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The Impact of Outsourcing on Business Performance: An Empirical Analysis

Luca Giustiniano

Luiss Guido Carli University, Rome, Italy

Giulio Clarioni

Cassa Depositi e Prestiti SpA (CDP SpA), Rome, Italy

Corporate decisions related to “make or buy” have significantly changed over the last 20 years, since the rush towards concentration on core business of the 1980s has progressively lost grasp. Although long-term alliances and mega deals are replacing the existing spot contracts, both academic literature and managerial practices still lack appropriate models for coping with such decisions. As a consequence, the traditional accounting approach, extensively based on emerging costs and cost savings, seems to be less and less effective in the governance of such phenomena. On the other hand, the managerial literature still suffers significant gaps in modeling the relations between outsourcing and business performance. The attention paid to the subject in past decades has not been matched by the rigor in assessing the actual impact on business performance. This paper aims to fill some of the existing gaps by presenting an original empirical study based on the analysis of the impact of outsourcing decisions on business performance.

Keywords: outsourcing, financial performance, firm boundaries

Introduction

The configuration of the value chain and the definition of the perimeters of influence of the firm are the pillars for companies’ business models. The decisions related to “make or buy” evolved during the past 20 years, generating a wide range of possible solutions of outsourcing (from smart sourcing to offshoring). In general terms, by recurring to outsourcing, companies have to deal with a very sensitive equilibrium between internal activities and external purchases. Figures from the OECD STAN database¹ show that despite outsourcing has reached its peak of popularity during the late 1980s and the 1990s boosted by the rush to corporate downsizing and the reengineering bandwagon, it has been growing over the last decade by rate of 30%-35% until 2007 (revenues per year), and a restart is expected by 2011 (OECD, 2007).

The basic model of confronting emerging costs and cost savings is still dominant, despite the several

Luca Giustiniano, Ph.D., associate professor of Management, Luiss Guido Carli University.

Giulio Clarioni, interest rate structurer and equity derivatives trader, Finance Department, Cassa Depositi e Prestiti SpA (CDP SpA).

Correspondence concerning this article should be addressed to Luca Giustiniano, Ph.D., associate professor of Management, Luiss Guido Carli, DIM, Via Salvini 2, 00197 Rome, Italy. Tel.: +39 0585225946. Email: lgiusti@luiss.it.

¹ OECD STAN database is the structural analysis database of Organization for Economic Cooperation and Development. Latest release at the time of submission (March 1, 2011): OECD countries—time period of 1970-2009 (Retrieved from <http://www.oecd.org>).

theoretical perspectives by which the subject has been analyzed in several fields of management. In actual terms, it seems that because of its multi-faceted nature, outsourcing is still far from being defined, studied, and practiced as a homogenous phenomenon, mostly when it comes to performance evaluation.

In managerial terms, the outsourcing practices have varied a lot over the past two decades, spanning from the externalization of support activities to some core processes, from primarily service-based activities to productive processes, such as in the case of modular production (Brusoni & Prencipe, 2001; Prencipe, Davies, & Hobday, 2003). Today, firms manage a portfolio of outsourced activities that may include relatively low-skill activities (e.g., call centers) as well as knowledge-intensive services (e.g., market research and analysis). The present scenario sees the flourishing of information technology (IT) outsourcing (Tettelbach, 2000), the increasingly widespread of finance and accounting outsourcing (FAO) and medical outsourcing, and the emergence of knowledge process outsourcing (KPO), a very promising niche within the broader concept of business process outsourcing.

Moreover, although outsourcing practices have once been embraced with a general favor, the widening of their span has inevitably clashed with some pressures by internal and external stakeholders. The generally aspicated strategic focalization around firms' core businesses is not any more the sole explanation for outsourcing, while globalization is enabling multiple sourcing, global outsourcing, and offshoring. As a consequence, firms are not exposed to the mere coordination of value chain activities at an inter-organizational level. More and more, they have to face issues related to knowledge management, lack of specialization, know-how, labor protection (Slack, Chambers, & Johnson, 2004; Staiger & Antràs, 2008; Ruiz-Torres & Mahmoodi, 2008), and even protectionism aims.

The described enhanced complexity of the supplier-customer relations in outsourcing calls for a deep reflection on its definition and actual span of action. Broadly speaking, outsourcing refers to the acquisition from outside the firm of inputs, services, or processes (Amiti & Wei, 2005; Boldea & Brandas, 2007). Other scholars view outsourcing as an element of the overall firm's strategy, implying a decision by the firm not to make a service/product internally and instead purchase it externally (Quinn & Hilmer, 1994; De Fontenay & Gans, 2008), while others focus on global sourcing and define outsourcing as the integration and coordination of production and marketing on a consolidated basis (Kotabe, 1990; Murray, Kotabe, & Wildt, 1995). Further, other scholars emphasize the relational nature of the decision to outsource.

In this paper, the authors refer to outsourcing as the procurement of supplies or services related to a whatever value chain activity from legally independent firms (outsourcers). More specifically, outsourcing is defined as domestic, if firms source from suppliers from the same (home) country, whereas offshoring refers to the practice of outsourcing business functions in another country in order to reduce costs, typically where the costs of labor are lower.

This paper presents an empirical analysis conducted on a final sample of 84 companies (matched with an equivalent sample), taking into consideration various aspects relevant for outsourcing: business performance, costs structure, labor force, business performance compared with the reference industry, and financial structure of the company.

This paper is structured as follows. Section 2 presents the construction of the theoretical framework and presents a critical analysis of the main explanatory theories which have been used for dealing with outsourcing, namely, transaction costs economics (TCE) and resource-based view (RBV). Section 3 depicts the model and hypotheses, whereas Section 4 presents the methodology used for the empirical analysis, while the following

sections show the main findings. Sections 6 and 7 contain the discussion of results and illustrate the limitations of this study.

Theoretical Framework

Outsourcing has been considered as a field of investigation in many different fields, spanning from the management of information systems to the international business (Marchegiani, Pirolo, Peruffo, & Giustiniano, 2010; Mayer & Salomon, 2006; Rothaermel, Hitt, & Jobe, 2006). Despite the heterogeneity of its definition, scholars agree that the decision to outsource concerns a reliance of firms on external sources of inputs, services, processes, or other value-adding activities (Amiti & Wei, 2005; Lei & Hitt, 1995; Gilley & Rasheed, 2000), balancing the span of activities that a firm performs internally versus those that are acquired from outside (Arnold, 2000; Espino-Rodríguez & Padrón-Robaina, 2006; De Fontenay & Gans, 2008). Lacity and Hirschheim (1993) and Barthélemy (2001) both agreed on defining outsourcing as the decision to outsource activities previously made in-house by recurring to medium- or long-term agreements, also including the transfer of activities and personnel to third parties. This perspective is also compatible with the further development of the phenomena of outsourcing that have been registered during the past decade, i.e., offshoring, global sourcing, smart sourcing, etc..

As a result of these diverse perspectives in research, studies often produce contradictory results (Kotabe & Swan, 1994; Mol, van Tulder, & Beije, 2005). Such a heterogeneous puzzle implies that scholars and managers have to face some unanswered questions (De Fontenay & Gans, 2008): the impact of outsourcing on the performance among others. Although it has not always been specified in clear terms, the main motivation (antecedent) and expected result (outcome) turn around the potential contribute to the value creation through the potential decrease of direct and indirect costs related to some activities of the firm. In order to explain the motivations and the outcomes of outsourcing, TCE and RBV are the two most evocated theoretical streams in such field (Espino-Rodríguez & Padrón-Robaina, 2006; Mayer & Salomon, 2006; Reitzig & Wagner, 2010).

Based on the seminal works of Coase (1937) and Williamson (1975), TCE assesses the choices between self-producing (internal transactions) and outsourcing activities (market transactions) by comparing the internal costs (hierarchy) and the costs of “using” the market (Jones & Hill, 1988). Nevertheless, subsequent research has shown that TCE may overrate rationality in firms’ behaviors due to a lack of cognitive capacity to assess appropriability (Oxley, 1997; Pisano, 1990) or observability (Hölmstrom, 1979). Further, from a TCE perspective, it seems that outsourcing becomes crucial when markets are not able to allocate resources and reduce uncertainty. In this sense, outsourcing could represent a means of reducing selection, negotiation, reorganization, and control costs (Coase, 1937), particularly when the resource dependence of companies (Pfeffer & Salancik, 1978) is high. Additionally, some limits of “indirect assessment” and a lack of rigor in measurement characterize the translation of Williamson’s (1975) original idea of “specificity” into object specificity (Arnold, 2000), asset specificity (Aubert, Rivard, & Patry, 2004), and brand specificity (Chen, 2009).

The RBV provides some useful insights to avoid these limits of “over-rationality” typical of the TCE. In particular, considering the antecedents for outsourcing, the RBV approach shows that the decision to outsource is taken according to a firm’s capabilities compared with those of its suppliers. Espino-Rodríguez and Padrón-Robaina (2006) divided this perspective into two categories: (1) a focus on “the propensity” to outsource; and (2) the “relation” between the decision to outsource and organizational performance. Combining

the TCE and RBV, Mayer and Salomon (2006) found that “contractual hazards” provided firms with an incentive to internalize, independently of firms’ capabilities. However, in the presence of weak technological capabilities, it is more likely that firms will outsource. Therefore, RBV complements TCE in the treatment of outsourcing by focusing on the positive aspects of in-house strategic activities (Espino-Rodríguez & Padrón-Robaina, 2006) and resources (Prahalad & Hamel, 1990). Notwithstanding the consistent amount of papers using RBV to complement TCE, the extant literature focuses either on the propensity to outsource or on outsourcing’s relation to organizational performance (Espino-Rodríguez & Padrón-Robaina, 2006) but often ignores the implementation dynamics (process) and the related costs. Two important exceptions are represented by the idea of “governance capability” proposed by Mayer and Salomon (2006) and the evolutionary perspective on vertical disintegration introduced by Mahnke (2001).

Despite the significant number of papers, some main controversial points still characterize the extant literature. The first concern relates to the assessment of the strategy implementation which cannot be assessed if the specific targets are undeclared or unclear on the premises. Specifically, despite the recurring emphasis on performance improvement (e.g., Lee & Kim, 1999; Leiblein & Miller, 2003; McCarthy & Anagnostou, 2004; Mol et al., 2005), many studies estimate such a variable through mere perceptions of advantages, cost cutting and efficiency, market share, and overall exports (Bertrand, 2011; Frear, Metcalf, & Alguire, 1992; Kotabe, 1998; Kotabe & Swan, 1994; Scully & Fawcett, 1994). Nevertheless, some studies mentioned indicators of financial or market performance, but measured through “comparison with competitors” (Gilley & Rasheed, 2000; Mol et al., 2005) or through indirect measures of outsourcing success (Lee & Kim, 1999). The second concern is connected to the poor attention that is often given to crucial organizational aspects that ultimately impact operational costs and firms overheads. Despite the emphasis on the performance improvement shown by most of the extant literatures (Lee & Kim, 1999; Leiblein & Miller, 2003; McCarthy & Anagnostou, 2004; Mol et al., 2005), many studies assess it by “perceptions” related to: “advantages” as managerial responses to related statements (Scully & Fawcett, 1994), “cost cutting” and “improved performance” (Frear et al., 1992), “firm’s global market share” (Kotabe & Swan, 1994), “efficiency advantages” (Kotabe, 1998), and “overall export” (rather than export intensity) (Bertrand, 2011). Further, indicators of financial or market performance are sometimes mentioned but are still measured through “comparison with competitors” (Gilley & Rasheed, 2000; Mol et al., 2005) or “indirect measures of outsourcing success” (Lee & Kim, 1999).

The aim of this study is to show which the main variables are that have impacts on business performance related to outsourcing. In such a sense, outsourcing cannot be approached as a simple “make or buy” decision, but, instead, it should be considered as a corporate strategy, put in place by top management to improve the performance of firms (Marchegiani et al., 2010). Despite that this point is still debated, researches rooted on the examination of core competencies, mostly adopting the RBV perspective (Espino-Rodríguez & Padrón-Robaina, 2006), showing that outsourcing is not merely a means of cost reduction, but it also implies a transfer of intellectual capital. From this perspective, the development and maintenance of competencies might be necessary to achieve a competitive edge against competitors and drain resources, allowing top management to improve performance.

Since the mid-1990s, researchers have focused on identifying alternative reasons that may explain outsourcing: cost of capital reduction (McFarlan & Nolan, 1995; A. Kakabadse & N. Kakabadse, 2002), improvement in cost measurability (Barthélemy & Geyer, 2000), access to external competencies (Quinn & Hilmer, 1994; McFarlan & Nolan, 1995; A. Kakabadse & N. Kakabadse, 2002), conversion of fixed costs into

variable ones (Alexander & Young, 1996), and control of internal departments (Lacity & Hirschheim, 1993; Alexander & Young, 1996).

Notwithstanding the consistent amount of works on this topic, literature still lacks empirical researches on the real impact of such strategies on business performance. Additionally, despite the consistent amount of papers using the RBV to complement the TCE, the authors noticed a general caveat for the outsourcing process and actual returns (performance). The literature focuses either on the propensity to outsource or on the relation of outsourcing to organizational performance (Espino-Rodríguez & Padrón-Robaina, 2006) but often ignores the implementation dynamics (process). The idea of “governance capability” developed by Mayer and Salomon (2006) can be viewed as an important milestone leading to a deeper understanding of the practical organizational drawbacks as well as their impacts on performance.

Model and Hypotheses

The model that the authors propose moves from the consideration that many scholars refer to the reactions of the financial markets to the announcement of an outsourcing strategy and its effects on a firm's value (Bryce & Useem, 1998; Oh, Gallivan, & Kim, 2006; Hayes, Hunton, & Reck, 2000) and to the relationship between firm performance and vertically-related activities in its value chain (Reitzig & Wagner, 2010). The model is also consistent with the present contingent moment in which the shrinking of profits induces managers to reconsider the setting of their value chains and to look for new outsourcing solutions for increasing the value added (Clarioni & Giustiniano, 2011).

The impact on performance is mainly due to the simultaneous pressure of three stakeholders:

- (1) Shareholders pushing managers to take all necessary transactions to increase the equity value;
- (2) Lenders requiring efficient and profitable management to ensure getting their money back;
- (3) Financial markets and investors constantly demanding results above expectations.

Thus, the authors put forward the following hypothesis:

H1 (business performance): After outsourcing, total revenues (*TR*), earnings before interest, taxes, depreciation, and amortization (*EBITDA*), *EBIT*, return on assets (*ROA*), return on equity (*ROE*), and enterprise value (*EV*) are expected to increase.

Further, many studies recall the idea that the adoption of an outsourcing strategy could be related to the growing pressure on management to remain competitive by “accomplishing more with less”. Achieving efficiency, effectiveness, and consequently greater productivity through strategies such as restructuring, downsizing, and reengineering activities (Insinga & Werle, 2000) are all results that could eventually contribute to the achievement and sustainability of competitive advantage (Gilley & Rasheed, 2000) and overall firm performance (Rothaermel et al., 2006). Conversely, the improper use of outsourcing can destroy the future of a business (Bettis, Bradley, & Hamel, 1992).

Entrusting activities of the value chain (previously in-house made) to external suppliers should therefore impact not only the absolute business performance but also the competitive advantage which is relative by definition, excluding the cases of monopoly. Firms develop their brands by releasing resources quickly invested in activities in the management of which they are supposed to excel. The goal of top management is to achieve and maintain competitive advantage over competitors or reduce possible gaps. For this reason, the difference in performance between sample firms and the benchmark of competitors was analyzed.

Thus, the authors put forward the following hypothesis:

H2: After outsourcing, the positive gap between each firm and its benchmark, measured by return on assets (*DROA*) and return on equity (*DROE*), is expected to increase; in negative, such a gap is expected to decrease or change sign.

Many papers conclude that outsourcing proves to be a balancing between lower production (external) costs and lower (local) transaction costs (McCarthy & Anagnostou, 2004; Mol et al., 2005; Chen, 2009; Bertrand, 2011). These conclusions seem to be quite vague, whereas the authors do not apply the same rigor in estimating production costs and transaction costs. On a different layer, the same consideration could be made for the use of biasing hypothesis like “firms with a better technology have a larger share of the market”, which, in turn, should imply cost savings (Lommerud, Meland, & Straume, 2009, p. 113). In some other cases, the measured dependent variables do not explain the expected performance (e.g., degree of vertical integration) (Harrigan, 1985). Outsourcing is considered effective, when it is able to create an increased availability of resources that companies could quickly invest in activities where value assets or distinctive competencies are present. These investments exceed the cost savings. Further, even though outsourcing was long considered as a means for cutting expenditures, cost reduction was only achieved under specific conditions. If outsourcing consisted of the mere implementation of the same activity at a lower cost, an internal reorganization would represent the most efficient way to reach the goal (Lacity & Hirschheim, 1993). Reducing costs in the short run is not a discriminating factor in achieving higher performance, while running investments in core competencies is. In this sense, Quinn and Hilmer (1994), Alexander and Young (1996), and A. Kakabadse and N. Kakabadse (2002) were the first to consider outsourcing as a strategy that could contribute to business development.

Thus, the authors put forward the following hypothesis:

H3 (cost structure and level): After outsourcing, general expenses (*GE*) and variable costs (*VC*) are expected to decrease.

Outsourcing covers a wide range of activities, both in manufacturing and service sectors. Therefore, bounding the field to franchises and supplies (Walker & Weber, 1984, 1987), components (Kotabe & Omura, 1989; Swamidass & Kotabe, 1993; Kotabe & Swan, 1994), complementary components (Kogut & Zander, 1992; Milgrom & Roberts, 1990), intermediate products (Mol et al., 2005), intermediate goods (Lommerud et al., 2009), modular productions (Brusoni & Prencipe, 2001; Prencipe et al., 2003), interfirm modularity (Tiwana, 2008), strategic modularization (Kotabe, Parente, & Murray, 2007), firm complementarity (Parmigiani & Mitchell, 2009), inter-task interdependence (Kumar, van Fenema, & von Glinow, 2008), the degrees of standardization of production and product innovation (Murray et al., 1995), support activities (Tettelbach, 2000), or selected primary activities (Ruiz-Torres & Mahmoodi, 2008) seem to be more and more limitative. Most of the reported papers consider the organizational solution for outsourcing as an issue that is relevant only for the organizational aspects. Nevertheless, it has a significant impact on the focal company's financial structure. The authors underline that the organizational forms have a significant impact on the financial structure of the firm and recall that over-indebtedness can generate financial stress and finally lead firms to bankruptcy. Besides, Loh and Venkatraman (1992) stated that the growth of debt had represented the major reason for cutting costs and for using outsourcing consequently.

Thus, the authors put forward the following hypothesis:

H4 (financial structure): After outsourcing, the gearing (*G*) is expected to decrease.

Methodology

Given the criticism expressed by many of the existing studies illustrated in previous sections, the authors deliberately choose not to introduce any categorical variable for assessing the degree of outsourcing. Hence, the authors do not relate the amount of outsourced activities to business fundamentals. Further, the authors believe that researches on the impact of outsourcing on business performance should rely on a set of quantitative performance indicators which are to be observed both *ex ante* and *ex post* any outsourcing decisions. Outsourcing is considered as the phenomena that discriminate between the focal companies and the equivalent (non-outsourcing) gathered in the matching sample. Such a choice relies on the assumption that the database used in this paper contains evidences of operations overtaking a determinate significant threshold.

The model that the authors propose assesses the impact of outsourcing on business performance and its drivers over a time span covering five years: the year when outsourcing occurred ($t = 0$), two years before ($t = -2$; $t = -1$), and two years after ($t = 1$; $t = 2$). The model relies on the use of descriptive statistics for testing the proposed hypotheses. The significance of the results has been estimated by assessing the actual weight of observation.

In details, the analysis is based on the comparison between an actual sample of companies which have outsourced activities and a match sample of “twin” companies having the same characteristics. The dominant trends have been detected by calculating the average value of the variables and by comparing the evidences of the sample of outsourcing companies with non-outsourcing companies. The normalization of the data permits the usage of the skewness and the kurtosis for testing the hypotheses.

Sampling

The sample was obtained by querying the Osiris database². Over the universe of the companies which have outsourced assets or activities during the time period of 2000-2009, the authors selected the ones for which they were able to identify. The preliminary samples of $N = 107$ have been obtained by simultaneously querying the database for four main variables: standard industrial classification (SIC) code, geographic location, reference period, and trading on regulated financial markets.

The Securities Exchange Commission (SEC) defines SIC codes as “the standard industrial classification codes which indicate the company’s type of business”³. They are numeric codes identifying the core business of an organization. Information becomes more and more detailed, as digits increase from two to four. Geographic location is the country where corporations produce most of their value chain activities, from sourcing to sales through operations. Among the major focal countries are the USA, the UK, Canada, and the Euro-zone. In the first sample, a date for each observation is also reported. Securities of identified firms must be traded on regulated financial markets. The final sample gathers companies with the same SIC code, active in the same geographic location, with outsourcing activities in the same reference period, and trading on regulated financial markets.

From the initial sample of 107 companies, a final sample of 84 observations was obtained. The firms, all listed in stock markets, are based in several countries and spread in all continents: nine in Australia, seven in Canada and in the Euro-zone, 11 in Scandinavia, 16 in the USA, 30 in the UK, and one each in China, Japan,

² Osiris contains information on over 45,000 companies from over 140 countries including 34,000 listed companies and 11,000 unlisted or delisted companies (Bureau van Dijk Electronic Publishing in the year of 2010).

³ Retrieved from <http://www.sec.gov/info/edgar/siccodes.htm>.

Singapore, and South Africa.

The difference between the two samples is due to the impossibility to always find a comparable company that outsourced some activities. In the cases where comparables were not found, the reference period and SIC code were deliberately expanded six months, one or two years, without changing the geographic location. If results were still unsatisfactory, the authors intervened on the SIC code by reducing the digits considered until two digits, substantially, the core business, gradually became less precise and exhaustive. If results were not obtained even under those conditions, the observation was eliminated from the sample. The alteration of the geographic location, a key element of the study, did not seem consistent, while trading was thought of as a control variable.

Model

Once the sample was obtained, 13 variables, potentially assessed by top management when outsourcing both as antecedents and expected outcome of outsourcing, were defined, i.e., *TR*, *EBITDA*, *EBIT*, *ROA*, *ROE*, *EV*, total assets (*TA*), *GE*, *VC*, number of employees (*E*), deviation from the benchmark—the same SIC code—*DROA* and *DROE*, and *G*. These absolute values and indicators were grouped into five macro-classes: business performance (*BP*), costs structure (*CS*), *E*, business performance compared with the reference industry (*BR*), and financial structure (*FS*).

For each organization in the sample, those variables were quantified for five fiscal years by using the database datastream (the year of 2010): the fiscal year when top management outsourced (e.g., $t = 0$), the two fiscal years before (e.g., $t = -2$, $t = -1$), and two fiscal years after (e.g., $t = +1$, $t = +2$).

Since firms were operating in different countries, the values reported by datastream in local currency have been converted into US dollars (\$), applying the spot exchange rate between currencies at the date of outsourcing. These values should have been purified by inflation: Given the upper bound of 2% set by the European Central Bank (ECB) and defining time zero as the fiscal year of outsourcing ($t = 0$), values of two previous ($t = -2$, $t = -1$) and following ($t = +1$, $t = +2$) fiscal years were respectively capitalized and discounted.

Once the data were made consistent and comparable, the authors estimated the following values:

- (1) Average value of the first three fiscal years (AFTY [$t = -2$, $t = -1$, $t = 0$]);
- (2) Average value of the last three fiscal years (ALTY [$t = 0$, $t = +1$, $t = +2$]);
- (3) Difference between the average values ALTY and AFTY (DTY);
- (4) Average, normalized standard deviation, skewness, and kurtosis of values DTY.

If data of the previous two fiscal years ($t = -2$, $t = -1$) were unavailable (*omissis*, NA⁴) and the third ($t = 0$) was zero, the last observation was also considered unavailable. If data of the outsourcing fiscal year ($t = 0$) were zero and the observations of the following two fiscal years ($t = +1$, $t = +2$) were unavailable (*omissis*, NA), the first observation was also regarded unavailable.

Findings

Table 1 shows the absolute value of observations accompanied by the percentage calculated on the whole sample.

Given the descriptive nature of the analysis, the number of observations is crucial to assess the significance of the results. Six out of 16 variables exceed 70 observations, equaling to 83.33% of the survey:

⁴ Not available (NA).

ROA (83%-98.81%), *TA* (81%-96.43%), *EBIT* (79%-94.05%), deviation from the benchmark *DROA* (76%-90.48%), *EBITDA* (75%-89.29%), and *TR* (70%-83.33%). *ROE* (49%-58.33%), *VC* (52%-61.90%), and deviation from the benchmark *DROE* (54%-64.29%) represent the variables with the least number of observations instead.

Table 1

Sample in Units (% of Survey and Deltas)

Variable	Sample	Survey (%)	$\Delta+$	$\Delta-$	$\Delta+$ (%)	$\Delta-$ (%)
Performance						
<i>TR</i>	70	83.33	57	13	81.43	18.57
<i>EBITDA</i>	75	89.29	41	34	54.67	45.33
<i>EBIT</i>	79	94.05	40	39	50.63	49.37
<i>ROA</i>	83	98.81	45	38	54.21	45.79
<i>ROE</i>	54	64.29	20	34	37.04	62.96
<i>EV</i>	57	67.86	38	19	66.66	33.33
Cost structure						
<i>TA</i>	81	96.43	55	26	67.90	32.1
<i>GE</i>	63	75.00	52	11	82.54	17.46
<i>VC</i>	52	61.90	44	8	84.61	15.39
Employment						
<i>E</i>	58	69.04	41	17	70.68	29.32
Δ vs. industry						
<i>DROA</i>	76	90.48	43	33	56.58	43.42
<i>DROE</i>	49	58.33	25	24	51.02	48.98
Financial structure						
<i>G</i>	64	76.19	32	32	50.00	50.00

Table 1 also exhibits the positive and negative deltas between the two sub-periods ($ALTY [t = 0, t = +1, t = +2]$ and $AFTY [t = -2, t = -1, t = 0]$), presenting variables grouped into five macro-classes: *BP*, *CS*, *E*, business performance compared with the *BRI*, and *FS*. Delta (e.g., *DTY*) is defined as the difference between the mean values of the two sub-periods ($ALTY [t = 0, t = +1, t = +2]$ and $AFTY [t = -2, t = -1, t = 0]$).

