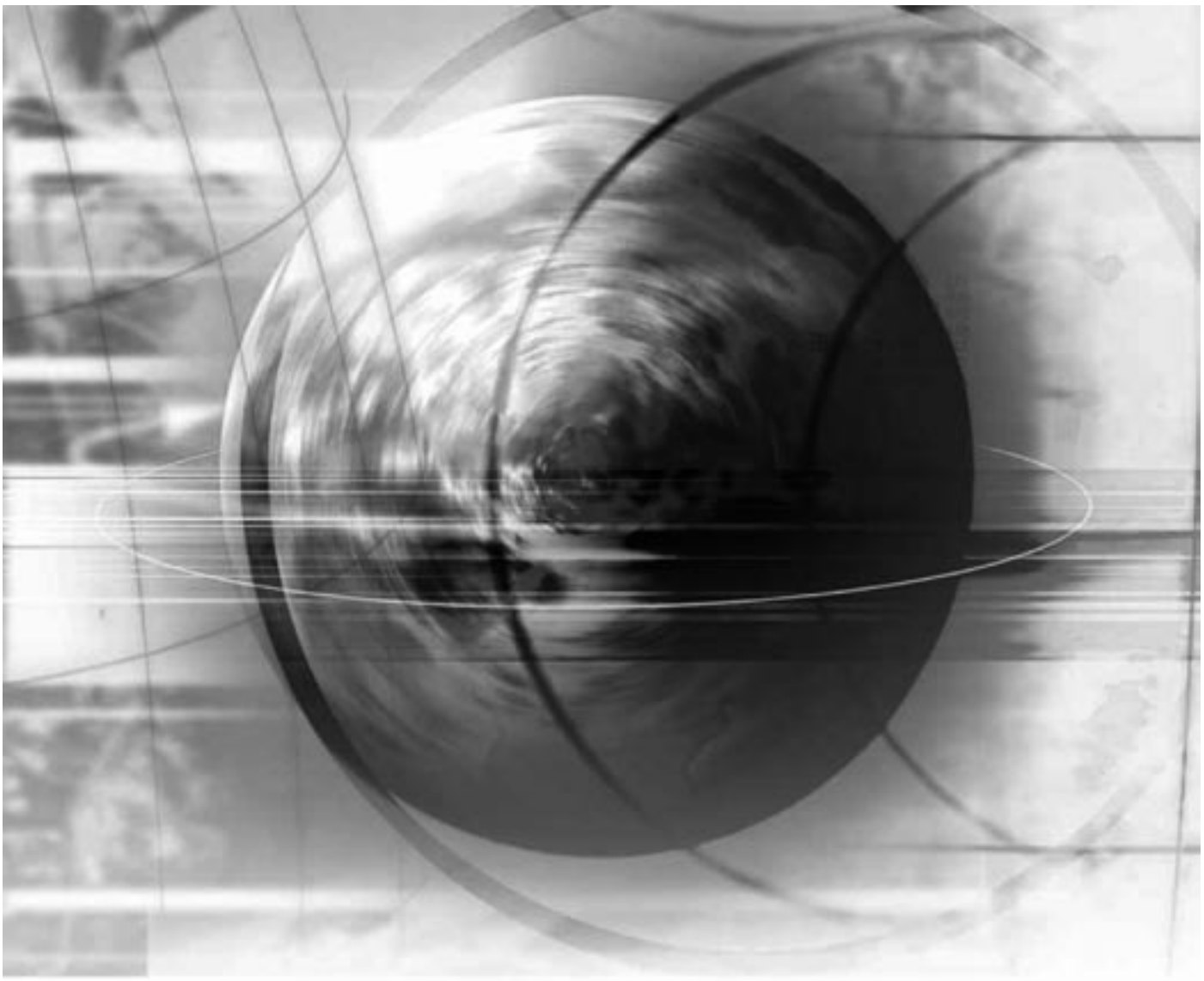

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