TR, *EBITDA*, *EBIT*, *ROA*, *EV*, *GE*, *VC*, deviation from the benchmark *DROA*, and *DROE* are consistent with the assumptions, presenting more positive deltas. Conversely, *ROE* and *G* did not confirm the hypotheses. *TA* and *E* present ambiguous evidence, explainable by the fact that firms can achieve sustainable competitive advantages, if they are able to reallocate human and financial resources in profitable activities.

Table 2 shows average and normalized standard deviation, skewness, and kurtosis of the delta (*DTY*) between the two sub-periods (e.g., $ALTY [t = 0, t = +1, t = +2]$ and $AFTY [t = -2, t = -1, t = 0]$).

TR, *EBITDA*, *EBIT*, *ROA*, and *EV* are consistent with the assumptions, respectively recording an average increase of 67.16 \$/million, 43.59 \$/million, 50.19 \$/million, 11.39%, and 77.94 \$/million. *ROE* is the only variable which does not confirm the hypotheses, declining by 2.15%. Normalized standard deviation is between a minimum of 2.556 (*TR*) and a maximum of 3.780 (*EBIT*).

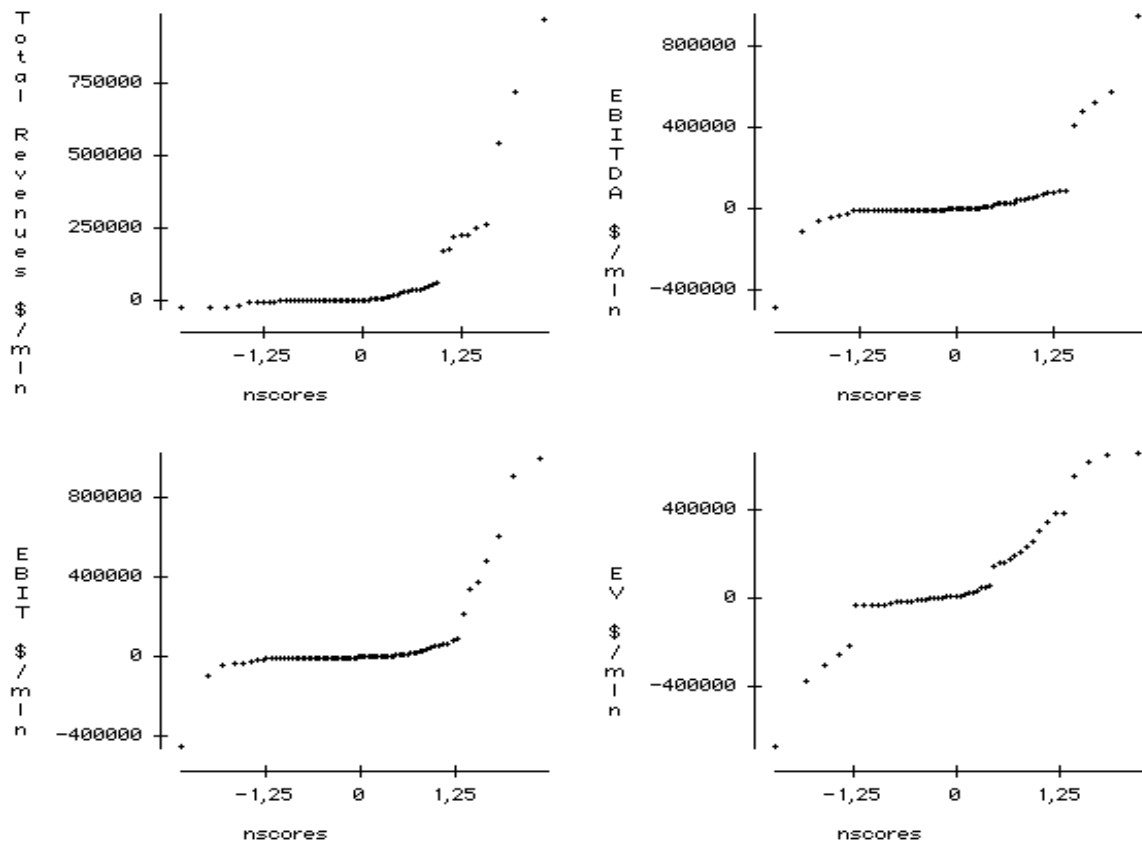
As reported in Table 2 and with the exception of *ROE* (-0.110), business performance variables are positively skewed. The positive skew, between a minimum of 0.176 (*EV*) and a maximum of 3.689 (*TR*), indicates that the tail on the right side is longer than the left side and that the bulk of the values lies to the left of the mean.

Table 2

Data in \$/Million, Percentage, and Units

Variable	Average Δ	Normalized σ	Skewness	Kurtosis
Performance		Cobus		
<i>TR</i>	67.16	2.556	3.689	14.985
<i>EBITDA</i>	43.59	2.894	2.844	13.894
<i>EBIT</i>	50.19	3.780	3.197	13.575
<i>ROA</i>	11.39%	-	3.050	10.080
<i>ROE</i>	-2.15%	-	-0.110	9.650
<i>EV</i>	77.94	3.115	0.176	1.931
Cost structure				
<i>TA</i>	69.06	3.207	2.414	8.201
<i>GE</i>	21.71	4.831	4.811	28.06
<i>VC</i>	42.06	2.469	4.070	17.738
Employment		Google scholar		
<i>E</i>	535	6.664	3.460	17.239
Δ vs. industry				
<i>DROA</i>	12.76%	-	2.859	9.123
<i>DROE</i>	0.96%	-	-0.500	6.717
Financial structure				
<i>G</i>	-1.85	-	-1.358	11.793

Note. Source: Festré and Giustiniano (2011).

Figure 1. *n* scores for *TR*, *EBITDA*, *EBIT*, and *EV*.

As shown in the graphs of *TR*, *EBITDA*, *EBIT*, and *EV* (see Figure 1), distributions are leptokurtic, pointing higher peak around the mean and fatter tails. Kurtosis is between a minimum of 1.931 (*EV*) and a maximum of 14.985 (*TR*).

Within cost structure macro-classes, *GE* and *VC* (see Figure 2) are in line with expectations with a growth of 69.06 \$/million, 21.71 \$/million, and 42.06 \$/million respectively. Normalized standard deviation is between a minimum of 2.469 (*VC*) and a maximum of 4.831 (*GE*). Cost distributions of variables are positively skewed and leptokurtic. If skewness is between a minimum of 2.414 (*TA*) and a maximum 4.811 (*GE*), kurtosis is between a minimum of 8.201 (*TA*) and a maximum of 17.738 (*VC*).

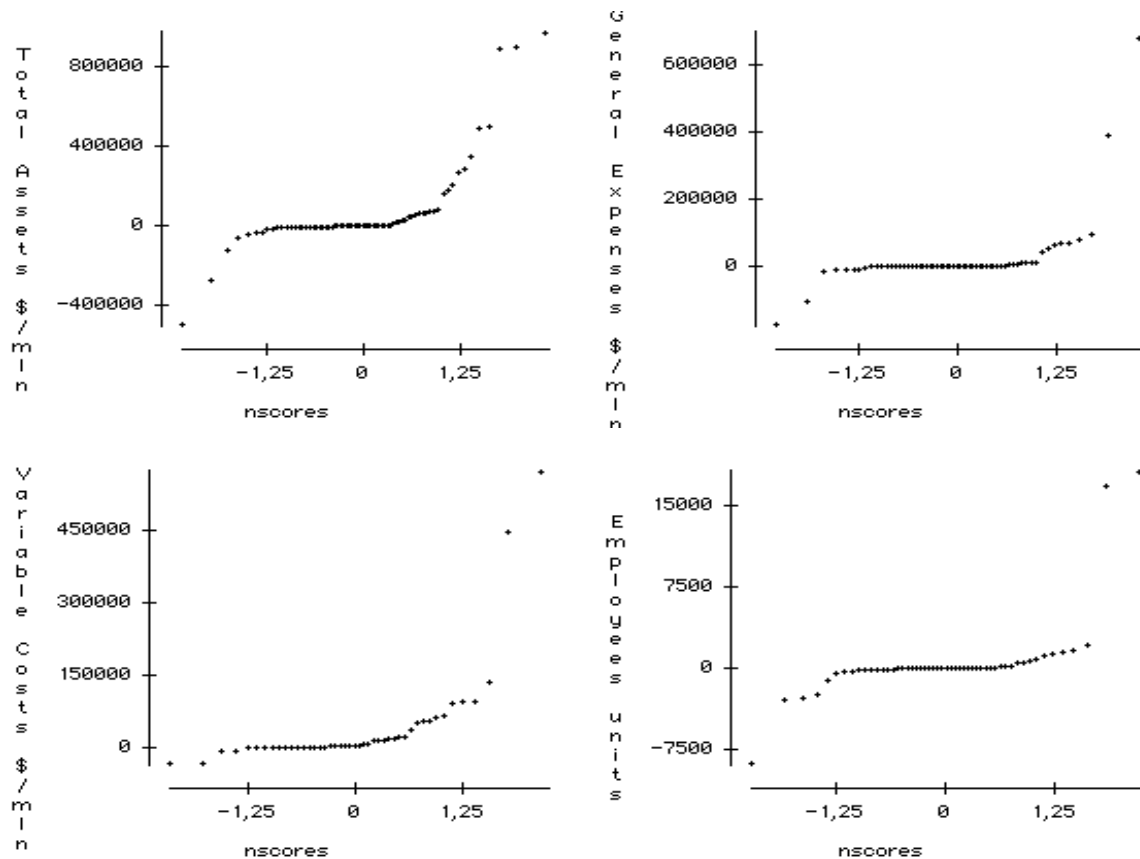


Figure 2. *n* scores for *TA*, *GE*, *VC*, and *E*.

The expectations of an increase of the gap compared with the reference industry—a decrease if the gap is negative are confirmed: If *DROE* recovers 0.96%, the improvement of *DROA* is more pronounced and equals to 12.76%.

Even if skewness is not uniquely determined, being both negative (-0.500, *DROE*) and positive (2.859, *DROA*), distributions are leptokurtic. Kurtosis is between a minimum of 6.717 (*DROE*) and a maximum of 9.123 (*DROA*).

G drops by 1.85, confirming the hypotheses. Even though the skewness is not uniquely determined, being negative (-1.358, *G*), a Kurtosis of 11.793 (leptokurtosis) is presented (see Figure 3).

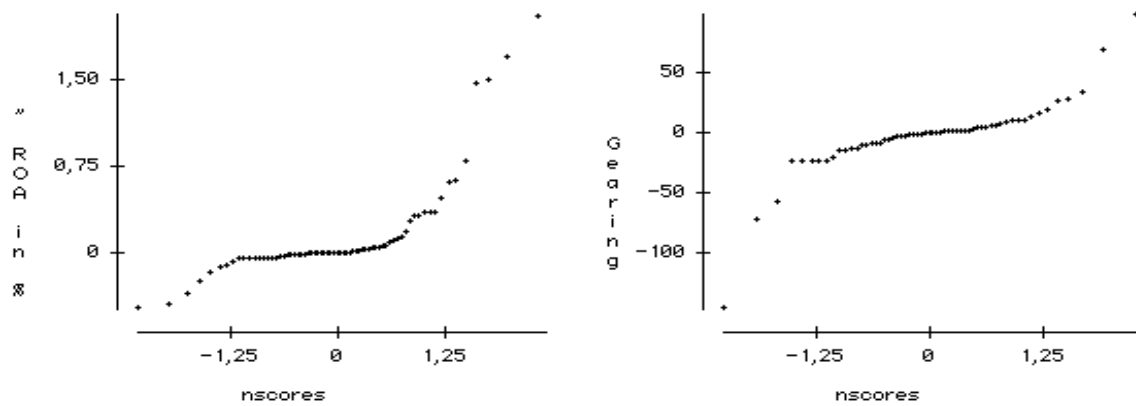


Figure 3. *n* scores for ROA and G.

Discussion

According to the analysis presented above, it seems that outsourcing could contribute to giving companies a sustainable competitive advantage, confirming most of the hypotheses. *ROE* was the only indicator to worsen between variables of business performance. However, the equity, denominator of *ROE*, was not analyzed. The observations were 54, equaling to 64.29% of the whole sample. Outsourcing does not generate a cost reduction, and resources are promptly invested in activities where organizations are leaders. As already mentioned, the shape of the elaboration about labor force (*E*) and *TA* could also be interpreted as the potential of strategic refocusing effect on the core business. Namely, it appears that outsourcing allows the top management to obtain resources that promptly could be invested in activities of the value chain where firms have excellent skills and competences.

The employment growth supports the increase in cost spending. These are two crucial results. They show that outsourcing is a growth-oriented corporate strategy and not a mere means for cost reduction, as alleged by the most accredited literature. The lower gearing and the increase of the gap compared with the benchmark—the decrease, if the gap is negative in terms of *DROA* and *DROE*, strengthen these conclusions.

To improve this study while keeping the same model, it would be useful to:

- (1) Not limit the quantification of the impact to only two years after outsourcing ($t = +1$, $t = +2$), since each variable is likely to react based on specific maturities;
- (2) Quantify the impact of outsourcing on each following fiscal year;
- (3) Identify a set of governance variables to evaluate the influence of shareholders on the top management;
- (4) Consider, additionally, transaction costs due to selection, negotiation, reorganization, and control.

Limitations and Future Research

One significant limitation of the study is related to difficulty in finding accountable data on the actual amount of deals. Such data would enable identifying an important explanatory variable useful for the elaboration. The authors recall that they explicitly choose not to estimate any variable through dummies, categorical, or perceptive variables, given the critical evaluation they made about the lack of rigor presented in many studies.

Further, since the attended performance is claimed as the main driver by many studies, it should be

considered as an antecedent itself (continuous black line), in terms of expectation. In terms of outsourcing decisions, the ultimate (ex ante) antecedent for outsourcing should be modeled as an expectation (at time $t = 0$) on future performance. Hence, given a chosen parameter (e.g., *ROE*), a real understanding of the impact of outsourcing should be assessed by measuring the levels of the same parameter over time.

Another limitation of this paper is very common in the extant literature: While outsourcing has been extensively explored by the core firm standpoint, some deep analyses should be complementarily conducted from the suppliers' perspectives (Kotabe et al., 2007; Jean, Sinkovics, & Cavusgil, 2010). Chen (2009) emphasized the fact that in such a globalized world, with firms scattering their value chains worldwide, some reciprocal buyer-seller relationships could take place, and therefore, the research models should take them into consideration.

The recent general economic downturn has rendered evident that the general idea of cost reduction does not necessarily lead to profit sustainability. It could even be misleading if not related to the consideration of the whole business strategy. This is also a weak point in the extant literature, except some partial exceptions (Kotabe & Swan, 1994; Kotabe et al., 2007; Mol et al., 2005; Trent & Monczka, 2003). A more complete model should then include the business strategy as a relevant element in assessing the impact of outsourcing on business performance. Similar considerations could be drawn for the presence of the firm in new, emerging, or converging industries, where the pressure of some external factors (such as unionization or technological innovation) could differ from the ones in "traditional" industries coded by the SIC system.

Another important element for future research relates to the nature of the outsourcer/supplier. Many studies accept the implicit assumption of the supposed homogeneity of the outsourcees gathering together the counterpart (suppliers/outsourcers) in fictionally homogeneous entities (Bettis et al., 1992; Quinn & Hilmer, 1994). Reality shows that the size and the nature of the supplier could importantly impact the cost related to the governance of the relation.

Finally, the necessity of referring to available and reliable data influenced this paper, when it comes to the size of companies. Since the size of the companies is very important in the listing mechanisms of the stock markets, the analysis made by the authors is based on this aspect and privilege large corporations. On the contrary, real life shows that small- and medium-sized enterprises (SMEs) also engage in outsourcing relations with very heterogeneous partners.

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Challenging Stereotypes: International Accounting Students in Australia

Hock-Thye Chan, Suzanne Ryan

The University of Newcastle, Newcastle, Australia

Students come to Australia for many and varied reasons, including the possibility of immigrating to Australia on completion of studies. Some programs of study are given higher priority for immigration than others and are thus popular among those hoping to immigrate. The master of professional accounting (MPA) is perhaps the most well-known of these programs, as the majority of its students are allegedly more interested in gaining permanent residency than becoming practicing accountants. Concerns over the quality of this program, its graduates, and its impact on the reputation of Australian higher education have been expressed in the media and in scholarly journals resulting in a stereotype of international postgraduate students as being motivated by immigration and without interest in accounting or engagement in learning. However, little has been done to investigate the experiences and perceptions of the students themselves. The objective of this paper is to more closely examine the motivations and learning behaviors of MPA students in order to test the accuracy of the stereotype. A population of postgraduate accounting students from an Australian university was invited to respond to an anonymous questionnaire survey adapted from the Australian Universities Survey of Student Engagement (AUSSE) to gain an insight into student engagement with learning. The results of this paper demonstrate that motivation is not relevant to learning engagement. The authors find a cohort of students spending many hours in study and facing barriers to learning because of poor English skills. Such findings do not accord with the stereotypical portrayal of international MPA students but lead to questions about the institutional motivations, the nature of accounting education, and English language entry standards and language support.

Keywords: accounting education, immigration, student engagement, student motivation

Introduction

Links to immigration, demand from international students, and a failure to correct shortages in the accounting profession resulted in a postgraduate conversion program, the master of professional accounting (MPA), being the subject of controversy in Australia. The program has come under fire on a number of fronts: student and university motivations, learning styles and lessening standards, and poor language ability and employment outcomes. While some attribute poor quality outcomes to misdirected student motivation, namely, a focus on permanent residency rather than a career in accountancy (Baas, 2007; Jackling, 2007), others point to universities which are desirous of international student fees without regard to educational standards

Hock-Thye Chan, director, Newcastle Business School, The University of Newcastle. Email: Hock-Thye.Chan@newcastle.edu.au.

Suzanne Ryan, associate professor, Newcastle Business School, The University of Newcastle.

(McGowan & Potter, 2008). Different learning styles among international students are linked to decreases in the quality of both accounting education and accounting graduates (Burch, 2008; Nagy, 2008). And finally, English language competency among accounting students has a major impact on learning outcomes and is a source of frustration for students, teachers, and employers (Jackson, Watty, Yu, & Lowe, 2006). For whatever reason, a consensus is forming that the quality of MPA graduates and educational standards have declined, and this is most clearly demonstrated by the ongoing shortage of professional accountants, despite a surplus of MPA graduates (Watty, 2007; Birrell & Healy, 2008). Responsibility for this failure is increasingly attributed to a stereotyped MPA student whose only concern is to immigrate to Australia and who has little or no interest in the accounting profession. The objective of this paper is to more closely examine the motivations and learning behaviors of MPA students to test the accuracy of this stereotype.

Based on a survey of students enrolled in an MPA program at a regional Australia, this paper examines the link between motivation and engagement in learning. The survey was the first phase in a research project aiming to better align curricula and teaching with graduate attributes required by the university and the profession. The study was motivated by MPA student program evaluation, results of which indicated that the MPA students, compared with other students in postgraduate business programs, were performing poorly and were also dissatisfied with the program. This raised questions about whether the outcomes were due to the nature of the students or the program content and teaching. As the student cohorts were similar across all business programs and the only distinguishing feature of the MPA program was its link to immigration, the authors were tempted to accept the stereotype and blame inappropriate student motivation for the poor outcomes and evaluations. On reflection and in consideration of the alternate assumption that “disparate student outcomes often arise from institutional practices, not student deficiencies” (Kezar, Glenn, Lester, & Nakamoto, 2008, p. 126), the authors decide to test the propositions that motivation to immigrate negatively affects academic learning and that international students, especially Asian students, do not actively engage in learning. This paper begins with a review of literature on MPA programs, student motivation, learning engagement, and English language. This is followed by a background of the program under study and an explanation of the method. Findings of the study allow the authors to see a picture of an MPA student quite different from the stereotype developed in the literature. This paper concludes with a discussion of the results and their implications for practice and future research. By questioning common assumptions, this paper encourages readers to go beyond stereotypes to question the effectiveness of accounting education and the motives of higher education institutions.

Literature Review

Increasing demands for accountants in Australia started in the early part of this decade with the introduction of globalised accounting standards and significant regulatory reform alongside an exodus of practicing accountants through retirement and emigration (Wright & Chalmers, 2010). Government reacted to the subsequent shortage of skills by including accountants on the Migration Occupations in Demand List (MODL) in 2004 which immediately created a demand among international students for accounting courses, especially for postgraduate conversion programs, such as the MPA, as such courses would help attain permanent residency in Australia. Postgraduate accounting programs mushroomed throughout Australian universities between 2004 and 2008, but caused significant costs to students and educators and seemingly without benefits to the profession. Staff-student ratios soared as did teaching workloads, casual academic

appointments, and student diversity (Wright & Chalmers, 2010; Parker, 2010). Meanwhile, the shortage of professional accountants has remained, as employers are reluctant to employ international accountancy graduates, especially those from postgraduate conversion courses (Watty, 2007; Birrell & Healy, 2008; Poullaos & Evans, 2008). While the accounting profession emphasizes the need for accounting graduates to have skills over and above technical skills, especially communication skills (Hancock, Howieson, Kavanagh, Kent, Tempone, & Segal, 2009), accounting educators find difficulty in accommodating these demands even within 3-year undergraduate programs (Cappelloto, 2010). This difficulty is compounded in postgraduate conversion programs that comprise a greater proportion of students with poor English language proficiency and are of half the duration (and content) of undergraduate programs (Evans, 2010). Most educators are caught in a dilemma between promises of employment and residency implied by government policies and university recruiters and the knowledge that few graduates will actually obtain employment after completion of the MPA conversion programs. For Poullaos and Evans (2008), no such dilemma exists, because the students themselves are not interested in employment as accountants, simply in obtaining permanent residency. The remainder of this section more closely examines the issues of motivation, student engagement, and English language among accounting students.

Student Motivation

What motivates a student to undertake a particular program of study has been linked to their learning experiences and performances. Studies compare intrinsic and extrinsic motivations and find intrinsic motivations related more strongly to higher performance, creativity, and self-confidence (Nolen, 1988; Deci & Ryan, 1991; Ryan & Deci, 2000; Lin, McKeachie, & Kim, 2003). Researches comparing motivations between Australian and non-Australian students consistently show that international students, especially Asian students, have higher levels of extrinsic motivations (P. Smith & S. Smith, 1999). In a national study of the first-year student experience in Australian universities, over 50% of the first-year students from non-English-speaking backgrounds (NESB) cited parental expectations as the reason for selecting their programs of studies compared with 24% for non-NESB students (Krause, Hartley, James, & McInnes, 2005). Similar results have been found among accounting students. International students, on the other hand, are more likely to cite potential employment, remuneration, and compliance with parental wishes as motivations for selecting accounting (de Lange, Jackling, Phillips, & Sewell, 2010; Jackling & Keneley, 2009; Auyeung & Sands, 1997). In particular, a desire for permanent residency is identified as a major extrinsic motivation for international students to study accounting in Australia (Jackling, 2007; Birrell & Healy, 2008; de Lange et al., 2010).

Being motivated by permanent residency often implies a lack of interest in accounting and is blamed for falling standards in accounting education and the continuing shortage of practicing accountants. Jackling (2007) found that 84% of her sample of international accounting students intended to seek permanent residency and viewed the study of accounting as a means of meeting immigration requirements. An emphasis on permanent residency instead of employability is claimed to undermine the quality and reputation of Australian higher education (Birrell & Healy, 2008; Birrell & Perry, 2009). McGowan and Potter (2008) questioned whether “the quality of learning experience is pertinent for many international students, if their key objective is to achieve permanent residency” (p. 192). Similarly, Jackling (2007) made a distinction between students with an intrinsic interest in an accounting career and those with an extrinsic interest in achieving high salaries or permanent residency. She argued that the former group was more able to “recognize and solve problems at a more

complex level and develop a longer lasting knowledge of a subject than students motivated by extrinsic interests” (Jackling, 2007, p. 33). Although the research instruments employed by de Lange et al. (2010) in their comparison of international and Australian accounting students’ motivation omitted reference to permanent residency, they concluded that “Recruiting a generation of accountants motivated by extrinsic factors such as migration and financial rewards rather than a genuine interest in the accounting discipline may be a questionable strategy” (p. 18).

On the other hand, Western understandings of intrinsic and extrinsic motivations may differ from those in the East. In collectivist societies, especially those of Confucian heritage, the Western concept of “intrinsic” may be broadly construed as individualist and morally unacceptable. The highest moral duty is to honor one’s family and ancestors and to honor them by improving one’s lot in life through the attainment of higher educational and employment status (Marginson, 2011). If a Chinese student is motivated by this higher moral purpose, then whether such a motivation is “extrinsic” and “utilitarian” as conceived in the West is questionable. It may be that we are inappropriately and incorrectly attributing our own semantics and moral judgments to the motivations of these students (Ryan & Louie, 2007). Evidence that Chinese students attach greater significance to learning success for family rather than self- and the negative impact of this on academic performance is explained by Li, Chen, and Duanmu (2010), however, not in terms of lesser motivation, but in terms of the anxiety created from student concern for the family investment in their education. Anxiety in turn has been found to negatively affect academic performance (Hartnett, Romcke, & Yap, 2004).

Student and Learning Engagement

Student engagement, including engagement in learning, is recognized as a critical factor in student retention and progress. Student engagement refers to a student’s “involvement with activities and conditions likely to generate high-quality learning” (ACER, 2010, p. 3) with an emphasis on how students learn. In particular, low engagement levels are a strong indicator of high attrition rates (Jackling & Natoli, 2010; Tinto, 1993). The importance of understanding student engagement is reflected in the development and widespread use of the Australasian universities’ survey of student engagement (AUSSE) to monitor trends among undergraduate students within and across Australian and New Zealand universities (ACER, 2010). The survey focuses on six areas of student engagement (active learning, academic challenge, student-staff interactions, enriching educational experiences, supportive learning environment, and work integrated learning) and five student outcomes (higher-order thinking, general learning outcomes, general development outcomes, average overall grade, and departure intention). The AUSSE survey was adapted for postgraduate coursework students (postgraduate survey of student engagement (POSSE)) and 15 universities participated in the first survey in 2010. Results from the 2010 POSSE survey show that international students have higher levels of engagement than domestic students on most measures, although the levels vary according to field of study (Edwards, 2011). Despite greater engagement, in the field of management and commerce with over 50% international student enrolments, international NESB students reported lower average grades compared with English-speaking students (Edwards, 2011).

An important sub-set of student engagement concerns learning strategy, an area of abundant literatures on cross-cultural differences. Learning strategy research among accounting students tends to view the learning strategies of Asian students as problematic, both for the students and educational standards. Memorization and reproduction as examples of surface learning strategies are often attributed to Asian students, especially

“Chinese learners” (McGowan & Potter, 2008). Burch (2008) found that many of his postgraduate international accounting students failed to demonstrate the required learning capacity during their first semester, because their “prior-learning strategies based on reproduction (led them to assume) that these strategies will work in the Australian environment” (p. 19). He further found that this type of strategy did not change greatly over the students’ program, as questioning in the form of “what do I need to remember?” appeared to exceed their interest in reflective learning and enquiry, resulting in declining overall grades (Burch, 2008, p. 19). Lecturers’ perceptions of surface learning strategies among Asian students inadvertently result in a dumbing down of the curricula and its assessment. Lecturers adapt their teaching and assessment strategies to suit the cohort of students: assessments and teaching practices that involve non-technical skill development, for instance, essay writings and presentations are replaced with tests that focus simply on technical knowledge (Birrell, 2009). However, lack of active learning strategies does not necessarily affect academic performance. While Chinese students were significantly less likely to use active learning strategies than European students, Li et al. (2010) found that learning strategies had no significant impact on performance.

The depiction of the “Chinese learner” as being passive, dependent, engaging in rote learning, and prone to plagiarism has been questioned. The deficit model of learning by Asian students was debunked by Biggs’ (1996) Asian-based research which found that Chinese students were not surface but deep learners whose lack of verbal engagement in classes did not affect their academic performances. Although similar evidence has continued to mount, it appears to be ignored by business school educators. Reasons as to why this occurs were presented by Ryan and Louie (2007) who argued that the exclusive binary logic on which the descriptions of Eastern and Western learner relied was not only false but led educators to create negative stereotypes that undermined more appropriate forms for teaching and learning. Among business school educators, unmanageable workloads, large classes of international students, and cynicism about institutional motives in recruiting international students combine to engender negative or hostile feelings toward international students and an unquestioning acceptance of negative stereotypes (DeVos, 2003; Ryan & Louie, 2007). An additional but pertinent point made by Ryan and Louie (2007) is that differences in traditional teaching methods between disciplines are possibly more important than differences between cultures in terms of learning outcomes. Indeed, in this respect, accounting education has been criticized repeatedly for its failure to develop more than technical skills in its graduates through an emphasis on assessment of knowledge rather than skill (C. Paisey & N. Paisey, 2007; Kavanagh & Drennan, 2008; Hancock et al., 2009). Various content analyses of accounting curricula documentation have demonstrated a focus on lower-order cognitive skills and test-based assessments at the expense of higher-order and behavioral skills (Bunney & Therry, 2011; Yong, Ryan, Yap, & Goela, 2011). It could be argued that teaching and assessment methods in accounting education encourage passive and surface learning.

English Language

It is clear that the presence of high numbers of international students in accounting programs has impacted students’ learning and the delivery of the academic content, but whether the cause lies in student motivation or engagement is not clear. However, the impact of poor English language skills on academic standards is well-documented (Bretag, 2007; Ryan, Bhattacharyya, Goela, & Stratilas, 2011). Poor English is found to be the major barrier to learning outcomes for accounting students (Jackson et al., 2006) and to graduate employability (Watty, 2007). When a majority of students lack sufficient English language proficiency to

adequately engage in learning, there is a tendency for lecturers to simplify course content and assessment, to the detriment of both international and domestic graduates (Birrell & Healy, 2008). Some attribute this practice to institutional pressure to pass fee-paying students rather than a response to the student ability (Bretag, 2007). An English study of the differences between Chinese and other international, mainly European, business students as predictors of academic performance found that English language proficiency, especially writing ability, was the most significant predictor of academic performance (Li et al., 2010). Chinese students had poorer language skills and lower grades, despite working harder than other international students. A combination of situational factors has together created a context that threatens to undermine academic standards: the university's accommodation of language deficiencies without appropriate supports and the educators' concessions to what they perceive as the learning preferences of Chinese learners (McGowan & Potter, 2008). In sum, the literature generally paints a bleak but inconclusive picture of MPA students who are motivated by immigration not interests in accounting engage in surface learning strategies, and generally lack English language proficiency.

Method

This section provides the background of the program, its participants, research instrument, and data collection and analysis. The study was carried out at a large regional Australian university with a satellite campus in a major capital city. Following the financial success of similar programs at other universities, this university was among the last to offer an MPA in late 2008. Students' feedbacks on the MPA program in 2009 and 2010 revealed a cohort of dissatisfied students compared with other postgraduate business programs, including the master of business administration (MBA) and other specialist master degrees. Among eight postgraduate programs, students' feedbacks on the MPA program received the second lowest rating after the finance program. In addition, the MPA attrition rates were the highest of all the eight programs, and the grade point averages (GPAs) were the lowest, especially for international students. Table 1 provides the key program statistics since the commencement of the program in 2008.

Table 1

MPA Program Statistics by Year

	2008	2009	2010
Enrolments	22	69	102
Gender (female, %)	77	71	58
International student (%)	50	72	80
GPA	4.21	4.06	4.27
Attrition rates	32%	27%	Not available

Note. The GPA is on a scale of "0" to "7", where "4" = Pass, "5" = Credit, "6" = Distinction, and "7" = High distinction.

Participants

All students (102) enrolled in the MPA program in August 2010 were invited to participate in the study, including those who had graduated in the month beforehand. The response rate was 70% (71 students). Overall, the participants may be described as young Chinese who have previous qualifications in accounting or business, but have minimal work experience.

Table 2 provides the key statistics of the student participants.

Table 2

Characteristics of Participants (N = 71)

Nationality (%)	Australian	6
	Chinese	73
	Other international	21
Language (%)	NESB	89
Age (%)	21-25	56
Work experience (%)	Zero to two years	62
Highest qualification (% , prior to enrolment in the MPA program)	Master	25
	Bachelor	59
	Diploma	15
Area of qualification (% , prior to enrolment in the MPA program)	Accounting/business	73

The 11% of the sample whose first language was English are excluded from the results presented in this paper. Thus, the focus is on the 60 NESB students (89% of the total sample).

Instrument

The survey instrument was closely adapted from the AUSSE, student engagement questionnaire used for both postgraduate and undergraduate students. The AUSSE survey (and its postgraduate equivalent, POSSE) was chosen, because it was widely accepted and used as a benchmark within the Australian higher education sector. The survey scales have been well tested and validated (Coates, 2010). Questions cover both individual student behaviors and attitudes to teaching and learning, providing information about students, teaching processes, and outcomes. Additional questions on motivation for study and English language were included in the survey. The resultant 41-item questionnaire was divided into five sections: background (16 items), learning experiences (eight items), off-campus experience (six items), general university experience (nine items), and post-graduation intentions (two items).

Data Collection and Analysis

The survey was designed as an online survey and made available to students in hardcopies in classes and online. Sixty five percent of respondents elected to complete the survey online. The survey was open for three weeks during which one reminder was emailed to the students. Descriptive and comparative statistics are used to report results, comparison being made between the data from the sample and results from the 2010 POSSE survey for all postgraduate coursework students and the sub-group of management and commerce students. A further two-step data analysis procedure was undertaken whereby in the first step, responses to scale items by the respondents were analyzed, and in the next step, a multivariate ordinary least squares (OLS) approach was used to determine which personal attributes, including demographic, reported language ability, and motivation for study, were associated with learning experience and their significance level. The following multiple regression model was estimated:

$$\begin{aligned}
 FLi = & \beta_0 + \beta_{i1}(Age) + \beta_{i2}(Gender) + \beta_{i3}(Nationality) + \beta_{i4}(Reading) + \beta_{i5}(Writing) + \\
 & \beta_{i6}(Speaking) + \beta_{i7}(Listening) + \beta_{i8}(Work\ experience) + \beta_{i9}(Education) \\
 & + \beta_{i10}(Motivation\ of\ study\ A) + \beta_{i11}(Motivation\ of\ study\ B) \\
 & + \beta_{i12}(Motivation\ of\ study\ C)
 \end{aligned} \tag{1}$$

where:

FLi = Mean total score for each of the three questions with multiple sub-questions: Factor 1 = Learning

activities; Factor 2 = Course emphasis; Factor 3 = Contribution to the development of skills and knowledge; and Factor 4 was a combination of Factors 1, 2, and 3.

Age = Age in years of the respondents;

Gender = Gender of the respondent *i*;

Nationality = Nationality of the participants;

Reading = English reading ability/level of the respondents;

Writing = English writing ability/level of the respondents;

Speaking = English-speaking ability/level of the respondents;

Listening = English-speaking ability/level of the respondents;

Work experience = Working experience of the respondents in terms of years;

Education = Highest educational level already attained by the respondents;

Motivation of study A = Intention to immigrate;

Motivation of study B = Employment;

Motivation of study C = Love/interest of accounting.

Findings

The key findings relating to motivation and learning engagement are discussed below.

Motivation and Learning Engagement

Among the NESB students, the most common reason to choose accounting was an interest in accounting as a career (70.5%), followed by employability (43.7%) and a pathway to permanent residency (40.8%). Because this question allowed respondents to select multiple responses, there is an overlap between categories. Responses to questions on intentions after graduation indicate that 70% intended to work as accountants and 57% wished to remain in Australia. None of these motivations was significant in any regression analysis. Hence, there is no evidence of a link between motivation and general learning engagement.

Learning Engagement

To understand learning engagement among MPA students, the authors examine responses to questions on sources of learning, learning activities, preferred learning style, preferred teaching methods, and the program's contribution to the development of knowledge and skill.

Sources of learning. A choice of 17 sources of learning was presented, and participants were asked to indicate how much they learnt from each source. By far, the most source of learning was from textbooks (75%), followed in a descending order by case studies (67%), calculations (62%), essays and short-answer questions (59%), and multiple-choice questions (54%). Again, while this might reflect the nature of the students, it might also reflect the nature of accounting education.

Learning activities. Time spent in preparing for classes and assessments and the activities employed during this time were used to assess student engagement in learning outside the classes. More than 10 hours per week were spent in preparing for classes by 72% of the respondents, which is well above that of the POSSE (42%) for management and commerce students. Thirty five percent spend over 20 hours per week in preparation compared with 14.3% in the management and commerce in POSSE. The regression on learning activities (Factor 1) indicates that writing ability is the only significant factor (significant level = 0.021) to affect learning activities in so far as the lesser the ability, the lesser the engagement. Table 3 lists the various

learning activities in which students engage compared with the POSSE results for management and commerce. Compared with the POSSE results for management and commerce students, the sample of this paper appears more reticent to seek advice and engages in fewer presentations and group activities but prepares more drafts of assignments.

Table 3

Learning Activities for Class and Assessments (N = 60)

How often do you do each of the following?	Percentage of the respondents whose answers were			
	Often and very often	POSSE M&C	Never	POSSE M&C
Ask questions or contribute to discussions in class or online	26.1	54	2.2	4
Seek advice from academic staff	15.2	35.5	4.3	8
Make a class or online presentation	19.6	42.5	15.2	23.5
Prepare drafts of an assignment before handing it in	63.1	59.5	6.5	11
Use library resources on campus or online	76.1	73	0	5
Use student learning support services	13.1	27	21.7	34
Come to class having completed readings or assignments	56.5	67	8.7	4.5
Keep up to date with your studies	69.5	74	2.2	1.5
Work with other students to prepare assignments	50	62	8.7	12
Use ideas or concepts from different courses when completing assignments	41.3	62	2.2	5
Use email to communicate with teaching staff	56.5	56	2.2	4.5
Discuss grades or assignments with teaching staff	21.7	24.5	10.9	30.5
Discuss ideas from your readings or classes with others	28.2	48	6.5	8.3

Note. M&C stands for the management and commerce.

Preferred learning styles. Respondents were given a choice of four learning methods: memorization, practice exercises, discussion with others, and reflection. Given the nature of accounting education, it is perhaps not surprising that practice exercises are the most preferred learning styles (80%) followed by discussion with others (63%). Although memorization was the least preferred learning style, over half of the students (52%) recorded this as a preference which was almost the same as the POSSE result for management and commerce. It is unclear whether these are actual preferences or simply reflect the accounting curricula, teaching method, and type of assessment.

Preferred teaching methods. In line with the preferred learning styles, class exercises were the most preferred methods of teaching (75%) followed by lectures (72%) and class discussion (65%). The least preferred methods were group work (52%) and online learning (44%).

Program emphases and contribution to knowledge, skill, and personal development. Respondents were asked to identify what they considered to be the key learning outcomes from their programs and to rate the contribution of the MPA to their knowledge, skill, and personal development. As can be seen from Table 4, respondents rated the five course outcomes (knowledge, application, analysis, synthesis, and evaluation) much lower than the POSSE results except in relation to knowledge (memorization). Analysis was given the highest rating and “making judgment” the lowest, indicating that lower-level learning skills were perceived as being given the greatest emphasis. Despite student preference for learning through application, student perception of program emphasis on application is low. The mean score for responses in Table 4 comprised Factor 2 and course emphasis in the regression analysis. The regression results indicate that speaking ability is significant at the level of 0.03 and listening at the level of 0.042. These results suggest that speaking ability is positively

related to the perception of course emphasis, while listening is negatively related to the perception of course emphasis.

Table 4

Program Emphasis on Learning Outcomes (N = 60)

How much do your courses emphasize the following activities?	Percentage of the respondents whose answers were quite a bit/very much		
	Sample	POSSE M&C	POSSE sector
Knowledge: Memorizing key facts, ideas, or methods from your study	59	53	42.5
Application: Applying concepts to practical problems or in new situations	59	78	79
Analysis: Analyzing the elements of an idea, case study, or theory	65	85	85
Synthesis: Organizing ideas, information, or experiences into new and more complex interpretations and relationships	50	76	79.5
Evaluation: Making judgments about the information, arguments, or methods	43.5	74.5	76

In relation to the ratings of program contributions to learning development (see Table 5), the respondents tended to rate the contributions lower than the POSSE results on all but self-understanding which might reflect the experience of international students in a foreign culture. Despite the lesser rating, similar to the sector, the highest rating was given to critical thinking. The mean score for the responses to questions in Table 5 comprised Factor 3 and contribution to development of skill and knowledge in the regression. The only significant factor was writing ability (0.001), inferring that difficulties with writing led to lower ratings on program contributions to knowledge and skill development.

Table 5

Perceived Contribution of Program to Learning Development (N = 60)

To what extent do your studies at this university contribute to your knowledge, skills, and personal development in the following areas	Percentage of respondents whose answers were quite a bit/very much		
	Sample	POSSE M&C	POSSE sector
Thinking critically and analytically	71	78.5	79
Understanding yourself	65	60.5	56.5
Working effectively with others	56.5	63	54
Writing clearly and effectively	53	65.5	66.5
Speaking clearly and effectively	50	55	52
Solving complex and real-world problems	45.5	60	57

English Language Issues

Among the NESB students, Mandarin was the most common first language (78%). Although 60% spoke English most often on campus, while 80% spoke their own languages outside the campus. Students rated their English generally as average. However, it is clear from Table 6 that reading ability is rated more positively than writing, speaking, or listening, and writing presented the most difficulty. Factor 4 in the regression analysis was a combination of the previous three factors: learning activities; program emphasis; and contribution to learning development. Among all the 12 independent variables, writing ability was the only significant variable (0.001), indicating that learning engagement is strongly affected by language proficiency. This is clearly a handicap for communication which does not appear to be addressed by the program, as 48% respondents of the sample perceive their studies as contributing little or nothing to their writing skills compared with 35% for

management and commerce in POSSE. However, over 90% of the respondents did take advantage of learning support services compared with 66% for the POSSE respondents in management and commerce.

Table 6
English Proficiency

How would you rate your level of English for the following?	Percentage of respondents whose answers were		
	Quite good	Average	Below average
Reading	41.7	56.6	1.7
Listening	43.3	51.7	5.0
Speaking	31.7	55	13.3
Writing	18.3	63.4	18.3

Discussion

Overall, the sample of accounting students in this study appears to challenge the stereotype of postgraduate accounting students not being interested in accounting nor engaged in learning but rather seeing it as a means to permanent residency. None of the regression analyses was motivation to study accounting a significant determinant of learning engagement. More detailed analyses of responses and comparison with the POSSE data show that these students are hardworking and desirous of being engaged with higher learning skills but are limited by their English language ability and perhaps the nature of how accounting is taught and assessed. The following discussion is based on the three issues of motivation, engagement, and language.

First, in relation to motivation to enroll in the MPA, half of the students are likely to have done so as a pathway to permanent residency (42%) as Jackling's (2007) sample where 84% enrolled in accounting to gain permanent residency. Indeed, the most common motivation for enrolment (70%) was an interest in accounting followed by employability. A distinction between intrinsic and extrinsic motivators as suggested by Jackling (2007) is not necessarily clear cut. It is possible for students to have both an interest in the field (intrinsic motivation) while also wanting permanent residency or employment (extrinsic motivators). It may also be that students from collectivist and Confucian cultures tend to value what people in the West define as extrinsic motivations in a more intrinsic way (Marginson, 2011) and that self-improvement and self-fulfillment are not mutually exclusive. It should not be a surprise that students who enter a program marketed as a pathway to permanent residency indicate this to be a motivation for study. On the other hand, compared with Jackling's (2007) findings, the lower percentage motivated by permanent residency may simply reflect the students' knowledge of changed immigration laws making permanent residency more difficult in Australia.

Second, in relation to learning engagement, the results both concur with and differ from the stereotype of the Asian learners. Although memorization and reproduction are cited as examples of surface learning strategies attributed to Asian students (McGowan & Potter, 2008; Burch, 2008), the findings of this paper suggest that memorization is the least preferred learning style, especially compared with application of knowledge through practical exercises. While a high reliance on learning from text books might support memorization as the main source of learning, this might simply reflect the nature of accounting education and its reliance on textbooks as the main source of learning. Similarly, the most preferred teaching methods were class exercises (75%) and lectures (72%). Both preferred sources of learning and teaching methods would imply that these students are not engaged in deep learning strategies. But again, such preferences might equally reflect the nature of accounting education, its content, teaching method, and all of these factors conflated

because of the condensed time frame available for the MPA, rather than the nature of the students. Supports for deficiencies in the program rather than the students are clear from the students' ratings of course emphases and contribution to knowledge and skill development, where they perceive the program to be focused on lower-order cognitive outcomes that contribute minimally to skill development. Such perceptions are reinforced in the criticisms of accounting curricula and the findings from curricula content analyses (C. Paisey & N. Paisey, 2007; Kavanagh & Drennan, 2008; Hancock et al., 2009; Bunney & Therry, 2011; Yong et al., 2011).

Third, English language ability appears to be a major hurdle for students and educators. It is not only a barrier to obtain professional employment, but also a major obstacle to learning. Students acknowledge English language, especially the writing ability, as a weakness and are realistic in rating the adequacy of their English language abilities. Although most of the students take advantage of additional learning-support services, well above that reported by Jackson et al. (2006), they do not perceive the program as contributing to an improvement in their language skills. It is also probable that a weakness in language causes students to spend considerably more time both on campus and studying generally. In line with the findings of Li et al. (2010), the fact that language, especially writing ability, is the only significant factor affecting learning engagement across each of the three regression analyses and in the combined analysis would strongly suggest that written English is the key barrier for greater learning engagement. Motivation and cultural stereotypes of Asian learners are insignificant compared with English language proficiency, and yet, students perceive their programs to have contributed little in improving their language proficiencies.

Returning to the questions at the heart of this paper, does motivation to immigrate negatively affect academic learning and how well do Chinese students engage in learning? The results clearly indicate that immigration is not a major motivation for undertaking an MPA degree and, in any case, it has no impact on engagement in learning. Hence, the assumption behind the question may be incorrect. Language ability does have direct impacts on learning, particularly in relation to time, effort, and outcome. Low levels of language proficiency go to questions of entry standards, which in turn may go to MPA programs serving institutional revenue generation rather than pedagogical or reputational purposes. The research raises questions about the type of learning in which students engage and whether this is the consequence of their background or the nature of accounting education, specifically the MPA. The results would suggest the latter, namely, the nature of the education reinforces surface learning without regard to higher cognitive and behavioural skills. What relates to this is the unexplored question of whether academics adapt their teaching and assessment to match what they perceive as the ability of their students, and so in turn, students perceive the program to be of lower learning quality. In either case, standards are possibly being lowered (Birrell, 2009) to nobody's benefit. Breaking away from the stereotype of international MPA students as is suggested by the research may be the first step in breaking the cycle of blame for poor graduate outcomes.

The research is necessarily limited in the generalisations that can be made from a case study based on one program in one university. Limitations of a single case study may be overcome by including similar programs from other institutions, especially programs involving more innovative teaching and learning and more intensive language-support services. Learning engagement alone may not be a sufficient prediction of academic performance, so further research may need to link the independent variables with learning engagement and individual performance results rather than using the average GPA as the authors have done. Despite these limitations, the contribution of this research lies in going beyond the stereotypes of MPA students and Chinese

learners to expose potential faults in institutional motives and in accounting education.

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Annual Reports of Non-profit Organizations (NPOs): An Analysis*

Saunah Zainon, Marshita Hashim, Nadzira Yahaya, Ruhaya Atan
MARA University of Technology, Kuala Lumpur, Malaysia

Non-profit organizations (NPOs) in Malaysia are not subjected to statutory requirement to follow the accounting standards when preparing their annual reports. This study analyzed the annual reports of 100 NPOs registered with the Registry of Society (ROS) under the charity and religious categories. The objectives of this study are: (1) to determine the current state of reporting practices by NPOs; and (2) to describe the contents of a set of annual reports and the financial statement presentation of NPOs. This study found that there were variations in reporting practices among the charity and religious categories of NPOs. On average, the results show that NPOs do not focus on the disclosing information required by the ROS, the governing body of NPOs. This indicates that the regulators need to strongly practice enforcement to strengthen the compliance of the annual reports submission. Overall, the findings of this study provide useful information to regulators as a basis for preparing and presenting NPOs' annual report framework in the future.

Keywords: annual reports, charity, non-profit organizations (NPOs), religious

Introduction

In recent years, non-profit organizations' (NPOs) annual reports have come under scrutiny due to major financial scandals of frauds and misrepresentations (Normah & Katerina Maria, 2012). NPOs need to look for ways to ensure the integrity of their annual reports (Flynn, 2009; Neely, Khumawala, & Gordon, 2007). This is important, as NPOs have stewardship obligations to various stakeholders such as the contributors, members, grant providers, and government, including the public at large. High-quality annual reports help organizations fulfill their needs to be accountable for good stewardship, and generally accepted accounting standards provide high-quality annual reports (Lam, 2009). However, NPOs in Malaysia are not able to demonstrate high-quality reporting standards in preparing their annual reports for the stakeholders, as standards and minimum regulatory requirements are absent. NPOs' unique features of not having a definite ownership represented by voting shareholders as in the private sectors only complicate the preparation of NPOs' general-purpose annual reports. NPOs' organizational structure also differs according to categories, such as healthcare, women, education

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Saunah Zainon, senior lecturer, Faculty of Accountancy, MARA University of Technology. Email: saunah5885@yahoo.com.

Marshita Hashim, senior lecturer, Faculty of Accountancy, MARA University of Technology.

Nadzira Yahaya, senior lecturer, Faculty of Accountancy, MARA University of Technology.

Ruhaya Atan, professor, Accounting Research Institute, Faculty of Accountancy, MARA University of Technology.

(colleges and universities), charity, religion, human resource, sports, youth, culture, and others. These differences in categorization also need to be addressed in the preparation of NPOs' general-purpose annual reports (Holder, 1987).

NPOs' annual and financial reports are the primary means of communication between the organization and its stakeholders. Hence, the reports should provide timely and regular information on the NPOs and their funds, which will enable donors and funding entities such as the government and other stakeholders to gain a full and proper appreciation of the NPOs' activities and financial transactions. As there is no rule obligating the NPOs to have a standardized form of disclosures in the annual reports, the contents provided are not consistent and cannot be compared. The presence of such uniformity enhances comparability and provides interested parties with useful information to evaluate organizations' effectiveness and efficiency for decision making.

Research Issue and Problem Statement

Numerous examples exist of two different organizations reporting the same activities or events in two different ways. The Financial Accounting Standards Board (FASB), being committed to obtain uniformity in financial reporting among NPOs, has issued statement No. 124 to resolve inconsistencies in accounting and reporting of NPOs which require certain disclosures about NPOs information in the annual reports including the returns on investment held by NPOs.

Scholars and practitioners agreed that NPOs have been in operations with little guidance over the years (Anonymous, 1996). The absence of regulatory framework and proper guidelines on the reporting of information (APG, 2011; Weiner, 2003) results in inconsistent reporting in NPOs' annual reports, including those within the same category. It is also difficult for the stakeholders to read and find the information needed in annual reports. Evidence in the media proved that the public at large demanded the information from NPOs in Malaysia (Chandranayagam, 2010). Thus, it is essential and important to standardize the information provided by NPOs to determine the current state of NPOs' reporting practices.

Objectives of the Study

This study aims to provide a foundation in subsequent researches on which the development of hypotheses can be based (Tukey, 1977). The objectives of the study are twofold: (1) to determine the current state of reporting practices by NPOs; and (2) to describe the contents of a set of annual reports and the financial statement presentation of NPOs.

Significance of the Study

This study contributes to the knowledge on content information and overall presentation of the annual reports currently provided by NPOs in Malaysia. Although this study is primarily descriptive in nature, it is important to explore the current state of accounting methods employed so that they can be compared, judged, and evaluated. Lee (2004) queried whether the NPOs were accountable to the public at large, as they received certain tax benefits. He proposed that the NPOs should render an account to the public. This study analyzes the annual reports of the charity and religious categories of NPOs, as annual reports act as a means of accountability to the public at large. In his significant conclusions, Rowles (1999) pointed out that there were three purposes of preparing annual reports: (1) to discharge legal obligation; (2) to help in the evaluation of operational efficiency and effectiveness of the utilization of resources; and (3) to communicate the operational

and financial information to the persons interested. This study can be used as a basis for preparing and presenting NPOs' annual report framework.

Literature Review

Financial Reporting and Financial Statements

A number of researchers have noted that financial reporting serves as a vital instrument in discharging accountability (Connolly & Hyndman, 2004; Gurd & Palmer, 2010; Hooks, Coy, & Davey, 2002; Kilcullen, Hancock, & Izan, 2007; Wei, Davey, & Coy, 2008). Marston and Shrives (1991) reiterated that the annual report was the most comprehensive document available to the public and therefore was the "main disclosure vehicle" (p. 196). It should include a comprehensive disclosure of the organization's financial elements of performance and financial position. In the scope of accountability, financial reporting and financial statements are fundamental in providing the response to the stakeholders for the purpose of discharging accountability (Gurd & Palmer, 2010). The difference between financial statements and financial reporting was highlighted by Higson (2006). Financial statements, consisting of balance sheet, cash flow statement (CFS), statement of income and expenditure, notes to the accounts, and other supporting documents to reflect the "true and fair" view of the financial position, are important as they provide information about the organization's financial position and performance, while financial reporting provides other additional information, including financial information which supplements and complements financial statements. Hyndman (1990) suggested that simplified financial statements would better serve the contributors of such organizations. Information is important for the stakeholders, particularly the donors, to decide whether to continue contributing and supporting the charity (Caers, Bois, Jegers, Gieter, Schepers, & Pepermans, 2006). Donors are important to the charity for future survival, and the area in which the charity organizations are communicating well is in terms of financial information (Howson & Barnes, 2009).

Regulatory and academic interests in NPOs' reporting (Beattie & Jones, 1994; Christensen & Mohr, 2003; Connolly & Hyndman, 2004; Hooper, Sinclair, & Hui, 2008) emerge in correspond to the growth of NPO sector in the economy. Subsequently, there have been pressures on the NPOs to improve their transparency and accountability in discharging their responsibilities through their reporting, which is a tool for the stakeholders to be assured whether these NPOs are transparent and accountable. Although the literatures on financial reporting practices in NPOs are extensive, there is a limited number of researches undertaken on the charity and religious NPOs' annual reports and financial statements, except for the study of Miller (1997) on the 91 annual reports for fiscal years from 1991 to 1994 based on Hong Kong and a study from Malaysia by Noraini, Radiah, Jamaliah, and Erlane (2006) on the annual reports of 32 charity organizations, but none for religious NPOs. Furthermore, lack of standardization and application of Generally Accepted Accounting Policies (GAAP) has resulted in difficulties for users to understand and compare NPOs' annual reports (Bird & Morgan-Jones, 1981; Connolly & Hyndman, 2001). It is also difficult to compare performance and achievement, as the NPOs are established without standardized objectives, and their condition is diverse, as profit is not a bottom-line measure of success in managing resources (Anthony, 1978). These issues further complicate the challenges in determining NPOs' performances. Since there are profound challenges within the NPOs, the accounting for NPOs is regulated by certain standards in the same manner of the private sector in the developed countries. The financial reporting regulatory environments of the developed countries in the UK, US, and Canada have adopted all similar conceptual frameworks based on the decision-usefulness model.

Types and Regulatory Framework for NPOs in Malaysia

NPOs in Malaysia are in the form of either charitable corporation or a society. The societies, which are registered, monitored, and controlled by the Registry of Society (ROS), are governed by the Societies Act 1966 and Societies Regulations 1984 within the Ministry of Home Affairs. The main statutes dealing with the establishment and regulation of NPOs in Malaysia are the Societies Act 1966 (Act 335), Societies Regulations 1984, and the Income Tax Act (ITA) 1967 issued by the Inland Revenue Department (IRD). Some NPOs may register under specific acts (e.g., the Sports Commission Act, the University and University Colleges Act 1971, and Youth Commission). Otherwise, they can register themselves under the Companies Act. NPOs in the form of company are incorporated as companies limited by guarantees (known as “charitable corporation”) and are governed by the Companies Act 1965. The organizations registered under the ROS must submit Form 9 that consists of the statement of receipts and payments of the last financial year, together with a balance sheet showing the financial position closely of the last financial year to the ROS within 60 days after holding its annual general meeting¹. This requirement is in accordance with Section 14(d) of the Societies Act 1966 (Act 335) and Societies Regulations 1984. However, the accounts submitted may not necessarily be audited. Other statements that supplement financial statements, such as CFS, statement of changes in general fund and notes comprising a summary of significant accounting policies, and other explanatory notes, are not required by the ROS.

Sample of the Study

The sample of the study consists of 100 annual reports for the financial year of 2010 of NPOs registered with the ROS. The sample is further divided into 50 annual reports of charity category of NPOs and 50 annual reports of religious category of NPOs. Charity and religious categories of NPOs are the second and the third largest categories among all categories of NPOs registered with the ROS. The first largest category of NPOs is categorized as “others” that form various types of NPOs which are excluded from this study. Table 1 presents the years of establishment in the sample.

Table 1

Years of Establishment

Year	Establishment	Charity NPO		Religious NPO	
		<i>N</i>	%	<i>N</i>	%
More than 40 years	Very old	7	14	7	14
30-39 years	Old	2	4	7	14
20-29 years	Very matured	8	16	9	18
10-19 years	Matured	17	34	10	20
5-9 years	Established	14	28	12	24
Less than 5 years	New	2	4	5	10
Total		50	100	50	100

Table 1 highlights that the majority (34% charity NPOs and 40% religious NPOs) of the sampled organizations were established 10 to 19 years ago and are deemed to be “matured” organizations. The least is from “new” organizations which were established less than five years ago (4% charity NPOs and 10% religious NPOs). On average, most organizations were “established” five to nine years ago.

¹ Section 14(1) of the Societies Act 1966 (Act 335) and Regulations.

Data Collection and Methodology

The ROS maintains and keeps a proper record and filing of annual reports for NPOs registered at their offices. A few visits were made to the ROS to obtain the copies of the annual reports that also contained the financial statements of the respective NPOs. One hundred annual reports containing the financial statements, for the financial year of 2010, were finally collected.

The contents and the overall presentations of financial statements were analyzed using the content analysis. Content analysis is "... a method of codifying the text (or content) of a piece of writing into various groups or categories depending on the selected criteria..." (Krippendorff, 1980, p. 20). Content analysis was often used in the financial statement analysis and disclosure studies (Arnone, Ferauge, Geerts, & Pozniak, 2011; Roshayani, Normah, Rashidah, Jamaliah, & Intan Salwani, 2012; Saunah, Ruhaya, Bee Wah, & Raja Adzrin, 2012). In the disclosure study, a dichotomous technique was used to give scores to the amount of disclosure made, i.e., an item scores one if it was disclosed and zero if otherwise. This is commonly known as unweighted index. The main drawback of content analysis is the subjectivity of the technique itself. Hence, the instruments' reliability used in a content analysis can be questioned. To overcome this issue, a test-retest approach was adopted as recommended by Krippendorff (1980). The test-retest for this study was performed by two independent raters who had a qualified accounting background. The purpose of test-retest or inter-rater reliability or inter-observer is to achieve the level of agreement in viewing the same activity or setting. Inter-rater reliability measures assess the relative consistency of judgments made by two or more raters (Michael, Bryman, & Liao, 2004). The results show that there are some levels of agreement and consistency of the annual reports analyzed.

Research Findings

Descriptive statistics (percentage and frequency) were used to describe the contents of the annual reports and the overall presentations of financial statements. This study further looks into seven selected items contained in the NPOs annual reports. This follows studies carried out by Miller (1997) and Noraini et al. (2009) in more detailed analyses. In general, less than 50% of both charity and religious NPOs complied with the ROS requirement to submit the statement of receipts and payments, along with the balance sheet. This indicates that the organizations did not fulfill the basic requirements of the ROS to furnish both of the two statements. A more detailed and in-depth analysis is then conducted to analyze the contents and the overall presentations of the financial statements. The analysis is sub-grouped into: (1) balance sheet; (2) CFS; (3) statement of receipts and payments; (4) statement of income and expenditure; (5) auditors; (6) disclosure; and (7) accounting method.

Balance Sheet

Not all of the sampled organizations included a balance sheet in their financial statements, even though it was required by the ROS. Seventy five percent of the overall organizations submitted the balance sheets in vertical form of presentations. Twenty-four organizations, all from charity category of NPOs, supplemented the information on general fund provided in the balance sheet by a separate statement of changes in general fund. This statement is a separate component of the financial statements showing the changes and movements in general fund for one period of time. The statements reconcile the general fund at the beginning of the period with the general fund at the end of the period combining the information on net surplus or deficit of the organization. As NPOs' multiple stakeholders have legitimate interests in the financial position of NPOs, the statement of changes in general fund represents the net resources that the NPOs have built up and not to

represent ownership interests as in the profit sector. Eighty six percent (i.e., 44 charity NPOs) and 42 religious NPOs showed surpluses with some NPOs having surpluses more than a million for the financial year end of 2010. The remaining suffered deficits. The contents of the balance sheets were inconsistent, and there was no uniformity. For example, some NPOs showed only the fixed assets, while others only showed the current assets.

CFS

Complementing the balance sheet and the statement of receipts and payments, the CFS is a mandatory part in the profit organizations. It records the amount of money coming and how it is being spent. CFS can exhibit a healthy or positive cash flow and can raise a red flag on a negative cash flow for an organization to continue running its activities. By having the CFS, it allows the management of the NPOs to make plans on providing more programs and services in the excess of cash, and conversely, cut the program services. The two methods of presenting the CFS under the Financial Reporting Standard (FRS) 107, the direct method and the indirect method (Malaysian Accounting Standards Board, 2005), have different procedures but yield the same results on the amount of cash flow. However, FRS 107 encourages entities to report their cash flows using the direct method (Lazar & Ching Choo, 2008). The analysis in this study revealed 31 NPOs (31%), 19 from charity NPOs and the balance from religious NPOs, included a CFS as a part of their financial statements even though it was not required by the ROS. This is considered as providing voluntary information in fulfilling the stakeholders' needs. Sixteen out of 31 NPOs applied the indirect method. By having the CFS, the cash flow ratio can be computed to evaluate the liquidity, financial health, and performance of the NPOs. This statement allows the users of the information to understand the way an NPO's operations are financed. The results from the previous study confirmed that all large charity NPOs included a CFS (Williams & Palmer, 1998).

Statement of Receipts and Payments

The ROS requires the NPOs to submit their annual reports including the statement of receipts and payments. This statement is important, as it records the amount and form of payments made. It also addresses the way the NPO's receipts and payments are changed during the period. This is to determine whether the NPOs have surplus or deficit due to large expenditures incurred or shortfall in revenues. Even though it is required, only 67% from the whole sample complied with this requirement. Out of 67%, most of them were from charity NPOs (45 NPOs).

Statement of Income and Expenditure

Eighty four percent of the NPOs (i.e., 52 charity NPOs) and 32 religious NPOs prepared the statement of income and expenditure. The statement was prepared in general, and only four NPOs provided a detailed classification of expenses into mission-programs expenses and administration expenses. The classification of these mission-programs expenses and administration expenses would assist the IRD in determining the percentage of mission-programs expenses, since it is a requirement to have at least 50% expenses incurred for mission-programs in order to qualify for the tax-exempt status. However, the amount of donation made to the religious NPOs is not eligible for tax exemption by the IRD. Thus, the 50% rule can only be applied to charity NPOs. In the US, the Internal Revenue Service (IRS) requires to present the expenses by a functional category of fund raising, administration, and program expenses in their annual reports submission. For tax-exemption eligibility, the 70% rule of mission-programs expenses is applied in the US.

Auditors

Out of 100 NPOs, 64 charity NPOs which furnished the financial statements in applying for tax-exemption status as a requirement of the IRD were audited by the external auditors. Nevertheless, none of these 64 charity NPOs was audited by the “Big 4” accounting firms, i.e., Pricewaterhouse Coopers (PwC), Deloitte Touche Tohmatsu, Ernst & Young, and Klynveld Peat Marwick Goerdeler (KPMG), which are the largest international accountancy and professional services firms that handle the vast majority of audits for publicly-traded companies. None of the religious NPOs’ financial statements was audited by the external auditors.

Disclosure

FRS 132 states that the purpose of the disclosure is to enhance the understanding about the significance of financial instruments to the entity’s financial position, performance, and cash flows. The disclosure should provide information to assist users of financial statements in assessing the extent of risk related to financial instruments. However, the standard does not prescribe the format or location for disclosure of information which may be of narrative commentary or quantified data. An entity should describe the objectives and policies of the financial risk management. The findings in this study indicated that 16 NPOs disclosed risks related to financial instruments. The four types of risks are market risk, credit risk, liquidity risk, or funding risk and cash flow interest rate risk. The market risk encompasses currency risk, fair value interest rate risk, and price risk. The disclosures about fair value of financial instruments are disclosed by two religious NPOs. It was also found that the charity NPOs that appointed the external auditors did provide the disclosure of accounting policies in their notes to the accounts. This finding is similar to the study carried out by Radiah, Jamaliah, and Noraini (2006). Another interesting finding is on the transparent disclosures made by the NPOs in revealing the names of their donors in the notes to the accounts as a means of gratitude and appreciation. This disclosure was made by the charity NPOs, partly to acknowledge the donors through the means of reporting.

Accounting Methods

The accrual accounting system is required by the standards for all profit sectors. The NPOs may apply either the cash basis or the accrual accounting system. This study indicated that 36% of all charity NPOs had used accrual basis of accounting in the preparation of the financial statements. The most likely explanation is that the application of either the accrual or the cash basis may not be significant, since it is not a violation to any accepted accounting standard.

Summary of Research Findings

From the above findings, it can be pointed out that NPOs are not effectively using the financial statement as a means of communication for information. None of the sampled NPOs provided uniform information due to the lack of uniform guidelines, which had resulted in various accounting practices by the NPOs. The differences in financial statement presentations have caused difficulties in comparing the performance of the respective NPOs. The above findings are summarized in Table 2.

Comparing the descriptive findings in Table 2, it can be seen that charity NPOs dominate religious NPOs in terms of compliance with the regulatory requirements (i.e., both the ROS and the IRD). In addition, the tax-exempt benefits could be one of the most possible reasons for the charity NPOs to have a greater compliance with the regulatory requirement. The tax-exempt status and the information provided in the annual

returns would enable more donors to donate in their organizations (Khumawala & Gordon, 1997; Parsons, 2003). The survival of NPOs depends on the supports of funds from various sources, such as donations, grants, and fees. With more funds, they would be able to hire the external auditors to ensure the quality of reporting information in their annual reports. Based on the findings, charity NPOs are able to appoint external auditors and at the same time fulfill the IRD requirement for tax-exempt status purposes.

Table 2

Summary of Findings

Variable	Charity NPO (N = 50)	Religious NPO (N = 50)	Overall NPO (N = 100)
Balance sheet*	24	51	75
CFS	19	12	31
Statement of receipts and payments*	67	45	22
Statement of income and expenditure	84	52	32
External auditors**	64	nil	64
Disclosure of risks related to financial instruments	16	nil	16
Accrual accounting method	36	nil	36

Notes. * stands for the requirement by the ROS and ** stands for the requirement by the IRD.

Conclusions, Limitations, and Future Research

The objective of this study is to determine the current state of reporting practices by NPOs and to describe the contents of a set of annual reports and the financial statement presentation of NPOs. By identifying the items contained in the financial statements of the selected samples of NPOs, this study can be used as a basis of framework preparing and presenting NPOs' annual reports for better improvement of NPOs' annual reports which are hoped to disclose necessary information required by various stakeholders. The importance of information in the annual reports is highly expected as the "appropriateness of stakeholder decisions for at least partly a function of the quality of the financial reports used" (R. J. Yetman & M. Yetman, 2004, p. 2). As the annual reports are major sources of information for the stakeholders, the reports should be prepared and presented according to the stakeholders' needs. Even though it is mandatory that the balance sheet and the statement of receipts and payments are submitted to the ROS annually, it was found that they were not being fully submitted. Thus, there is a strong need for enforcement to strengthen the compliance of the annual reports submission. Furthermore, the results portray that most NPOs do not focus on the disclosing information as required by the ROS. As suggested by Irvine, Mack, Ryan, and Tooley (2010), a stewardship model can act as a foundational pillar for NPOs' reporting in order to cater the uniqueness of the NPOs in the absence of a single bottom line to measure NPOs' performance. Therefore, there is a need for legitimacy through the regulatory body such as the Malaysian Institute of Accountants (MIAs) to provide basic guidelines for the financial statement preparation by NPOs. However, this study has a number of limitations. A small sample size of 100 NPOs from only two categories of NPOs may not reflect the full sample of the organizations. The use of the content analysis may need to be extended to the perspectives of the preparers of the annual reports as the reasons for disclosure and non-disclosure of information. Future research may focus on the information needs from various stakeholders of NPOs, so that more reliable information can be included in the preparation of annual reports.

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The Modern Business Reporting Dimension Including the Reports of the Supervisory Board

Ewa Walińska, Jacek Gad
University of Lodz, Lodz, Poland

This paper¹ is of conceptual nature. The considerations are based on literature studies and empirical research carried out in 2009 and 2011 among the members of supervisory board in Polish public companies. The purpose of this article is to present a new business reporting model extended by the supervisory board's reports. The part of this article, which is based on the literature research, clarifies the scope of modern business reporting, being a part of a company's information system. This article includes management commentary proposal prepared by the International Accounting Standards Board (IASB). The authors proposed a supplement to the management commentary which is a global model of disclosures accompanying financial statements. According to the concept presented in this article, information prepared and disclosed by managers in financial statements and management commentaries are parts of a larger reporting system—corporate reporting supply chain. This paper mainly proposes an extension of a modern company's information system with a new channel of communication, such as supervisory board's reports. This article explains the role of a supervisory board associated with the conception. In the prepared conception, supervisory board becomes an active reviewer of management action. Moreover, it is also an active participant in the chain of corporate reports. Deliberations presented in this article are the voices in the debate on the shape of the modern business reporting.

Keywords: supervisory board, corporate governance, business reporting, accounting

Introduction

Currently, an annual report consisting of traditional financial statements and accompanying additional disclosures is a kind of a “window” through which stakeholders can take a look inside a company. Not only may they assess the present—what the enterprise owns, but also the past—what the enterprise possesses at the beginning of a given year and the future—what sort of a strategy the management has adopted in order to multiply their assets. The high-quality annual report should contain information that would allow confirming that the managing body is aware of various kinds of threats and all manners of concurrent risks bound with a particular activity.

As Eccles and Krzus (2010) rightly defined, the core of the annual report combined traditional financial reporting and business reporting. According to them:

Ewa Walińska, professor, Faculty of Management, Department of Accounting, University of Lodz. Email: ewalinska@uni.lodz.pl.

Jacek Gad, Ph.D., Faculty of Management, Department of Accounting, University of Lodz.

Correspondence concerning this article should be addressed to Jacek Gad, Ph.D., Faculty of Management, Department of Accounting, University of Lodz, 22/26 Matejki St, 90-237, Lodz, Poland. Email: jgad@uni.lodz.pl.

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A form of one report has the potential to significantly change the way in which companies operate and the way in which investors think, shifting the attention to achievement of short-term goals of a financial character in order to develop a long-term business strategy. (p. 30)

During the discussion on the expansion of the range of disclosures, one should remember that the excess of information included in annual reports may lead to informational chaos. Many scholars pay attention to this problem, as they believe that “Today, the real challenge does not revolve around increasing the number of disclosures but providing crucial and useful information along with its presentation in a comprehensible form” (Walińska, 2009, p. 164). Also, Di Piazza (2011) considered that “Our problem lies in the fact that we excel in expanding reports but we are not that successful in constructing frameworks allowing for integration of all the new disclosures” (p. 31).

A project of a management commentary prepared by the International Accounting Standards Board (IASB) plays a key role in that sphere. It represents a step towards the global consensus concerning the shape of annual reports that comes along with financial reports. The management commentary presents the current and the future situation of a company, seen from the perspective of the managing body. However, it seems that the vision is incomplete. In the commentary, management outlines its point of view, which is although valuable for stakeholders, lacks some kinds of counterweight. In the authors’ mind, supervisory board reports may be a brilliant supplement to management commentary. In such a way, stakeholders would get information inclusive of both the management point of view and the independent supervisory board outlook.

The present article is of a conceptual character. It aims at presenting the business reporting model complemented with the idea of supervisory board reports. Reflections displayed in this article are effects of a literature study and empirical research conducted from May to June and from September to October in 2009, as well as in September and October 2011 among members of supervisory board of public companies in Poland.

Business Report as a New Concept of Communication With Stakeholders

The form and scope of information presented by companies in annual reports change along with transformations in the world’s economy, namely, foremost changes concerning types of ownership and ways in which companies are organized, evolution of management methods, and changing expectations connected to companies’ operations in the environment.

In the literature of the late 20th century, the attention is paid to the fact that carriers of change comprise, i.e., globalization, new technologies, and the growth of the accountability meaning in company management (The Institute of Chartered Accountants in England and Wales, 1998). The core of the evolution of annual reports is the ever-growing influence of the business environment on the content of those reports.

Some directions in those changes can be noticed, and they manifest themselves mainly in disclosures concerning the following (The Institute of Chartered Accountants in England and Wales, 1998; Świdarska, 2007):

- (1) Risk;
- (2) Areas of value creation and carriers of value;
- (3) Intangible assets;
- (4) Environment protection;
- (5) Competitive position;
- (6) Management’s strategies and plans.

Evaluation of annual reports was clearly presented by the Institute of Chartered Accountants in England and Wales (see Table 1).

Table 1

Reporting in a Period of Change

The “old” system	The “new” system
Shareholder focus	Stakeholder focus
Standardized information	Customized information
Company-controlled information on performance and prospects	Information available from a variety of sources
Periodic reporting	Continuous reporting
Distribution of information	Dialogue
Financial statements	Broader range of performance measures
Past performance	Greater emphasis on the future prospects
Historical cost	Substantial value-based information
Audit of accounts	Assurance of underlying system
Nationally-orientated	Globally-based
Essentially static system	Continuously-changing model
Preparer-led regulations	Satisfying marketplace demands

Note. Source: The Institute of Chartered Accountants in England and Wales (1998).

Disclosure of additional information performed by companies in form of thematic reports (on risk, environment protection, etc.) is undoubtedly positive. However, there is a minor obstacle connected with that, namely, it leads to the loss of comparability of annual reports. In the framework of the annual reports, companies disclose various thematic reports containing unrestricted form and character. Therefore, there is a need to create a unified global style sheet of disclosures accompanying financial statements. It seems that the project on management commentary developed by IASB can serve the role of style sheet.

Management Commentary Developed by IASB as a Step Towards the Global Consensus on the Content and Structure of a Business Report

In December 2010, the IASB published the conception of management commentary (IASB, 2010). It should be stressed that the IASB recommendation does not have the international standard character that companies would necessarily adhere to. It is rather a form of good practices. According to the IASB guidelines, the management commentary will help the managing body with the creation of information set which will go with financial statements and is useful for the decision-making process, simultaneously in accordance with the IASB. It should create a context which, on the one hand, would make it possible to understand the goals of the managing group, but would allow for grasping the necessary strategy to achieve those goals on the other hand.

Table 2

Information Areas of the Management Commentary

Area of information	Description
The nature of the business	The description of the operations allows users of financial reports to comprehend the functioning of a company and external conditions of environment in which it operates. This information serves as a basis for the evaluation and comprehension of the company's results, its strategic options, and perspectives.
Objectives adopted by management and a strategy to achieve these goals	Disclosures concerning goals and strategy are useful to the greatest extent, as they allow users of annual reports to understand the perspectives.

(Table 2 continued)

Area of information	Description
The most significant assets of a company, different types of risks and relations	The management commentary including a clear description of the assets of a public company and various kinds of risks and relations, which according to a board, is believed to influence the long-term value of the company. Additionally, the management commentary includes information on how the assets and types of risks are managed.
The results from specific activities and perspectives	The management commentary should include a clear description of financial and non-financial results of a company within the range of its potential influence on the future results of the company and its evaluation of perspectives. Useful disclosures in this area may assist users in preparing their own evaluation regarding assumptions and verdicts employed by the management in the course of financial statement creation.
Important measures and indicators of effectiveness employed by management for evaluation of a company's effectiveness in consideration of adopted goals	Disclosures in the area of measures and indicators of effectiveness (both financial and non-financial), which are used by the management to evaluate the progress in consideration of adopted goals, may help users of the annual reports to estimate the extent to which goals are realized. Measures of effectiveness are quantitative measuring instruments that reflect key factors contributing to success of the company. Effectiveness indicators may either explain how a company is managed or clarify particular operations of the company. Additionally, they can serve the function of a qualitative measuring instrument that provides indirect clues about effectiveness.

Note. Source: IASB (2010).

Within the framework of the IASB concept, a specified catalogue of areas of information was proposed. Yet, a notice is made that the detailed structure of the management commentary will be dependent on conditions in which a company operates (see Table 2). It needs to be highlighted that elements included in the management commentary are mutually related and should not be presented separately.

A study prepared by the IASB seems to mark a breakthrough when considering the modern model of disclosures. It is extremely important that as it is of an international character, it may contribute to the development of the global model of disclosures accompanying financial statements. In the IASB study, it is clearly highlighted that the management commentary inclusive of legally regulated activity report (directors' report) stands for business report (Gad, 2010). Thus, an annual report comprises financial statements, additional obligatory disclosures, and the management commentary (business report) (see Figure 1).

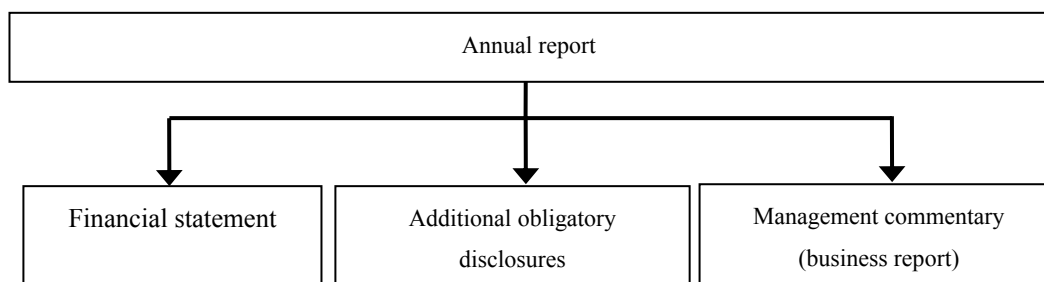


Figure 1. Elements of annual report. Source: The authors' own study.

Information prepared and disclosed by management in the financial statement and the management commentary (business report) are parts of a larger reporting system, functioning in a company itself and in its environment—a corporate reporting chain. The management commentary is perfectly embedded in a concept of the corporate reporting chain since management constitutes its key link. The management adapts a unique perspective in the company, which has a particular meaning to users of the management commentary, because it allows evaluating the company's financial results and its development perspectives.

Management and Supervisory Board in the Corporate Reporting Chain

The concept of the corporate reporting chains relies on the information system division into smaller units, namely, links. Di Piazza and Eccles (2003) in their corporate reporting chain theory distinguished six of such links (see Figure 2). Particular links are responsible for various functions, starting from engaging in report formulation, confirmation, and communication to report utilization. Relationships between the links and their functioning within the chain are determined by existing standards (including the standards regarding financial reporting), market regulations, and also by technological potential and organization of the information system in the company (Di Piazza & Eccles, 2003).

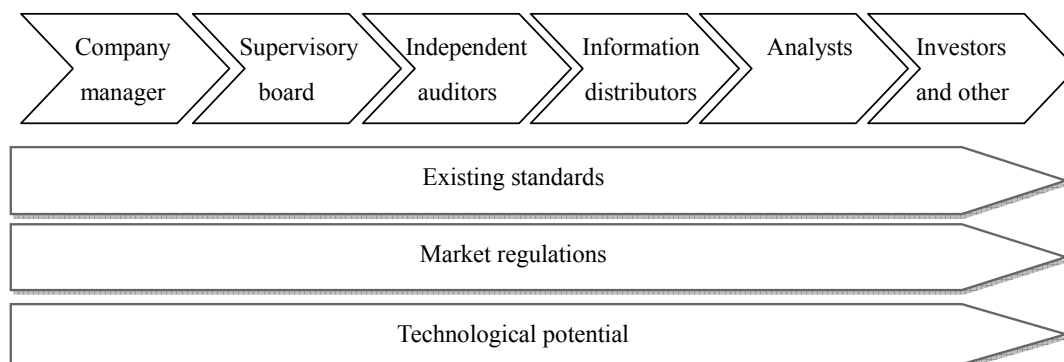


Figure 2. The chain of corporate report delivery. Source: Di Piazza and Eccles (2003).

The first two links, consisting of management and supervisory boards, are of great significance from the perspective of the corporate reporting chain. Those links are connected to preparation and disclosure (in the case of management), the process of supervision (in the case of supervisory board), and confirmation of information (not only in the case of supervisory boards, but also in the case of annual general meeting). Both management and supervisory board constitute the foundations of the company's information system.

The management is responsible for creating the company's information system by means of which reports are formulated. The managing body accounts for the form and range of the disclosed information in financial statements and business reports alike. One cannot fail to notice that the managers also take responsibility for organization of the communication system among company bodies. They ought to, firstly, ensure supervisory board access to current and essential information.

Supervisory board controls all of the company's activity areas, in particular the way in which the information system operates with inclusion of the accounting system. In relation to the accounting system, supervisory board serves a double role. On the one hand, the objective and unbiased supervision depends on it, but on the other hand, it is accountable for the content of the final product, i.e., the financial statement. Supervisory board on a par with management takes responsibility for compatibility of the financial statement with the accounting act regulations (respectively with International Accounting Standards (IASs) and International Financial Reporting Standards (IFRSs)). The burden of responsibility put on supervisory boards is related to numerous difficulties. Moreover, the body in relation to the accounting system takes the role of the evaluating and the evaluated. Importantly, supervisory board and management bear the joint responsibility of the compatibility between the activity report (directors' report) and the accounting act regulations.

The aforementioned obligations incumbent on supervisory board enforce the specific engagement of this body into the financial reporting and business reporting functioning.

Supervisory Board in the Company's Information System

The basic task of supervisory board is the supervision over all operational areas of a company. Thus, the scope of the actions of the supervisory board is fairly vast. Additionally, effective supervision over a company's operations demands an active and cooperative management, internal and external auditors, and participation of audit committee (created out of supervisory board) in company activities. The character of relations among those units is determined by, i.e., form of supervisory board. Depending on the obligatory supervisory model in a given country, either monistic or dualistic, the authors can distinguish between a board of directors and supervisory board. In the case of a board of directors, the authors deal with the combination of supervisory and decision-making functions. In the dualistic model in turn occurs a clear separation of supervisory functions (belonging to supervisory board) from decision-making functions (belonging to management). In the dualistic model (e.g., in force in Poland), there are two independent company's bodies, management and supervisory board. It needs to be highlighted that neither of the bodies is superior and can issue binding commands. The cooperation of these two bodies calls for development of a correct communication system. Management should provide supervisory board with up-to-date and valuable information about activities of companies.

The actions of a well-informed supervisory board should embrace, i.e., contribution to effectiveness maximization of audits (both internal and external) (The European Federation of Accountants, 2003). The cooperation between supervisory board and auditors demands an appropriate organization of the information system. It seems that nowadays, supervisory board plays a key role in the company's information system. In a sense, it is the abovementioned system coordinator's role.

The Supervisory Board Reports as a Means of Communication of the Supervisory Body With Shareholders and Stakeholders

Members of supervisory board play an important role in the corporate reporting chain that mainly revolves around the control of the credibility of data disclosed by a company with utilization of information gathered from the previous links of the reporting chain, i.e., from the board, internal audit, or from a statutory auditor. To a great extent, effectiveness of supervisory board depends on the efficient and reliable information system of a given company.

Nonetheless, it seems that the existing economic reality determines a new approach to the role of supervisory board in a company. The former, which ceases to be an administrator, is the one that is not always fully informed about a situation of the company or not always engaged in its operation. Supervisory board becomes the professional body, which is prepared for control. Among the signs of the professionalization process, one can find the responsibility of creating new task-oriented units, such as audit committees that ought to incorporate at least one expert on finance and accounting.

According to the authors, members of supervisory boards should actively participate in the process of information relaying, i.e., originating from the accounting system to other stakeholders. In that way, as the external objective users of the information system in a company (including the accounting information system), they are able to take a stance on the financial situation in the company and credibility of its accounting system.

Active participation of supervisory board in the company's information system, consisting in information relating to other stakeholders, may be one of the forms of governance (Gad, 2011).

From the perspective of members of supervisory board, company owners whose interests are represented by the board are particularly an important group of stakeholders. Although it needs to be remembered that also in public companies, a new group of stakeholders, apart from the existing ones, can be distinguished, i.e., potential shareholders that may be interested in acquisition of information from supervisory board. Thus, it is justified to have members of supervisory board preparing two groups of reports within the corporate reporting chain framework (see Figure 3).

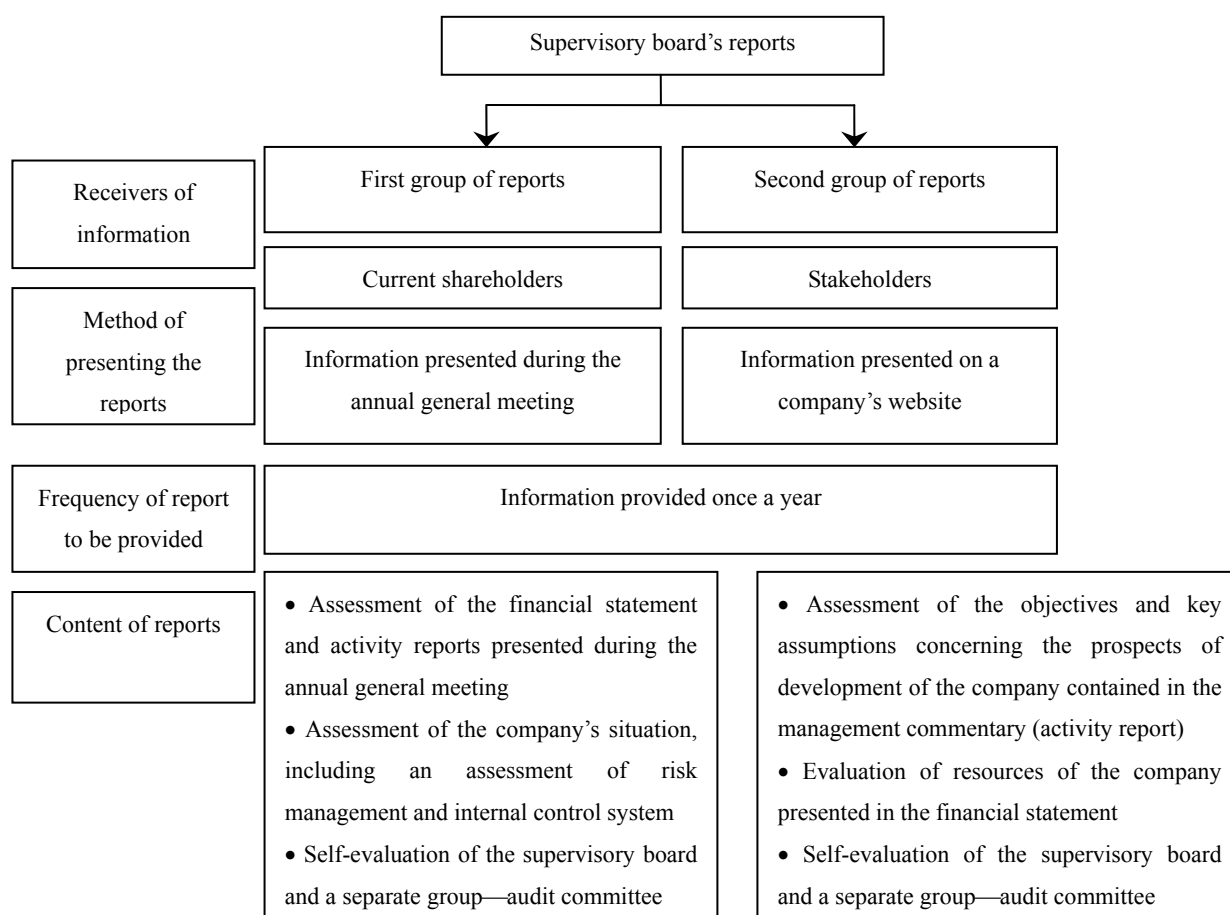


Figure 3. Two groups of reports prepared by the supervisory board. Source: Gad and Walińska (2011).

The first group contains reports given at the annual general meeting to the present stakeholders. In that area, one should refer to, i.e., the records of good practices of companies listed on Warsaw Stock Exchange (2010), according to which members of supervisory boards are obliged to give evaluation to the company owners (during the annual general meeting) annually with consideration of the internal audit system and the risk-managing system relevant to a company (Gad & Walińska, 2011). During the annual general meeting, the report concerning compatibility of the financial statement and the report regarding company's activity with both a real situation of the company and the accounting law should also be presented. The crucial element of the first category of reports is the self-evaluation of supervisory board and the audit committee functioning

within the framework of the latter. It is worth noticing that according to good practices of companies listed on Warsaw Stock Exchange (2010) at the beginning of 2012, members of supervisory boards are exempt from responsibility of formulating and presenting the self-evaluation during the annual general meeting. In the authors' belief, this particular report is one of the proofs of supervisory board members being professional, and therefore, it should remain the constant element of information packages prepared by boards.

The second group of the reports, disclosed together with an annual report, should be devoted to potential owners. Those reports should include a prohibition for supervisory board's members to disclose information of commercial character. The idea of those reports boils down to displaying a company's situation (and thus the efficiency of the management actions) from the perspective of supervisory board. They may be the supplementation of the management commentary. Supervisory board, when referring to information given in the management commentary, prepares its own evaluation of the company's situation. The construction of the following reports is bound with a crucial change of the way in which bodies function in public companies. Supervisory board becomes an active reviewer of actions undertaken by the management.

According to the authors, basic reports created for potential owners should comprise the evaluation of the accepted objectives and the main assumptions regarding perspectives of the company's development formulated in the management commentary (activity report) as well as the evaluation of the company's assets presented in the financial statement.

The controlled assets presented in the financial statement express future economic benefits. Supervisory board should then assess the real potential of those benefits.

The authors believe that among information disclosed on a company's website, the self-evaluation of the supervisory board should be included. The report on the self-evaluation is a method by means of which members of supervisory board can account for their works to the company owners.

There is an additional advantage to supervisory board's publishing the aforementioned reports, as they can serve as a confirmation that supervisory board is familiar with the current situation of the company. What is more, the body ought to assess the influence of the current situation on the future position of the company within the framework of the reports. Then, the reports serve a disciplining function over supervisory boards and encourage them to work actively for the good of the company.

The Concept of Business Reports Incorporating Supervisory Board Reports

It seems that in light of equalization of responsibilities of management and supervisory board for the accounting system of a company, two bodies, management and supervisory board, should be involved in preparation of business reports. At present, not only competence but also activity and engagement are demanded from supervisory board². On the one hand, members of supervisory boards should possess the elementary knowledge of accounting or law, but on the other hand, they should be perfectly acquainted with the current situation of their companies. Those are the inextricable conditions necessary for the co-creation of reports in cooperation with management. The reports in question would include both reports by management and supervisory board (see Figure 4).

² The process of evolution of the supervisory board was influenced to some extent by the recent legislature changes. As it was mentioned before, supervisory boards were made to take responsibility for the financial statements both in the USA and in Europe. By that, supervisory boards enjoy more prestige and meaning.

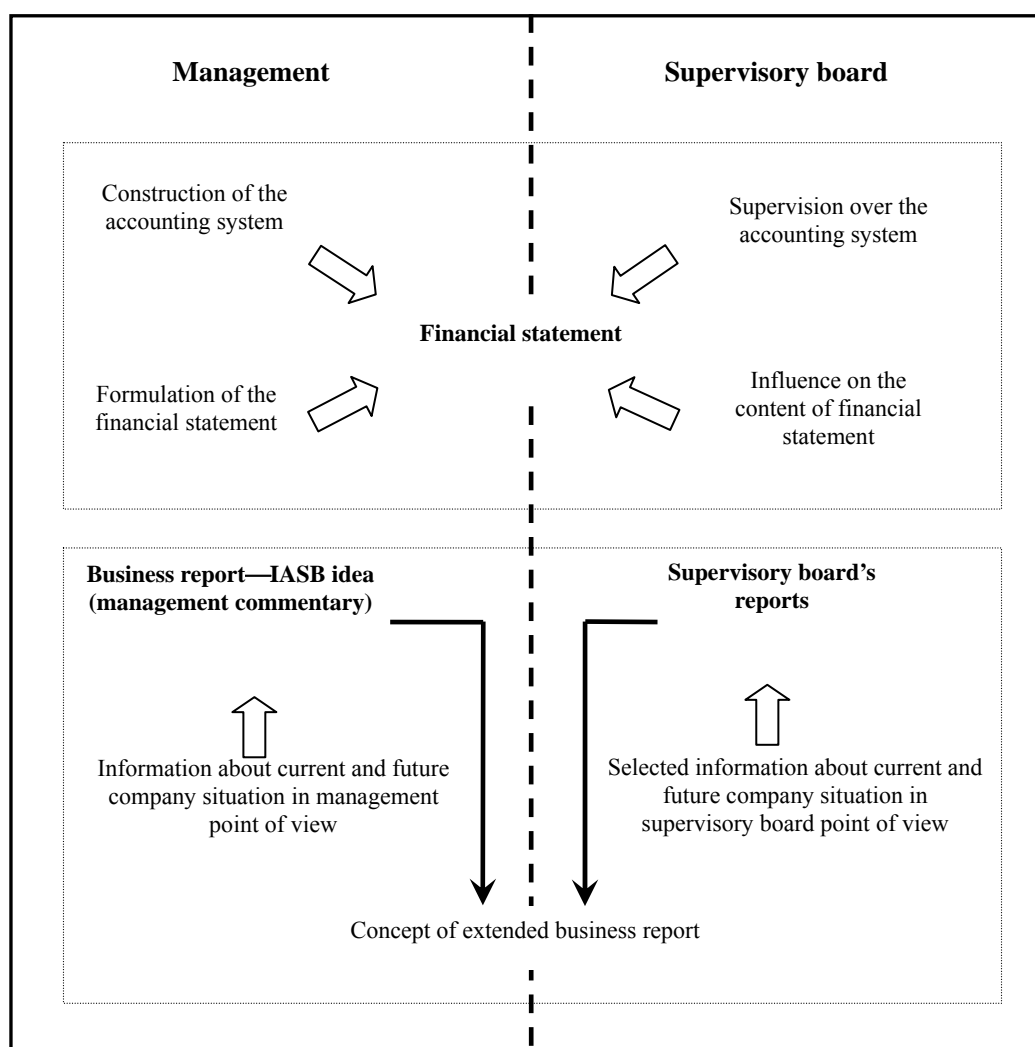


Figure 4. Concept of extended business report. Source: The authors' own study.

Supervisory board, in its reports, ought to refer to information presented by management in the management commentary (business report). Any user of the extended business report would get the evaluation of a company's situation seen from two distinct perspectives, i.e., those of the management and the supervisory board. The institution of supervisory board reports allows meeting responsibility put on the body by the Article 4a of the Polish Accounting Act³, namely, responsibility for compatibility between the activity report (directors' report) and the abovementioned act. In that way, supervisory board may avoid liability for potential misstatements connected with the creation of the activity report (directors' report).

Conclusions

Innovation of the presented concept revolves mainly around the extension of the communication system between the company and environment. The new communication channel concerns primarily information relayed to stakeholders and shareholders by supervisory board. The tool enabling the communication is the set

³ Polish Accounting Act of September 29, 1994. *Journal of Laws*, No. 76, Items. 694 with further changes.

of reports prepared by supervisory boards for stakeholders and shareholders. Reports prepared by supervisory board accompany information prepared by management and constitute the business report.

It may seem that users of such a form of the business report receive more credible pictures of the company. In a study published by the International Federation of Accountants (2011), it was stressed that:

High-quality business reports are the core of the strong capital market and constant economic growth. All of the units involved in functioning of the corporate reporting chain play the key role in making those reports more significant, comprehensible, and credible. (p. 7)

Having all things considered, the presented concept is a voice in the discussion of the modern shape of business reports. Supervisory board becomes an active participant in the concept of the corporate reporting chain. Activities of the board ought not to be limited to operations within the initial links of the chain, focusing exclusively on ensuring credibility of the information system of a company (with inclusion of the accounting system). The board should expand that chain adding their own reports and in that way supplement business reports presented by companies.

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Dynamic Target Costing (TC) in Real Estate Development Industry in Taiwan

Wu Chiling

Shin-Chien University, Kaohsiung, Taiwan

Chen Shumei

Kun Shun University, Tainan, Taiwan

This paper discusses whether target costing (TC) is affected by the impacts of external circumstances and appears dynamic in real estate development industry. A case study was conducted and combined with literature reviews to test this proposition. The results of this paper show that the formula appears dynamic on the impacts of economic depression/recession, inflation, and change of governmental policy to assist the firms in the achievement of planned profits. TC, as a strategic profit management system in the industry, exhibits brisk utilization in a dynamic formula with more of a focus on value added to maintain fixed profits. It is different from the focus on cost reduction by a static formula in previous literatures.

Keywords: target costing (TC), real estate development industry, top-down method, subtraction, dynamic

Introduction

Target costing (TC), exhibited as the formula of subtracting target profit from expected sale price in calculation, appears static and derives its strength from the cardinal rule (Cooper & Slagmulder, 1999; Everaert, Loosveld, Acker, Schollier, & Sarens, 2006). The cardinal rule is defined as a condition as being critical to ensure that the discipline of TC is maintained throughout the design process (Cooper & Slagmulder, 1999). TC focuses more on the fixed target cost for cost reduction in previous literatures.

In previous literatures, the factors affecting the circumstances of TC adoption such as economic recession can force the emphasis to be on cost reduction and may result in different adoptions of TC (Tani, Okano, Shimizu, Iwabuchi, Fukuda, & Cooray, 1994; Feil, Yook, & Kim, 2004; Yook, Kim, & Yoshikawa, 2005). However, the factors linking uncertainty and general circumstances to TC adoption do not appear to have impacts on the focus of market-driven target price, but on cost reduction. For example, given economic difficulties faced by Japanese industry, the managers at automobile companies did not believe that increasing prices were feasible, but saw cost reduction as an important element in maintaining adequate profitability (Fisher, 1995). Under the settings, TC, as mostly applied to assembly-typed manufacturing industries, is used in a static formula to advocate on the tool of cost management to meet the market competition (Fisher, 1995;

Wu Chiling, assistant professor, Department of Accounting Information Systems, Kaohsiung Campus, Shin-Chien University.

Chen Shumei, professor, Graduate School of Real Estate Development and Management, Kun Shun University.

Correspondence concerning this article should be addressed to Wu Chiling, assistant professor, Department of Accounting Information, Shin-Chien University, Systems, Kaohsiung Campus, Taiwan, 200 University Road, Neimen, Kaohsiung 84550, Taiwan, R.O.C.. Email: chilingwutw@yahoo.com.tw. Tel.: 886-916906925.

Ansari, Bell, & the CAM-I Target Cost Core Group, 1997; Cooper & Slagmulder, 1997a, 1999; Nicolini, Tomkins, Holti, Oldman, & Smalley, 2000; Helms, Ettkin, Baxter, & Gordon, 2005).

The real estate development industry in Taiwan is vulnerable to worldwide depression/recession and the change of governmental policy (Huang, 1993; Ling, 1995; Yang, 1999; Zhang, 1999). By the investment and development of real estate, the industry in Taiwan is committed to the building, sale, or rental of residence/buildings and may include allied or glomerated construction companies (Yang, 1999; Zhang, 1999). In the industry, the impacts of the change of governmental policy and economic depression/recession would result in uncertainty because of long-term constructing products (Huang, 1993; Yang, 1999). The factors that product prices drastically fluctuate with general circumstance and the products are normally constructed in the long term may confine the emphasis of cost reduction in a static formula.

Furthermore, unlike general homogenous products in manufacturing industry, the products in real estate development industry normally appear to be differentiated in different areas/more detailed targeted markets (Ling, 1995; Yang, 1999; Zhang, 1999). TC is used with more of a focus on market orientation/price dynamics by creating added value to increase product prices combined together with cost management to achieve expected profit margins in the industry (Wu, Brown, Huang, & Chen, 2012a). The top-down method of target cost calculation in real estate development industry, which is the same as aforementioned subtraction method, focuses more on fixed target profits rather than fixed target costs (Wu & Huang, 2011). Therefore, under that settings that the industry is vulnerable to the impacts of external circumstances and that the firms use dual strategic focuses on market orientation/price dynamics assisted by cost management in order to achieve profit focus, the formula of TC set by top-down method is supposed to be dynamic on the impacts of the external circumstances.

The objectives of this paper is to explore whether the formula of TC set by top-down method in the real estate development industry in Taiwan reflects the characteristic that the industry is vulnerable to the impacts of the external circumstances (economic depression and change of governmental policy) and appears to be dynamic, in contrast to static state for cost reduction in traditional application of the costing.

Thus, the authors put forward the following proposition:

Proposition: The formula of TC set by top-down method appears to be dynamic on the impacts of the external circumstances.

Research Methods

This paper used a case study and related literature reviews to test the proposition. According to Everaert et al. (2006), the reasons for using the case study as the research method in the TC studies are as follows. First, the current knowledge of TC can be described as clinical knowledge, where researchers are trying to understand many dimensions of the phenomenon. Second, the case study can benefit from a direct and in-depth contact with practitioners. Third, a field research has a comparative advantage over the survey method, when the topic of inquiry is so complex that the phenomenon of interest is not readily distinguishable from its context. Subsequently, the authors undertake a case study approach to review, revise, and supplement TC theory in the real estate development industry. In this paper, the authors first review the characteristics of TC formula and the impacts of external circumstances of real estate development industry in related previous literatures. Then, they explore the dynamic formula in the industry.

The authors presented the definition of TC to interviewees first and then followed by semi-structured

interviews. Two researchers conducted each of the interviews. These interviews were then transcribed and coded based on the TC constructs.

Case Brief

The authors interviewed six real estate development firms in Taiwan, one of them (F) was interviewed in 2004, and five of them from the end of 2007 to the second quarter of 2008. The basic data about the companies are shown in Table 1.

Table 1

The Description of Interviewee Companies

Company item	A	B	C	D	E	F
Interviewee	General manager	General manager and financial manager	General manager	General manager	General manager	General manager
Employee numbers	More than 100	11-30	1-10	51-75	1-10	11-30
Capital*	7,500-10,000	1,000-5,000	50-100	7,500-10,000	10-50	5,000-7,500
Revenue/year*	5,000-10,000	500-1,000	300-500	5,000-10,000	500-1,000	300-500
Size	Listed company branch	Listed company branch	Small	Listed company branch	Small	Listed company branch
Products location	Southern Taiwan (lower-priced area)	South near middle of Taiwan (lower-priced area)	Southern Taiwan (lower-priced area)	Middle Taiwan	Southern Taiwan (lower-priced area)	Southern Taiwan (lower-priced area)
Residence type	House/terrace/buildings/unit/office	House/terrace/buildings/unit/office	House/ terrace	House/terrace/buildings/unit/office	House/terrace	House/terrace/buildings/unit/office
Construction company	Allied	Allied	Allied	Allied	Allied	No
TC adoption	TC framework ¹	More detailed TC frameworks ²	TC framework	TC framework	No	No

Notes. (1) * denotes million NTD in capital and revenue of the firms; (2) The authors used a broader concept of TC with a focus on reverse costing (Dekker & Smidt, 2003) and assessed its application in the case study. The result shows that unfledged TC/TC framework is claimed to be adopted; and (3) Company B has long-/medium-term profit plan and more fixed target profit margins without mentioning cost-plus costing when making a price decision, which tends more to TC than other companies with a TC framework.

Results

In this section, the authors combine the case study and literature reviews to show the results. The authors review the literature and induce the case study as follow issues in this section: (1) Firstly, more profit focuses on the formula of TC set by the top-down method in real estate development industry; (2) Secondly, uncertainty circumstances of TC adoption; and (3) Thirdly, the impacts of general circumstances on TC adoption.

More Profit Focus in the TC Formula Set by Top-Down Method in Real Estate Development Industry

TC can be exhibited as a subtraction method of calculation, also called as top-down method in a formula: expected selling price – target profit = target cost (Tanaka, 1989; Kato, 1993; Feil et al., 2004; Everaert et al., 2006). It was defined as cost planning or cost projection systems in early literatures (Kato, 1993; Feil et al., 2004), but it was not just a cost reduction technique. It is later viewed as a part of a comprehensive strategic profit management system (Kato, 1993; Feil et al., 2004). However, TC in previous literatures focuses more on

the fixed target cost for cost reduction and derives its strength from the cardinal rule (Cooper, 1995; Cooper & Slagmulder, 1997a, 1999; Everaert et al., 2006). Under the protection of the cardinal rule, the company normally did not launch products of which costs exceed the targets (Cooper & Chew, 1996; Cooper & Slagmulder, 1999). The interface between management accounting and engineering appears to be more of a focus at the expense of that between management accounting and marketing and views market information provided as taken for granted (Roslender & Hart, 2002).

Unlike general homogenous products in manufacturing industry, real estate development industry in Taiwan has a strongly locational differentiation for products, of which products normally appear to be differentiated in different areas/more detailed targeted markets (Ling, 1995; Yang, 1999; Zhang, 1999). The industry faces higher power of landowners and higher power of buyers with higher sensitivity to the market prices in monopolistic competition market (Wu, Su, & Chen, 2012b). It has large reduction of construction costs hindered, but drives the added value to increase product prices in differentiated products to be important for integral profit increase (Wu & Huang, 2011). Under the circumstances and their goals of TC adoption towards integral profit increase for survival, TC with more market orientation which emphasizes the creation of product value for product price increase combined together with cost management appears to support differentiation or confrontational strategies adopted by the companies (Wu et al., 2012a). Moreover, the amount of land investment before product construction is large, and it decides the product directions and market targets at the beginning of product planning (Wu, 2012). TC process in real estate development industry is conducted from the land investment to construction by cross-functional teams and value engineering for cost reduction, but it is more powerful at upstream stages (Wu, 2012). Cost management on engineering aspects in TC appears to assist in market orientation/price dynamics (Wu & Huang, 2011). The formation of TC set by the top-down method tends to more fixed target profits rather than fixed target costs in the industry (Wu & Huang, 2011).

Uncertainty Environment of TC Adoption

There are positive and negative relations between perceived environment uncertainty and TC adoption in previous literatures (Tani, 1995; Cooper & Slagmulder, 1997b; Dekker & Smidt, 2003; Ax, Greve, & Nilsson, 2008). This involves two different forms of uncertainty: technological uncertainty and market uncertainty (Ax et al., 2008). While market uncertainty which is related to product demand determines and understands customer needs and translates customer needs into product specifications, user needs, and pricing is not suitable for TC, technology-related uncertainty may be more suitable for TC management (Ax et al., 2008).

In real estate investment industry in Taiwan, case findings show that companies A, C, D, and E mention that the government regulation, treated as the factor of technique uncertainty instead of construction technique, forms one of the most uncertainty. For company B, uncertainty is few. However, market uncertainty is not perceived by TC adopters in the industry. Furthermore, the impacts of external circumstances, such as economic depression/recession, result in uncertainty because of long-term constructing products (Huang, 1993; Yang, 1999; Wu et al., 2012b).

The Impacts of General Environment on TC Adoption

The factors affecting the circumstances of TC adoption, such as economic recession, could force the emphasis to be on cost reduction and might result in different adoptions of TC (Tani et al., 1994; Feil et al., 2004; Yook et al., 2005). For example, the managers facing economic difficulties in Japanese automobile industry focus on cost reduction as an important element in maintaining adequate profitability (Fisher, 1995).

However, in construction industry, the desired profit determined by top management usually remained fixed under the economic recession, because the tentative price suggested by builders would be changed as the specifications and target costs changed in the process based on negotiations between clients and builders (Yook et al., 2005). This derived formula of TC is set by the top-down method in the construction industry to follow fixed target profits rather than fixed target costs when implementing TC (Yook et al., 2005), which is different from that in manufacturing industry.

The real estate development industry in Taiwan is vulnerable to worldwide depression (Huang, 1993; Ling, 1995; Yang, 1999; Zhang, 1999). This is supposed to impact the formula of TC in the industry. In the case study of this study, all companies interviewed mentioned that the economic recession/depression and political circumstance strongly impacted the real estate development market, which might form the uncertainty for the industry.

The following is a quotation from an interview with the general manager of company B (December 28, 2007):

Actually, I perceive that the real-estate development industry is different from other industries especially in: It connects tightly with the circumstance of governmental integrated economics. Many real estate development companies earn money; 50% directly from governmental economics and only 50% depending on its own ability... The harshest time was around 1998 to 2000. It actually did not appear customers outdoors. Then, 921 earthquake and SARS ensued...

Furthermore, companies A, B, C, D, and E mentioned that inflation impacted the market and formed one sort of uncertainty. They lowered the impact by means of ordering the materials in advance, but could not wholly avoid the impacts.

The following is a quotation from an interview with the general managers of companies C and D (December 19, 2007):

International materials change. Their impacts are strong... When the price of international materials boots, the builders may stop producing, waiting for the lower prices... They will take the attitude toward observation... We will order the material in advance, but it cannot wholly avoid the impacts of inflation.

Three of the interviewees in companies interviewed mentioned that inflation impacted differently in higher-/lower-priced areas. During the inflation, the increases of costs for the product in higher-priced areas will not be in a large proportion, and the companies may have more product price increase for inflation to keep the company remain the profits. On the contrary, companies in lower-priced areas will suffer from large profit loss, because the increase of costs for the product will be in a large proportion, and product price increase is limited for competitive market. Lower-priced area relates to southern Taiwan, in which most companies interviewed are located (see Table 1).

The following are quotations from interviews with the general managers of companies E and B:

For the customers in higher-priced area, product prices added up by 10% for inflation still can be accepted. However, for lower-priced area, one product is sold for NTD \$500 million and is raised up to NTD \$550 million for inflation. The customers cannot accept the price. The impacts of inflation are different in higher and lower-priced areas. (An interview of the general manager of company E, April 10, 2008)

In our cost structure, it composed of around 50% land, 20% is labor expenses, and 30% is materials cost. As to higher-priced area, its (inflation) impact is smaller. The costs may be composed of 70% to 80% is land. So the increase of materials costs is very limited. (An interview of the general manager of company B, December 28, 2007)

The authors can infer that during the inflation, the profit can possibly be remained in higher-priced area, or in companies with characteristics of higher prices corresponding to inflation or ability to increase higher prices with inflation. In the case study, four companies with a TC framework use the dynamic TC, adjustable target price, profit, and costs, but tend to more fixed target profits rather than fixed target costs by creation of product value for product price increase combined together with cost management. This is different from the cause of TC formula with more fixed target profit margins rather than target costs in construction industry, in which tentative prices change as negotiations between clients and builders. Furthermore, real estate development industry presents the goal of planned profit achievement for survival, especially on the setting of external circumstance impacts.

According to the quotation from an interview with the general manager of company B (December 28, 2007), “You surely will hold the profit to make money. When the inflation happens, you have to figure out the methods to push product price up to hold the profit you set...”.

The following is a quotation from an interview with the general manager of company A (May 12, 2008):

If you affix the profit or costs, the product may be stagnant to sale out... To the industry, product price is the most flexible and brisk, and then it will not affect the walking capital of the companies... I mean that the product prices correspond to the market; relate to demand and supply in the market.

According to the quotation from an interview with the general managers of companies C and D (December 19, 2007), “You have to see whether your price is competitive in the market. If it is not, you have to adjust your profit or construction costs. The adjustable items in construction costs are some...”.

The results also show that the profits of companies E and F, without a TC framework, fluctuate passively with the threat of inflation or economic depression. Companies A, B, C, and D, with a TC framework, can still remain most of the desired profits (realized profits approaching planned profits). Two of them claim mostly positive profits for each year. Company B, with more detailed TC frameworks, even announces no impacts from inflation (positive profits for each case). The authors infer that TC is not only to prevent from launching low-margin products that do not generate appropriate returns to the company, but also to create more stable profits on setting of economic recession/depression, political factors, and inflation.

The following are quotations from interviews with the general managers of companies B and A:

The costs of material increase, but our profitability is not affected by inflation... The increase of material costs is less than the increase of my product prices. Our profit is not affected. You can see our strong EP... Yes (the positive profit for each case and for each year)... 0%-3% (the difference between planned profit and realized profit)... It will not be too much higher, especially at middle south area. (An interview of the general manager of company B, December 28, 2007)

Because our company is listed, we have financial pressure during whole of a year... The profits are less affected by inflation... Each case is mostly positive... The yearly profit is surely positive... It (the difference between planned profit and realized profit) depends on cases, and on economic condition... It absolutely is proportional to the market boom... It should be 0% to 3% (the difference between planned profit and realized profit). (An interview of the general manager of company A, May 12, 2008)

The following is a quotation from an interview with the general managers of companies C and D (December 19, 2007):

Some cases still have loss in xx (C) company, but we didn't have loss in xx (D) company. They (planned profit and realized profit) are close; the difference is around 0% to 3% separately in two companies; not too far unless economic booms (the realized profit will more higher).

The following is a quotation from an interview with the general manager of company E (April 10, 2008):

Within recent years, the prices of all materials have increased, and companies' profit must have been affected... We are different from the listed company, which must have performance results... If it is not easy to sale products out, we originally plan to construct 50 products, but now we plan 20 products... Actually, our profit follows the market condition... It corresponds with the economic condition and follows supply demand mechanism. We do not have severe regulation on fixed (profit) plan; much flexibility... Normally, profit is positive. If you say loss, some cases may have loss most or less... Normally, it (the difference between planned profit and realized profit) is possibly at -5% to -3% because of corresponding with recession or boom...

According to the aforementioned case findings, the authors induce the dynamic formula of TC which exists in real estate development industry on the setting of external circumstance impacts. Thus, the proposition is supported.

As the case findings of the interview with the general managers of companies C and D, the method of value creation to increase product price and costs reduction may be used before the sale out of preconstruction products to achieve planned profit margin. The real estate development firms normally provide two types of products, namely, preconstruction residences and already-constructed residences. Preconstruction residences are sold out before the construction begins. However, during the setting structures of preconstruction residences, the cost reduction will be lesser and planned profits will more probably decrease because of the already-made contracts with clients.

Thus, the authors summarize the dynamic formula of TC in Table 2.

Table 2

The Dynamic Formula of TC in Real Estate Development Industry

Setting	Driver	Dynamic formula of TC: Selling price – target profit = target cost
Economic recession/depression and political impacts	Product price decreases due to economic depression/recession.	Create value to increase product price and reduce costs to achieve planned profit margin. It may result in target profit decrease for keeping walking capital.
Inflation	Construction costs increase higher than product price increases due to inflation in lower-priced area.	

Conclusions and Future Research Direction

According to the literature review and the case findings in the industry, the formula of TC appears to be dynamic on the impacts of the external circumstances in the real estate development industry in Taiwan. It is different from the static formula of traditional TC application in previous literatures.

The real estate development industry in Taiwan is vulnerable to the impacts of the external circumstances (economic depression, inflation, and change of governmental policy). The impacts result in uncertainty, because the products cost long term for construction and confine the strength of TC derived from the cardinal rule in the formulas of more fixed target costs for cost reduction. Therefore, unlike static formulas of TC in previous literatures, TC in real estate development industry appears to be dynamic on the impacts of the external circumstances to assist the firms in planned profit achievement.

While TC exhibited as a subtraction formula focuses on more fixed target cost for cost reduction and appears to be static in previous literatures, the application of TC to real estate interment is more flexible and brisk for managers. It presents that TC as a tool of strategic management accounting has more aspects of

market orientation/price dynamics (Wu et al., 2012a). Combined dual strategic focuses not only on engineering aspects but also on market orientation/price dynamics which tends to more fixed profit rather than fixed cost in the dynamic formula, TC broadens the role as a tool of strategic management accounting in the application.

This study has several issues which may be explored in the future. First, whether the company with more detailed TC will have more assurance on positive profit and smaller variance between target profit and realized profit when adopting the TC formula. Second, the contingency factors may drive dynamic formula in the industry in addition to the factors mentioned in this paper. Third, future researches may use different research methods to increase the validity of this study.

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The Genoese Commune Massari's Ledger of 1340: The First Computer Modeling Experience and Its Results

Mikhail I. Kuter, M. M. Gurskaya, O. A. Sidiropulo
Kuban State University, Krasnodar, Russia

Since 1865, the scholars from different countries have been studying the Genoese Massari's ledger of 1340. The authors have used a fundamentally new approach when studying this famous register. The authors have also analyzed the full-scale financial processes (from registering the expenses of the commune to their coverage by revenue) instead of analyzing some separate transactions which could prove the presence of the double-entry when registering each economic fact. This becomes possible as a result of the reconstruction of medieval entries and registers in the form of a modern account and the construction of the computer model of the whole ledger of 1340. The model of the system is formed according to seven summits of the revenue of the commune, which are distributed upon many factors of registered expenses and united into 17 reporting points. The special attention is paid to the date of the transaction. The authors have found many answers to some questions which were mysteries before. The explanation is given to the sales of goods below the purchasing price and to the exchange of money with significant losses.

Keywords: single-entry accounting, double entry, double-entry bookkeeping, Massari book Genoa municipality, the budget incomes and expenses, the sales of goods at below purchasing price

Introduction

The Russian scholars and specialists got acquainted with the Genoese commune ledger of 1340 by correspondence course in 1958 owing to the article *How Did the Double-Entry Bookkeeping Occur* by Raymond de Roover (1958), which was translated into Russian by A. Mukhin and edited by N. Veitsman. In Western countries, this article is known under the title *The Development of Accounting Prior to Luca Pacioli* according to the account books of medieval merchants (de Roover, 1956), which was published in a collection of articles edited by A. Littleton and B. Yamey in 1956. Some German experts could use the work by B. Penndorf published in 1933. This publication contains the chapter "Italian accounting in the 14th and 15th century", in which considerable attention is paid to the accounting in Genoa.

de Roover (1956) wrote about the Genoa ledger:

While in Tuscany the bilateral form was still far from prevalent in 1350, it had been common for a long time in Northern Italy. In Genoa, as early as 1327, accounts presented in this form were said to be kept *ad mum banchi* or after the manner of the banks, perhaps because it was first adopted by the banks or money-changers' tables (*tavole*), whence the name of tabular form. As a matter of fact, Genoese bankers were actually using the tabular form in 1313. However, there is

Mikhail I. Kuter, professor, the head of the Chair of Accounting and Audit, Kuban State University. Email: prof.kuter@mail.ru.
M. M. Gurskaya, Ph.D. in Economics, assistant professor of the Chair of Accounting and Audit, Kuban State University.
O. A. Sidiropulo, graduate student of Accounting and Auditing, Kuban State University.

no evidence that they were also acquainted with double entry. The first example of this method in Genoa is found in the accounts of the stewards or Massari of the Genoese commune for the year 1340. (p. 131)

Then, de Roover (1956) described the ledger in details:

In the books of these public officials, debits and credits are not only placed side by side like the panels of a diptych, but thorough investigation has brought out that each transaction is recorded twice, once on each side of the ledger. The debit is indicated by the Latin words *debent nobis* (they owe us) in the text of the first entry on the left of an account. Subsequent entries begin with *item*, meaning “the same”. On the credit side the first entry starts invariably with the words *recepimus in* (we received from). Without exception, each entry gives the cross-reference to the corresponding debit or credit as the case may be. Expenses are charged to an account called *Avaria*, a word commonly used in Medieval Latin to designate brokerage, weighing, and other costs on goods. Losses on sales of pepper and other commodities are posted to the debit of an account entitled *proventus cambii et dampnwn de rauba vendita* (income from exchange and loss on sales). The account of the Commune of Genoa functions as a capital account to which the balances of all expense and income accounts are transferred when the books are closed at the end of the fiscal year. The consensus of experts is that the accounts of the *Massari* for 1340 meet the requirements of double entry. (pp. 131-132)

Penndorf (1933) gave a more detailed description of this ledger. He wrote about how the ledger was found, acquainted readers with Fabio Besta's researches, and studied concrete cases. However, all the researchers are unanimous. They all, probably, preferred spicy food, and this is the reason why there is an example of “pepper” account on folio 73 Recto (front) in all their entries.

The authors cannot say for sure whether the outstanding German scholars had been acquainted with the Genoese commune ledger, but it is quite doubtful that the American luminaries of the history of bookkeeping had seen this ledger. Most likely, de Roover confined himself to the reading works by Penndorf and the address of Piazza Santa Maria was not familiar to him.

The History of Ledger in Brief

In 1865, the head of Genoa Archive Desimoni told the world about the earliest ledger of all preserved double-entry ledgers for the first time. Later, this ledger was thoroughly studied by G. Siveking.

This ledger is still kept in the State Archive of Genoa. However, the fate of this ledger is quite dramatic. Under Napoleon's order, the largest part of Genoa archive was taken to France. After the defeat of the French army, the ledger was returned to Italy, Turin, and then back to its rightful place—Genoa. A lot of books were damaged by water. The ledger of the municipal Massari (financiers) of the Genoese commune municipalities was among them too.

Most of the damage was done to the lower parts of folios. Some pages are either hardly legible or not legible at all. The ledger has been restored with great care. Unfortunately, some losses of data are significant. The folio 3 Verso of the ledger can be looked upon as the example of such losses (see Figure 1).

The authors got acquainted with the commune ledger after the last experience of work in Francesco Datini's archive in Prato (Toscana, Italy). A lot of entries had been reconstructed, and Datini's ledgers in Pisa, Barcelona, and Avignon were put up together by computer programs. These ledgers have proved the existence of double-entry bookkeeping (not just of double entry but also of double-entry bookkeeping) for a quarter of century. The ledgers present a complex unit of several (sometimes of more than 10) trading books. Together with Francesco, the authors went a long way beginning with the simple bookkeeping marked by accounts in paragraphs (in columns) to the double-entry bookkeeping through a special stage of the development of science—the stage of double-entry system. The bookkeeping by Datini took 16 years (from February 4, 1383 to

January 31, 1399) to go through these stages. It took the humankind more than a century and a half to do it.

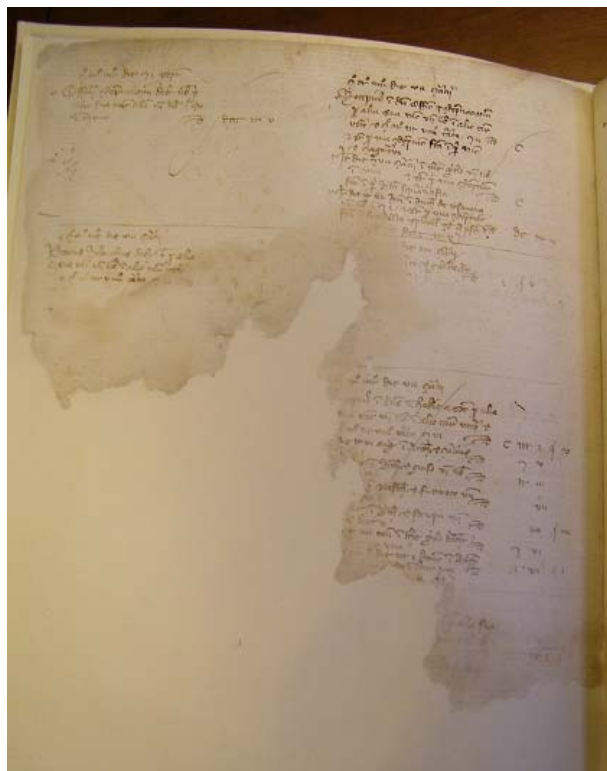


Figure 1. Photograph. Genoa State Archive, Ancient Municipality, 1.
Administration of Genoa Municipality, 1340, c. 3V.

Features of Accounting in the Commune

The Genoese commune ledger turned to be less challenging than the other ledgers studied by the authors. Together with the authors' experience and knowledge, it was very convenient to work with the material which was stored in 238 information carriers (taking into account that two pages rector (front) and verso (back) were stored under one number, the whole amount of the material was just 476 pages) placed in one ledger. At this point, the authors had no difficulty in reading non-positional (accumulative) medieval arithmetic where Latin numerals letters were used. The authors did not mind the system which used different names for coins in different territories, but the procedure of settlements was always the same. For example, in Genoa, 1 lira equaled 20 sold, 1 sold consisted of 12 dinars. The calculations, as in the medieval times, were used by "abacus", but simulated (modeled) in a computer, which, unlike its predecessor, could not only make calculations, but could also accumulate and print it out.

The authors should admit that the main convenience was that Massari (financiers) from Genoa had no command of Arabic (decimal, positional) numbers which were brought from India to Europe by Leonardo Pisano in 1209 (Moreover, in order to prevent any forgeries, the usage of such numbers in trading books was prohibited), and the Massari had to write Rome numbers calligraphically when numbering the folios with corresponding accounts. When in the decade period, Datini, a bookkeeper, would have been "mocking" over the scratchy writing which he considered to be decimal numbers and probably had just learnt.

How does the authors' investigation differ from the investigations of other scholars? From the end of the

19th century, some researchers were using the reconstruction method of bookkeeping entries and analyzing them to find whether the method of double-entry bookkeeping was used there. Indeed, all the debit entries in the Genoese Massari's ledger have the reference in the credit side and the vice versa. However, such an approach limited the possibility to reveal cause-effect relations within the whole system of bookkeeping accounts.

The authors' research went a little bit further and was the first to use the computer modeling method of the whole bookkeeping register.

And it is also very important to mention that the research was conducted not from the accounts to the budget but the vice versa. The culminating point in keeping the ledgers in Genoese commune was income and expenses budget of the municipality. It allowed the authors to study the bookkeeping data system from the general to the special: from the accumulated budget indexes to each concrete register entry which reflects a certain part of the economic life. Such an approach allowed the authors to break down such a complicated system into simpler components, to analyze not just certain links among the elements of the system (objects under bookkeeping observations), to mark the accounting procedures and processes, and to monitor the system in whole from the inside.

The translation from Old Italian of the income and expenses budget (Economic account of the Genoese commune ledger in Figure 2) placed on folio 119 Verso allowed the authors to see it in the following form (see Figure 3).

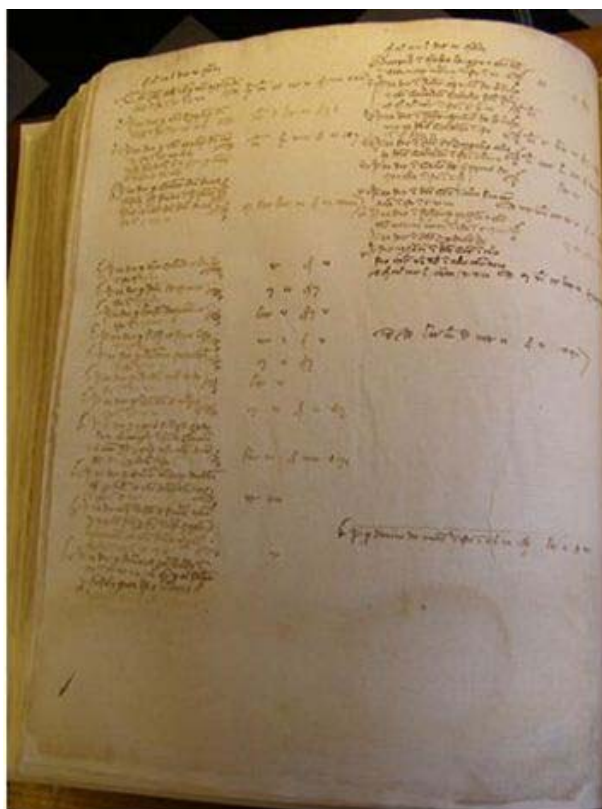


Figure 2. Photograph. Genoa State Archive, Ancient Municipality, 1.
Administration of Genoa Municipality, 1340, economic account (c. 119V).

Д	E.1. C. 237 V. Expensarum dicti communis	К	Д	C. 119 V. Expensarum communis Janua	К	Д	R.1. C. 3 V. Thobia Lavagio	К
	63,235.18.8	→	63,235.18.8	202.10.0	←	202.10.0		
Д	E.2. C. 238 R. Expensarum dicti communis	К						
	4573.11.0	→	4,573.11.0					
Д	E.3. C. 238 V. Proventus cambij et dampnum de rauba vendita	К				Д	R.2. C. 163 V (I). Iohanne Spinulade Sancto Lucha	К
	3,069.6.10	→	3,069.6.10	3,000.0.0	←	3,000.0.0		
Д	E.4. C. 133 R.	К						
	1,783.6.8	→	1,783.6.8					
Д	E.5. C. 17 V (IV). Thome Morandi de Levanto	К				Д	R.3. C. 182 V. Iohanne Spinula de Sancto Lucha	К
	20.5.0	→	20.5.0	3,185.11.5	←	3,185.11.5		
Д	E.6. C. 19 R (III). Thome Iohanni de Murta	К						
	12.10.0	→	12.10.0					
Д	E.7. C. 19 R/ 19 V. Lanfranco Drizacome	К				Д	R.4. C. 185 R. Iacobo de Bargalio	К
	85.15.0	→	85.15.0	2,454.9.3	←	2,454.9.3		
Д	E.8. C. 26 V (I). Lucha de Facio	К						
	31.5.0	→	31.5.0					
Д	E.9. C. 26 V (IV). Albertino Marocello	К				Д	R.5. C. 161 R (V). Conrado de Oppicis de Monelia	К
	12.10.0	→	12.10.0	75.0.0	←	75.0.0		
Д	E.10. C. 27 R (III). Andree de Sancto Sisto	К						
	75.0.0	→	75.0.0					
Д	E.11. C. 224 V (V). Benedicto de Varixio	К				Д	R.6. C. 123 R (II)	К
	15.2.10	→	15.2.10	48,325.5.3	←	48,325.5.3		
Д	E.12. C. ??? Egidolum Bucanigram	К						
	86.8.11	→	86.8.11					
Д	E.13. C. 120 V (III)	К				Д	R.7. C. 114 R (II). Iohanne de Pessina	К
	24.0.0	→	24.0.0	13.11.7	←	13.11.7		
Д	E.14. C. Andrea de Finario	К						
	5.0.0	→	5.0.0					
Д	E.15. C. 224 V (V) Dominico de Garibaldo	К						
	62.10.0	→	62.10.0					
Д	E.16. C. ??? Petro Capraragia	К						
	?	→	?					
Д	E.17. C. 153 V (I) Danino de Vulturo	К				Д	C. 29, 1341	К
	72.6.0	→	72.6.0	16,285.18.5	→	16,285.18.5		
			... 377.10.0					
			73,542.5.11	73,542.5.11				

Figure 3. Economic account of the Genoese commune ledger (Expensarum Communis Janua), c. 119V.

According to Figure 3, the budget consists of 25 recognized peaks: seven income entries, one entry of the deficit being transferred to carta 29 in the ledger of 1341 (the sum £16,285 18s. 5d.), and 17 entries of expenses. The entries of the sum of £377 10s. included to the budget expenses (carta 119V) are illegible and have not been identified not only by the authors but also by all previous researchers from Fabio Besta's time till

nowadays. The authors hope that the next full computer modeling of all economic activities reflected in the ledger will provide a chance to reduce the amount of lost information.

The scientists could not make a final decision of the issue “what to begin the ledger modeling with” for quite a long time, namely, with the incomes or expenses. Finally, the priority was given to the income because of the lesser number of peaks—seven income entries compared with 17 expense entries. This method allowed the authors to divide each income entry into the simple sums spent on the defrayment of expenses.

However, the analysis of the model should be started from expenses. It can be explained by the logic of keeping the accounts. The special features of keeping the ledger are as follows:

- (1) The report period dated from March 5, 1340 to March 5, 1341;
- (2) There is no cash (cassa) account or income money and expense money account, as it would be called at the beginning of the 14th century in the system. One or two Massaris (as a rule, Paschalis de Furneto or Dominico de Garibaldo) collect and distribute cash. Thus, it is not the cash that is reflected in the account but the receivables of cashier for the commune;
- (3) Money is accounted by the partial method, i.e., there were opened the exact number of cash accounts prior to the number of accounts payable which the commune had for that moment, and money was going to be paid to each creditor separately;
- (4) The accounts of material and producing supplies are not used. The accounts of goods resemble the current sale account. The debt for the wholesale before the supplier is registered in debit, and the retail sale cost is registered in credit. However, the authors have not found any cases of profitable sales;
- (5) The income is accounted by the cash method, i.e., at the moment of receiving the money, and expenses are accounted by the accrual concept (expenses are accounted at the moment of appearance instead of payment).

Having analyzed the technical lines (chains) of how each budget total sum on the expenses side was formed, the authors can draw the conclusion that only one entry of the budget, *expensarum dicti communis* (final expenses) (see Figure 4), does not require any special skills to understand the medieval bookkeeping. The sum of £4,571 11s. is transferred into the debit part of the budget from the credit account on folio 238 Recto. The correctness of the formation and transfer of expenses index could not be doubted, as it was formed on one folio with no cunning.

The formation system of other budget indexes, both the expenses entries and income entries, is quite tricky. Let the authors analyze the system from its top—the first three income entries (see Figure 4). Other four summits can be seen in Figure 5.

The authors could not build the starting point of the model for a long time, as carta 3V where the account Thobia Lavagio (the source of the No. 1 income, sum of £202 10s) is placed (point R.1) is damaged by water almost entirely. The problem was solved in December, 2011, when the authors were given the chance to work with Wood's lamp in the archive. As a result, the authors not only described point R.1, but washed point R.5 and many other fragments as well.

In technological lines which start in point R.2, the account of Johan Spinola of St. Luca and Jacobus de Bargaglio, salt tax collectors, is the first one in the chain of the accounts and takes the top part of carta 163 Verso. Accordingly, this account is given the identification number (I) inside the folio (see Figure 6). The only entry in the debit side of the account dated from March 5, 1341, i.e., it was done at the end of the fiscal period during the closure of the ledger.

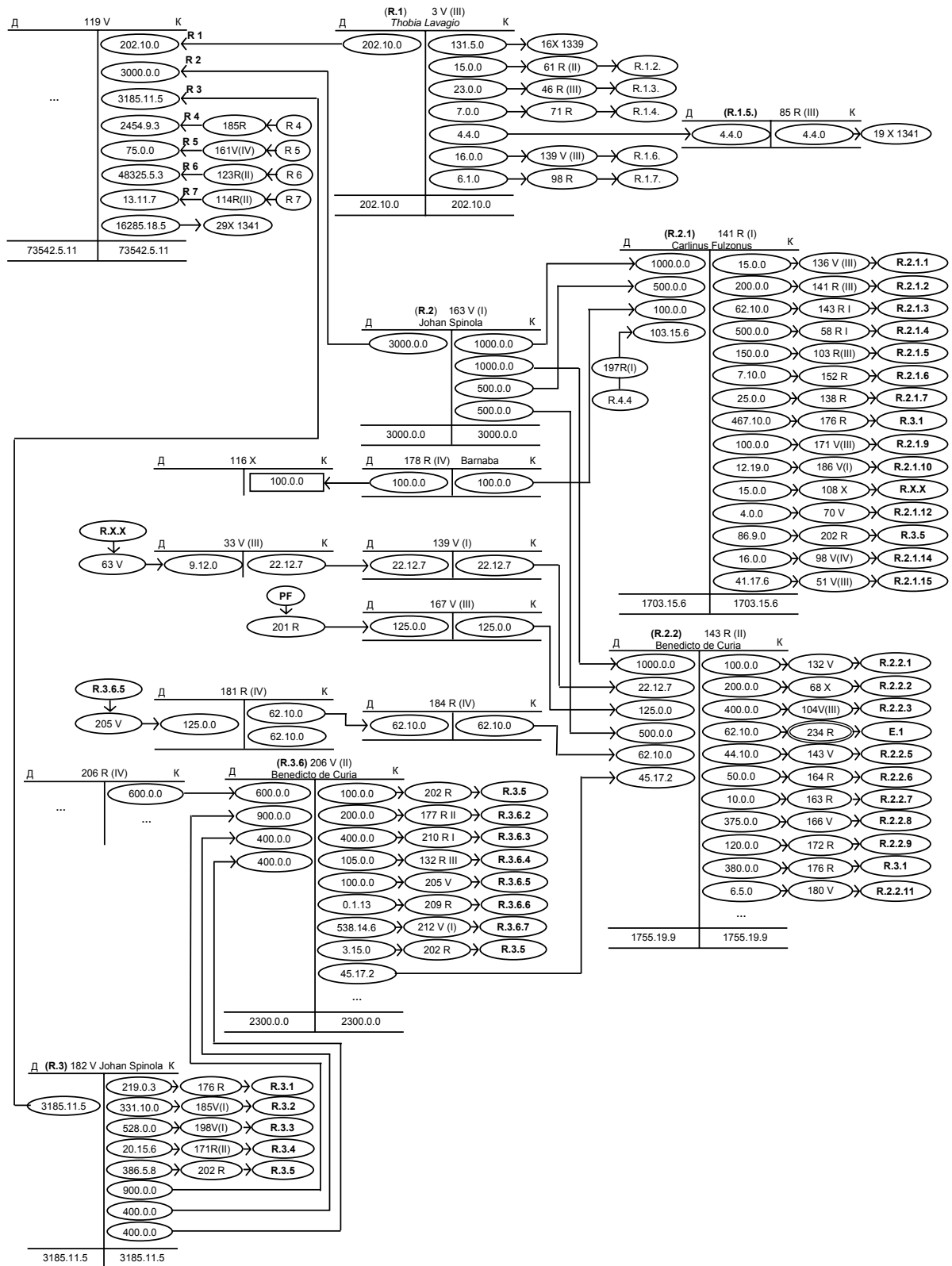


Figure 4. The distribution of the income in Genoese commune, the first three income entries (R1, R2, and R3).

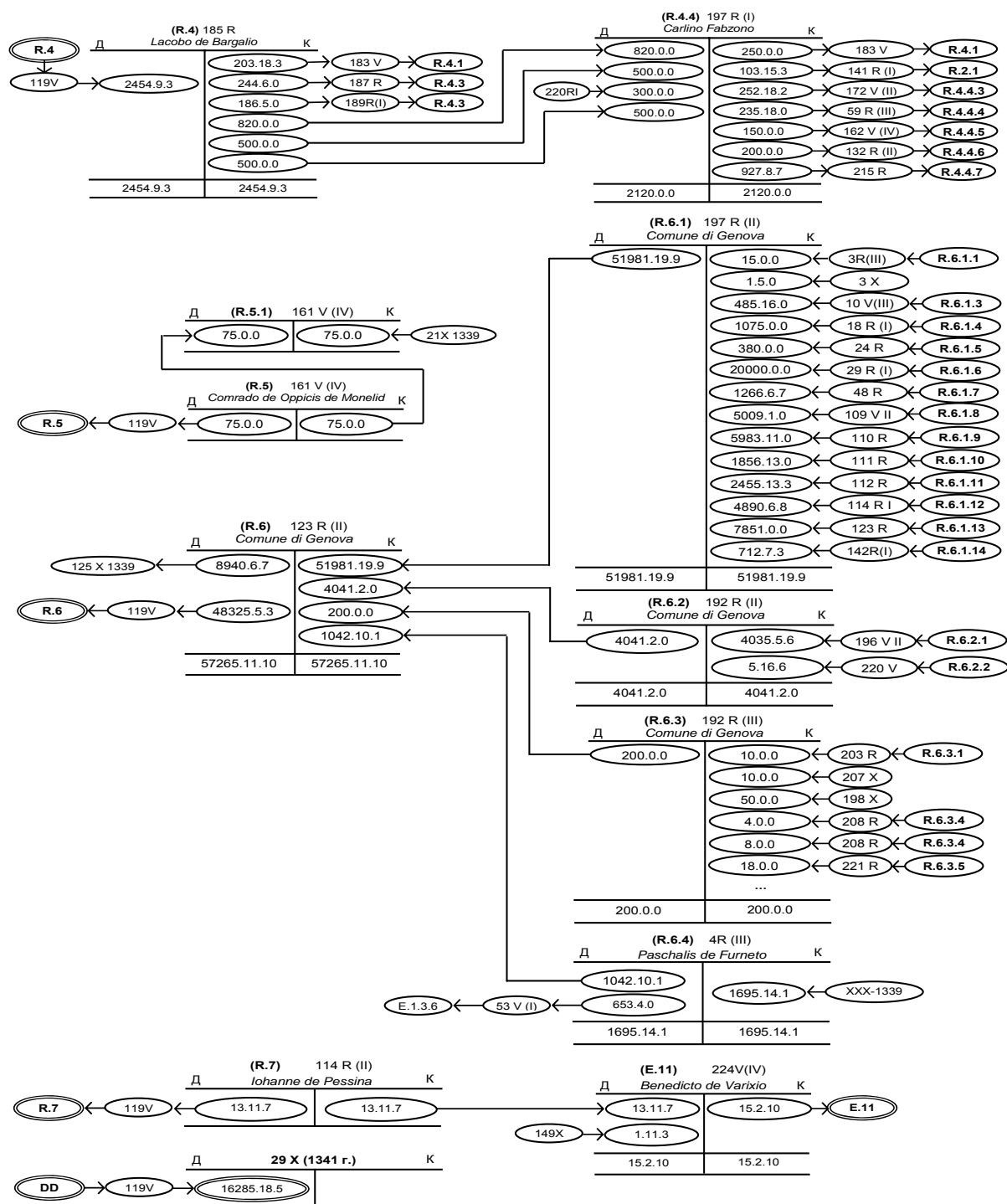


Figure 5. The distribution of the income in Genoese commune, final four income entries (R4, R5, R6, and R7).

The entry reads, “The salt tax collectors (‘Chabellieri’) of Genoa must give us for Genoese commune. In this book at c. 119” (carta 163 V, fragment I). According to this entry, the cash sums which were given earlier (the entries in the credit of the account) were transferred into the commune income in the budget (entry 2) shown in carta 119 Verso. Taking into account that this data flow falls into smaller ones but in great numbers

and that the dates of the economical activity are placed in a diminishing order (but to analyze them in reverse but chronological order), it was decided to build the chains from top to bottom, from the income to simple expenses.

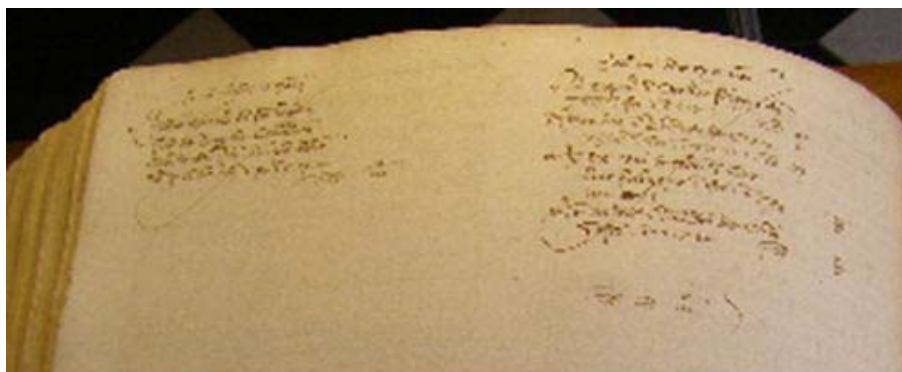


Figure 6. Photograph. Genoa State Archive, Ancient Municipality, 1, Administration of Genoa Municipality, 1340 (fragment I of carta 163 V (I)).

In Figure 7, one can see the end of the accounting line R.2.1.2, i.e., the second entry in 141 R (I) account which belonged to Carlinus Fulzonus (point R.2.1) (see Figure 4). This entry is more visual. Its origins date back to the end of April of 1340, when Massari Paschalis de Furneto paid the wage of £50 to Bartholomeus de Pomario, castellan of Corvara on May 1, according to the statement made by notary Credentia in April 27.

The entry in the credit of Bartholomeus de Pomario's account (Carta 149 V (II)) (see Figure 8) reads, "We had in the expenses account of the Genoa Commune at c. 229 they are for his wage, written by Credential, notary, MCCCXXXX the 27th April".

On the same day (May 1), the corresponding entry of £50 in the debit of commune expenses account (226 Verso) was made: "The same day for Bartholomeus de Pomario castellan of Corvara, they are for his wage, in this at c. 149".

The similar entries concerning the wage payment were made on May 1, 1340 in 36 V (III) account. This account reflected all the sums which were paid to Francesco de Coronato (£197 19s.), Thobia Lavagio (£75), and others. The total sum of £1,000 9s was transferred to the commune expenses in 237R account. The entry in the credit of 36 V (III) account reads: "We had in the expenses of the commune account in this at c. 237".

The wage paid to Auth Jew was registered in the credit of his account (carta 33 R (I)) and was transferred into the debit of expenses account in carta 229 R.

It is seen from the text that the commune main item of expenses of *Expensarum dicti communis* account was accumulated by the dynamic chain of accounts from carta 229 R to carta 237 V, and it took 18 folios in the ledger. When closing the ledger on March 6, 1341, he transferred the sum of £63,235 18s. 8d. as the total sum E.1 to the debit of budget of 119 V account.

However, the authors have to return to the wage which Massari Paschalis de Furneto paid on May 1, 1340. Paschalis de Furneto paid this wage in cash in the period from May 1, 1340 to May 19, 1340. It is confirmed by the records of the creditor's debts before the workers in the debit of the abovementioned accounts and by the credit of Paschalis de Furneto's account (34 R). Thus, there is an entry of £50 in Bartholomeus de Pomario's account: "Bartholomeus de Pomario castellan of Corvara must give us for Paschalis de Furneto in this at c. 34". The corresponding entry in the credit of 34 R account reads: "We had from Bartholomeo de Pomario, castellan

of Corvara, for an entry in this at c. 149”.

Of course, there is a question about the sources which Paschalis de Furneto had used to pay off the bill payable before his workers. The most interesting part just begins. In Figure 7, one can see an example of commune economic activity. When on May 10, 1340, the commune bought from Carlotto Spinola some goods with a six-month delay of payment. The goods recorded in 36 R account (III) cost £197 11s. 3d., and the goods bought from the same supplier are recorded in 36 R (IV) account cost £113 11s. 3d.. The goods for £66 were bought additionally to the second parcel.

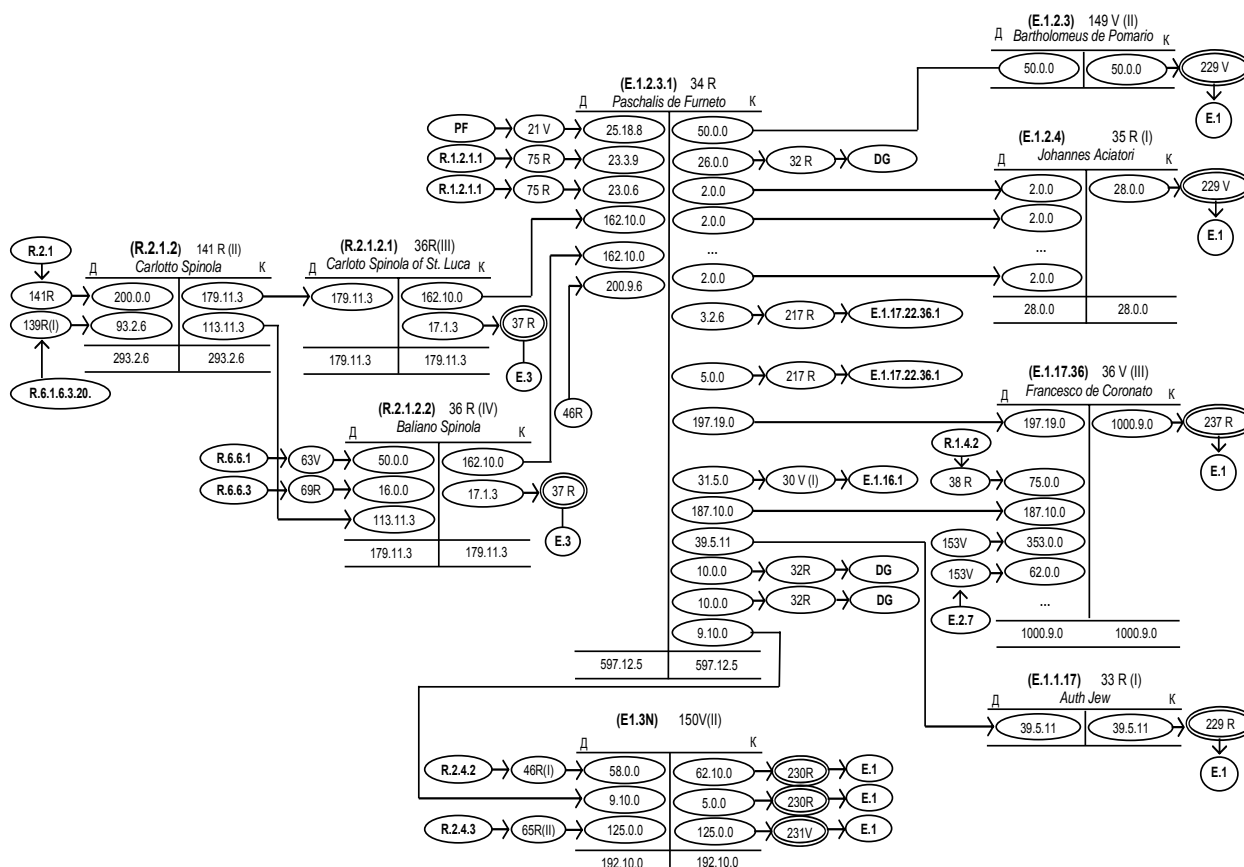


Figure 7. The distribution of the income in Genoese commune, entry 2, disclosure of total R.2.1.2.

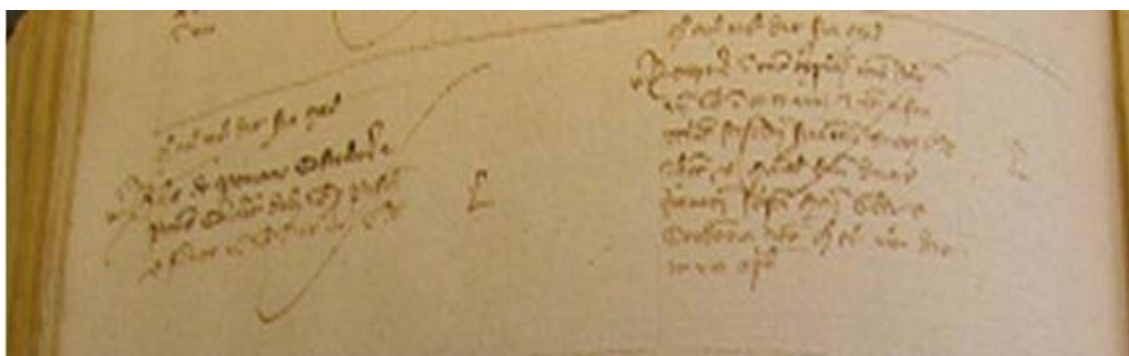


Figure 8. Photograph. The Genoese commune ledger of 1340 (fragment I of carta c. 149 V (II)).

As it is seen in Figure 7, on the same day, the goods were sold in cash at a much lower price than the price of the purchase (£162 10s. per parcel of goods). The money was exactly the source for Paschalis de Furneto to pay the wage to the workers and cover other commune expenses. And most probably, such a practice had been executed for a long period of time.

All the researchers who dealt with the Genoese commune ledger could not ignore “pepper” goods account in carta 73 R, which was also sold at a loss. Penndorf (1929) paid much attention to the goods accounts, such as pepper account, raw silk account, wax account, etc. and included two photocopies of the accounts from Genoese Massari's ledger placed on cartas 73 Recto and 74 Recto into his work.

de Roover (1956) wrote about the accumulating fiscal result:

“One puzzling point, however, may need a word of explanation. The registers of the *Massari* contain several merchandise accounts for pepper, raw silk, sugar, and wax, on which there is a loss in each instance”. de Roover (1956) even stated that the commune of Genoa “took a flyer on pepper” (p. 132), but it seemed unlikely that a public administration would be speculating on the rise or fall of the market.

de Roover (1956) explained:

The explanation is simply that the commune of Genoa, in order to raise money, bought goods on credit at a high price and resold them for cash at a lower price. The pepper, for example, was purchased at £24 5s., Genoese currency, per center and resold *ad numeratum*, i.e., for cash, at £22 14s. 6d. and £22 10s. The transaction is therefore a way by which shrewd merchants took advantage of the government's plight. It is also a way of evading the church's ban on usury. In the middle ages, practices of this sort were fairly common. The city of Bruges resorted to the same expedient to replenish an empty treasury. As late as the sixteenth century, distressed sovereigns could only find much-needed cash by accepting part of a loan in overrated jewels or diamonds which they then had to peddle around at disastrous prices (pp. 132-133)

In fact, the authors still have not found any goods accounts with a profitable deal.

As one can see the conformation in Figure 7, on October 25, 1340, the Massari brought the operational fiscal result of the sold goods parcel, which made £17 1s. 3d. loss per parcel and transferred it to the “proventus cambi et dampnum de rauba vendita” account (The result of exchange and losses from the sale) (see Figure 9).

To accumulate operational fiscal result, single-phase accounts were used. Such a practice was probably dictated by the effort to save such expensive resources as paper. As the bookkeeper was absolutely sure about the negative result of analyzing deals, he used a whole folio to reflect it in the register without dividing this folio into two parts, but leaving some space for the transferred balance at the right upper corner of the folio.

Thus, the structure of the account had the following outlook: incoming balance (after the transfer from the previous account chain); operational losses which were to be transferred when closing the goods accounts after the complete sale of the lot (indicating the number of the folio from which the transfer had been made); and out-coming budget (the initial budget enlarged by the sum of the accumulated turnovers). The bookkeeper, having seen just the debit side of “profit and losses” account of a one-sided account, abstracted himself from it. The example of a single-phase account can be seen in Figures 9 and 11.

Accordingly, there is no question concerning the third entry on the expenditure side of the budget “Proventus cambi et dampnum de rauba vendita” transferred from the eponymous account on folio 238 V with the sum of £3,069 6s. 10d.. The total of 238 V account was accumulated by the chain of accounts through the whole ledger starting from folio 37 Recto. It should be noted that the account took six folios in the ledger and was of the dynamic origin. To confer everything said above in carta 37 R, the authors can see the scheme of one of the accounts with the dynamic chain (see Figure 10).

On November 8, 1340, Massari Paschalis de Furneto paid off all his debts to Carlotto Spinola (the entry in 141 R (II)) account for the first parcel, and on November 10, 1340 for the second parcel. And again, there is a question about the source of these means for payments.

Here, the authors should go back to the beginning of the schemes in Figure 4. On November 8, 1340, the debts before Carlotto Spinola were paid off by Carlino Falzono under Paschalis de Furneto's order. They were given £200 in cash, which was confirmed by the entry in Carlotto Spinola's account: "Carlotto Spinola of St. Luca must give for Carlino Falzono in this at c. 141" (see Figure 12). The confirming entry in Carlino Falzono's account (the second entry on the credit of 141 R (I) account (see Figure 4, point R.2.1.) reads, "This day from Carlotto Spinola in this at c. 141". The remaining debt (£93 2s. 6d.) was also paid off to Carlotto Spinola under Paschalis de Furneto's order by the source, the calculations with whom were conducted in 139 R (II).

Carlino Falzono probably had paid the commune debts to Carlotto Spinola, the goods supplier, by personal means, as there was no other cash in his account (on November 8). And only on November 15, Johan Spinola of St. Luca and Jacobus de Bargaglio would give him and Benedicto de Curia (143 R (II) account) the first tranche of £1,000, and on December 8th, 1340, the second tranche of £500 would be paid. There are corresponding entries in Johan Spinola of St. Luca and Jacobus de Bargaglio's account (163 (I)) and Carlino Falzono's account (141 R (I)) as shown in Figure 13. The entry in Carlino Falzono's account reads, "Carlinus Falzonus must give us for Johan Spinola from St. Luca and Jacobus de Bargaglio, tax collectors of the salt tax of Genoa, in this book at c. 163".

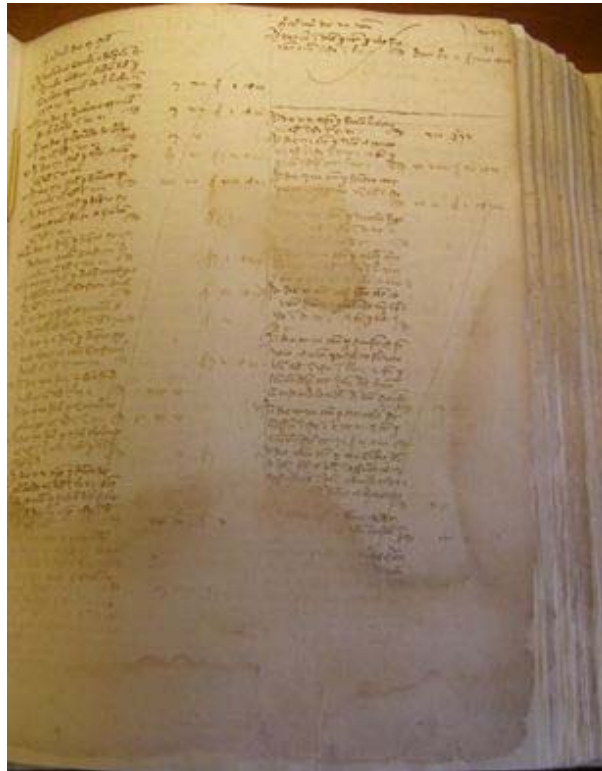


Figure 9. Photograph. Genoa State Archive, Ancient Municipality, 1. *Administration of Genoa Municipality, 1340*, c. 37 R. The first fragment of the dynamic chain of the account "The result of exchange and losses from the sale" ("Proventus cambii et dampnum de rauba vendita").

Д	C. 36 R (III)	К	Д	C. 37 R — Proventus cambii et dampnum de rauba vendita	К
	17.1.3			17.1.3	
Д	C. 36 R (IV)	К		17.1.3	
	17.1.3			15.0.0	
Д	C. 36 V (II)	К		66.13.4	
	15.0.0			44.9.7	
Д	C. 27 R (II)	К		0.11.0	
	66.13.4			0.11.8	
Д	C. 9 V (II)	К		0.6.3	
	44.9.7			0.5.0	
Д	C. 12 V (II)	К		0.12.6	
	0.11.0			45.0.0	
Д	C. 47 V	К		125.0.0	
	1.11.8			2.10.0	
Д	C. 47 V	К		1.0.0	
	0.6.3			43.5.0	
Д	C. 14	К		70.0.0	
	0.5.0			19.11.0	
Д	C. 47 V	К		...	
	0.12.6			149.12.0	
Д	C. 12 R (I)	К		...	
	45.0.0			8.15.0	
Д	C. 58	К		29.6.6	
	125.0.0			22.1.9	
Д	C. 59 R (II)	К		5.0.0	
	2.10.0			...	
	1.0.0			10.0.0	
Д	C. 67 V	К		8.9.10	
	43.5.0			40.0.0	
Д	C. 96 V	К		...	
	70.0.0			872.19.4	872.19.4
Д	C. 12 R (II)	К	Д	C. 72 V Proventus cambii et dampnum de rauba vendita	К
	19.11.0			872.19.4	
Д	C. 73 R (I) Piperis	К		42.17.15	
	149.12.0			1834.8.4	1834.8.4
Д	C. 106 R (I)	К		...	
	8.15.0		Д	C. 225 R Proventus cambii et dampnum de rauba vendita	К
Д	C. 121 R (I)	К		3015.12.0	
	29.6.6			40.0.0	
Д	C. 77 R (III)	К		3055.12.0	3055.12.0
	22.1.9		Д	C. 238 V Proventus cambii et dampnum de rauba vendita	К
Д	C. 132 R (III)	К		3055.12.0	
	5.0.0			3.2.4	
Д	C. 71 R	К		10.12.6	
	10.0.0			3069.6.10	3069.6.10
Д	C. 136 R (II)	К		...	
	8.9.10		Д	C. 119 V. Expensarum communis Janua	
Д	C. 136 R (II)	К		3069.6.10	
	40.0.0			73542.5.11	73542.5.11

Figure 10. Dynamic structure of the account. “The result of exchange and losses from the sale”.

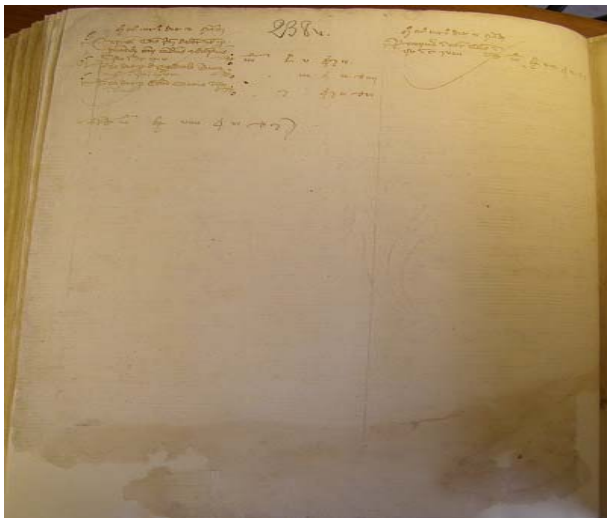


Figure 11. Photograph. Genoa State Archive, Ancient Municipality, 1. Administration of Genoa Municipality, 1340, c. 238 V.

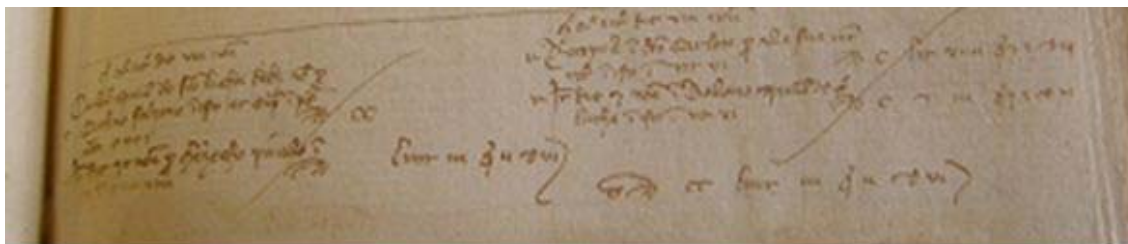


Figure 12. Photograph. Genoa State Archive, Ancient Municipality, 1.
Administration of Genoa Municipality, 1340, c. 141 R (II) (the fragment of Carlotto Spinola's account).

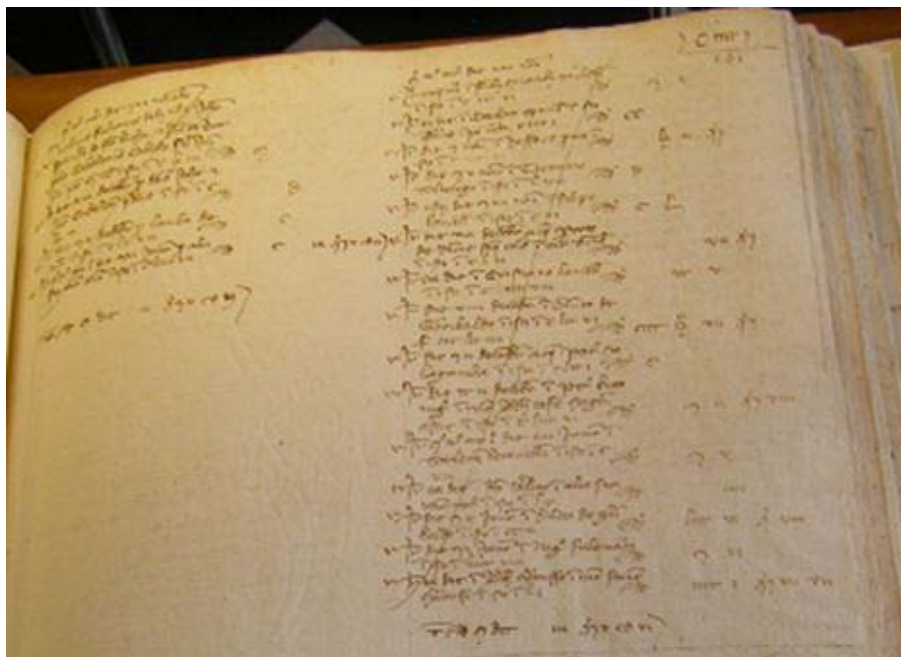


Figure 13. Photograph. Genoa State Archive, Ancient Municipality, 1.
Administration of Genoa Municipality, 1340, c. 141 R (I) (the fragment of Carlotto Falzono's account).

And as it was mentioned above, on March 5, 1341, i.e., when the ledger was closing at the end of the fiscal period, the collected tax sum of £3,000, which was given to Carlinus Falzonus and Benedicto de Curia to pay the commune debts to the creditors, was included into the commune income (the second entry of the budget, 119 V account).

In this paper, the authors have successfully traced the path of appearance of the commune worker's wage expenditures, the inclusion of them into the total of E.1 entry, and the distribution of R.2 income to cover the expenditures.

Thus, the authors can try to explain the regular sale at the price below the purchasing one. The first taxes (direct tax, sale tax of salt, wheat, and others), which were the main sources of commune income, were given at the administration disposal at the beginning of December (the period of fiscal year—from March 5, 1340 to March 5, 1341). The wage had to be paid regularly (in the authors' opinion, monthly). However, the question is where to get money to pay the wages at the beginning of April 1340.

The rulers of the town had found a simple solution: to purchase the goods in delay of payment terms and then to sell them for cash at a reduced price. There is an example as shown in Figure 14, when the wage to

The diagram illustrates the electrical layout of a building, showing the distribution of power from a central source to various rooms and equipment. The layout is organized into several sections, each representing a different part of the building.

Section 1: Top Left

Room: 194 R (II) K
 Equipment: R.6.2, 29R(II), 168.13.6, 139R(II), 24.4.5, 500.0.0, 205V, DG
 Connections: 168.13.6, 200.0.0, 200.0.0, 200.0.0, 20 V, 263.15.0, 100.0.0, 956.12.11, 956.12.11

Section 2: Top Right

Room: 180 R (II) Johannes Borini K
 Equipment: 620.16.3, 7.15.0, 59.5.4, 0.14.9, 209V, E.3, 688.11.4
 Connections: 620.16.3, 7.15.0, 59.5.4, 0.14.9, 209V, 688.11.4

Section 3: Middle Left

Room: 180 R (I) Marzocco Pinello K
 Equipment: 300.0.0, 6.12.11, 421.13.10, 728.6.9
 Connections: 656.18.10, 8.4.0, 62.8.5, 0.15.6, 728.6.9

Section 4: Middle Right

Room: 77 V (III) Wax K
 Equipment: 656.18.10, 8.4.0, 62.8.5, 0.15.6, 728.6.9
 Connections: 656.18.10, 8.4.0, 62.8.5, 0.15.6, 728.6.9

Section 5: Bottom Left

Room: 101 V (II) Tartaro Pinelli K
 Equipment: 688.11.4, 1069.14.6, 13.7.3, 1083.1.9
 Connections: 1069.14.6, 13.7.3, 1083.1.9

Section 6: Bottom Middle

Room: 76 V (II) Silk K
 Equipment: 1069.14.6, 13.7.3, 1083.1.9, 95V, DG, 1085.1.9
 Connections: 1069.14.6, 13.7.3, 1083.1.9, 95V, DG, 1085.1.9

Section 7: Bottom Right

Room: 107 R (I) Marchisio Strata K
 Equipment: 262.19.1, 43.14.1, 28.15.11, 20.0.0, 8.15.0, 17.10.0, 5.0.0, 50.0.0, 12.10.0, 45.17.1, 31.5.0, 106V(III), E.1.8.8
 Connections: 262.19.1, 43.14.1, 28.15.11, 20.0.0, 8.15.0, 17.10.0, 5.0.0, 50.0.0, 12.10.0, 45.17.1, 31.5.0, 106V(III), E.1.8.8

Section 8: Far Right

Room: 122 R (I) Tommaso di Gotoli K
 Equipment: 20.0.0, 20.0.0, 232V, E.1
 Connections: 20.0.0, 20.0.0, 232V, E.1

Room: 122 R (II) Amb. di Milano K
 Equipment: 8.15.0, 8.15.0, 232V, E.1
 Connections: 8.15.0, 8.15.0, 232V, E.1

Room: 122 R (III) K
 Equipment: 17.5.0, 17.5.0, 232V, E.1
 Connections: 17.5.0, 17.5.0, 232V, E.1

Room: 122 R (IV) K
 Equipment: 5.0.0, 5.0.0, 232V, E.1
 Connections: 5.0.0, 5.0.0, 232V, E.1

Room: 56 V (III) K
 Equipment: 45.17.1, 45.17.1, E.1.14.2
 Connections: 45.17.1, 45.17.1, E.1.14.2

On November 2, silk (account 76 V) was bought from Tartaro Pinelli (account 101 V (II)) for the sum of £1,083 1s. 9d.. Transportation costs paid by Dominico de Garibaldi in cash made up £2 (account 95 V). In total, the cost of consignment of goods was £1,085 1s. 9d..

The proceeds from the sale were divided as follows:

- (1) The debts to Marchisio Strata (262.19.1) (account 107 R (I) was formed);
- (2) The debts to Marchisio Strata (777.5.1) (account 107 R (I) was formed);
- (3) Dominico de Garibaldo claimed £2 in cash (account 121 V), which was paid for transportation.

Marchisio Strata (as is seen from account 107 R (I)) sank the commune wage debts and gave to Domenico de Garibaldi some cash recorded in accounts 95 V (43.14.1) and 121 V (50.0.0 and 12.10.0).

But January 10, 1341 was coming, it was the date to sink the debt of £1,083 1s. 9d. before Tartaro Pinelli. What measures were taken by the commune administration?

On December 7, 1340, the wax was bought from Marzocco Pinello (account 180 R (I)) for the sum of £728 6s. 9d.. The purchased wax (account 77 V (III)) was sold to Johannes Borrini (account 180 R (II)) for £688 11s. 4d. on December 14, 1340. The loss was made up £39 12s. 5d. (account 72 V).

On December 22, 1340, Johannes Borrini gave £688 11s. 4d. to Tartaro Pinelli as repayment of debts. The rest of the debts were paid to Tartaro Pinelli by Massari Paschalis in cash:

- (1) December 22, 1340, £250 (account 172 R);
- (2) January 10, 1341, £144 10s. 5d..

Paschalis de Furneto accumulated the paid sums due to the similar deals and the taxes which were at the commune Massaries' disposal from December. It can be assumed that the commune Massaries were getting the so called "rewards" (better to say "bribes") from those who bought the goods at the undercharged price.

Having examined mechanisms of calculations, the authors can explain one of the most interesting phenomena of the Genoese ledger. The similar situation was with the money exchange operations which looked more like receiving the money in debt, but such operations were masked under the exchange.

Of course, a great interest may arise among the readers "who like to count somebody else's money" towards the entry transferred from the credit of the account on folio 133 Recto into the debit of the budget. All the expenses, which were supposed to cover the maintenance of the very doge of town-commune (duke) Simone Boccanegri, were registered in the abovementioned account (a fragment of the account is shown in Figure 15). The sum was £1,783 6s. 8d..

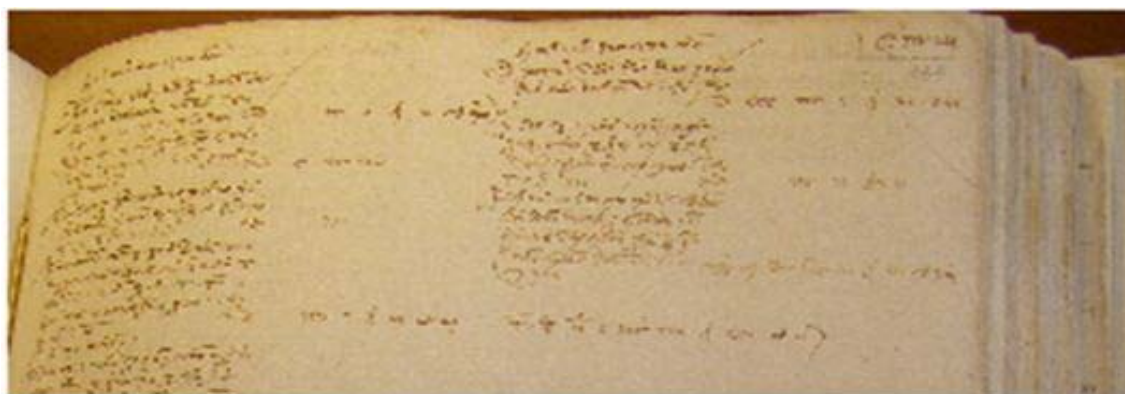


Figure 15. Genoa State Archive, Ancient Municipality, 1. *Administration of Genoa Municipality*, 1340, c. 133 R (the fragment of account where the expenses to cover the maintenance of doge).

Now, the authors are going to look at one more fragment from de Roover's (1958) work: "The account of the Commune of Genoa functions as a capital account to which the balances of all expenses and income accounts are transferred when the books are closed at the end of the fiscal period". Indeed, the economic account (*expensarum communis Janua*) placed in folio 119 Verso contains of all municipal incomes and expenses. The total sum in the debit of the account of £73,542 5s. 11d. can be looked upon as Genoese city budget for the year of 1340. The common account is balanced on the credit side. The deficit of £16,285 18s. 5d. is transferred into the ledger of the following 1341 to carta 29. As it has been said above, the registers of 1341 were not found in the archive, and this is the reason why the authors cannot make the cross-check.

Some points of de Roover's (1956) article may be disputed here as well. So, in one of the paragraphs of his article reads:

The ledger of 1340 contains balances carried forward from a preceding one for the year 1339. Unfortunately, no records of the *Massari* prior to 1340 are extant in the Genoese archives. Perhaps they shared the same fate as a mass of other papers and were burned by the mob during the riots which, in 1339 marked the overthrow of the aristocratic regime and the election of the first "popular" doge Simone Boccanegri. It is likely that the introduction of double entry into the Genoese finance administration dates back to 1327 when, because of numerous frauds, the system of book-keeping was completely overhauled and orders were issued to keep accounts *ad modum banchi*. (p. 133)

It is not really clear why de Roover assumed that the data given for the beginning of 1340 are balanced. de Roover (1956) wrote, "Unfortunately, no records of the Massari prior to 1340 are extant in the Genoese archives" (by the way, there is no memorial either, and it is not known whether it did exist at all). Accordingly, there is no economic account for the year of 1339, and this is the reason why there is no balanced datum to check with. Furthermore, how could the authors be sure whether the incoming balance had been balanced in the accounts, if all pages of the ledger were absolutely wetted at the bottom and only less than 25% of data were restored? It should be noted that not only the ledger for the year 1339 is missing, but there is no register for the year of 1341 either.

And finally, the most convincing argument of this paper is that the authors have studied the economic account of 1340 thoroughly and with great care. It contains a significant deficit. It is absolutely impossible for the commune to have finished 1339 with no deficit or net surplus. At the same time, the account 119 Verso has no incoming information about the imbalance at the end of 1339.

There are some entries in the book which were taken from the register dated 1339 or March 5, 1340. As a rule, it was the previous year debts which were covered in 1340. The authors also see some debt entries (on the debtor and creditor side) related to the beginning of 1341. The information of their coverage had the corresponding entries in the register which was kept after March 5, 1341. Such information allowed closing the accounts in the Genoese ledger and leaving the corresponding entries invisible.

The authors of this paper hope that all accumulated materials and its approbation (Kuter, 2010; M. I. Kuter, Gurskaya, Kuznetsov, & K. M. A. Kuter, 2011; Kuter, Gurskaya, Kuznetsov, & Yaroslavtseva, 2011; Kuter, Gurskaya, Pavlidi, & Kuznetsov, 2011) and the final results of these studies will shed light on the true history of how the double-entry bookkeeping appeared and the true history of its intermediate stage—the system of double entry, will give a new start to the development of the theory of accounting in Russia, and will be useful for foreign colleagues as well.

Conclusions

This paper deals with one of the early accounting books dated 1340. For a better understanding of the accounting processes which are described with the help of double entry, the method of reconstruction of medieval accounting books and the computer modeling are used.

The computer modeling of the accounting register has helped to answer the most disputing question: Why did Massaries sell the goods at a lower price than the purchasing one in the past?

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Auditor Switching by Corporate Governance: Empirical Analysis From the Listed Company in China

Zhang Yanan, Cheng Wen, Ren Jinzheng
China Agricultural University, Beijing, China

As the most important institutional arrangement in modern corporate, corporate governance is playing an increasingly important role in Chinese market economy, and its effect to auditor change is also being increasingly tapped in recent years. This paper summarizes the reason of auditor switching, especially the elements of corporate governance. Then by selecting the A-share listed companies in China as a sample, the authors use statistical test and logistic regression analysis to explore how the 15 factors of corporate governance which are based on the indicators of Nankai University evaluation system affect auditor switching. The results show that the largest proportion of shareholding, the proportion of independent directors, and board meetings which on behalf of the level of corporate governance, have a significant and negative correlation with auditor switching. The results also show that full disclosure, litigation, and arbitration which on behalf of the level of corporate governance have a significant positive correlation with auditor switching.

Keywords: corporate governance, auditor switching, influence factors

Introduction

The security market plays a more and more important role in the development of market economy in China. The efficient and safe security market relies much on the true accounting information disclosure. Hence, the certified accountant (auditor) takes the main responsibility. Without any doubt, disorderly auditor switching certainly affects the information disclosure of listed companies, investors' decisions, accounting firms' judgments, and also relevant administrations. Therefore, the study of the impact of the company governance on auditor switching can provide useful suggestions.

Since the late 1960s, auditor switching in listed companies has aroused concerns from foreign administrations, and it gradually becomes one of the most important research areas. In China, because of the short time of security market, auditor switching draws little attention from the government. But as the listed companies change their auditors more frequently, more attentions have been paid by academics and regulators. However, researchers have still been not sure about the factors influencing auditor switching, especially about the impact of corporate governance on auditor switching. Therefore, based on previous researches of auditor

Zhang Yanan, master, College of Economics and Management, China Agricultural University. Email: zhangyanan678@sina.cn.

Cheng Wen, master, College of Economics and Management, China Agricultural University.

Ren Jinzheng, associate professor, College of Economics and Management, China Agricultural University.

Correspondence concerning this article should be addressed to Ren Jinzheng, associate professor, College of Economics and Management, China Agricultural University. Qinghua East Road No. 17, 129#, Haidian District, Beijing, P. R. China, 100083. Tel.: +86-10-62736284; Email: rjzheng1977@163.com.

switching with the help of the corporate governance evaluation system created by Nankai University, this paper had empirically tested the impact of corporate governance on auditor switching and found out the influencing factors, in order to provide suggestions to listed companies, investors, accounting firms, and regulators.

Literature Review and Research Hypothesis

Literature Review

Researchers think that auditor switching is mainly caused by five reasons, namely, regional problem, financial factor, litigation risks, regulatory requirements, and corporate governance.

Regional problem. Geng and Yang (2001) studied the regional impact of auditor switching and found that auditors would change if a company was not at the same place as the accounting firm. A company tends to find the accounting firm at the same place. Li and Wu's (2002a) research also indicated that offsite accounting firm significantly affected auditor switching in the following year.

Financial factor. Schwarz and Menon's (1985) research found that companies were more likely to change auditors if their financial situations were deteriorating or they were at the verge of bankruptcy, and then, they would attribute the change to financial difficulties. Geng and Yang (2001) also thought that ST¹ and PT² companies usually changed their accounting firms. Johnson and Thomas's (1990) study showed that listed companies changed their auditors in order to lower their audit costs.

Litigation risks. Susan's (2000) research indicated that the scale of the earnings management was proportional to the litigation risks of accounting firms. As a result of the conservatism, when facing high litigation risks, auditors prefer to reduce the profit, which disobeys the company's accounting policies. Due to the litigation pressure, an accounting firm will voluntarily resign, which can be attributed to the idea of litigation risk. Due to the severe competition in Chinese auditor market, voluntary resignation rarely happens (Xia & Lin, 2003).

Regulatory requirements. It is clear that regulation affects auditor switching a lot. For example, auditors changed a lot, after China Securities Regulatory Commission (CSRC) and Ministry of Finance promulgated the regulation on auditor rotation of the certified public accountants (CPAs) having the qualification of auditing securities and futures in 2003, and the State-Owned Assets Supervision and Administration Commission (SASAC) issued the commissioned audit management approach to unify the national enterprises' financial accounts in 2005.

Corporate governance. The study of impact of corporate governance on auditor switching focuses on audit opinion, auditor committee, the largest shareholder, the proportion of independent directors, and the duality of chairman and general managers, etc..

Geng and Yang's (2001), Li and Wu's (2002a), and Yang and Xu's (2004) researches all presented that a firm's non-standard and unreserved audit opinion in the year before auditor switching significantly impacted auditor switching. What is more, in accordance with the unclean audit idea by Chow and Rice (1982), the listed company changes auditors in order to buy the audit opinion.

According to the studies of Li and Xue (2005) and Xia and Chen (2006), the establishment of audit committee lowers the probability of auditor switching. Unlike their studies, Wang and Tu (2006) thought that the set up of an audit committee had nothing to do with auditor switching.

¹ Special treatment.

² Particular transfer.

Chen's (2007) study shows that if the biggest shareholder holds bigger proportion, the corporation is more likely to keep the cooperation with the previous auditors, which is called audit collusion phenomenon. Fan (2009) agreed with Chen's (2007) opinion and also thought that the duality of chairman and general managers raised the probability of auditor switching.

These studies have shown that corporate governance is absolutely an important factor influencing auditor switching. Further researches have already been conducted on corporate governance, but there are still problems, as these researches only cover a part of the corporate governance mechanism, omit variables, and neglect the relationship between corporate governance and auditor switching. Hence, this paper decides to select 15 independent variables from corporate evaluation system by Nankai University, in order to find out the actual impact scientifically and comprehensively. Otherwise, to review the objective reason of auditor switching, other two control variables are introduced, namely, financial predicament and the scale of asset.

Research Hypothesis

Based on the above researches and relevant theories, this paper puts forward the following hypothesis:

H1: Corporate governance affects auditor switching significantly.

Table 1 shows the specific variables and expected changes.

Table 1

Specific Variables and Expected Changes

Independent variable	Expected change	Independent variable	Expected change	Independent variable	Expected change
Proportion of the first shareholder rate	—	Audit committee	—	Audit opinion	?
Proportion of the second to fifth shareholder rates	—	Time of director meetings	—	Fully disclosure	+
Shareholders' meeting attendance rate	—	Time of supervisor meetings	—	Lawsuit and arbitration	+
Equity property	+	Proportion of supervisor shareholders rate	+	Financial difficulties	+
Board scale	—	Proportion of manager shareholders rate	+	Size of asset	—
Proportion of independent director shareholders rate	—	Duality	+		

Notes. (1) "+" indicates that the change of independent variable is proportional to auditor switching; (2) "—" indicates that the change of independent variable is inversely proportional to auditor switching; and (3) The expected changes are derived from the variable definitions in Table 2.

Table 2

Variable Definition

Type of variable	Different dimensions of corporate governance	Variable	Variable symbol	Variable definition
Dependent variable		Auditor switching	AS	AS = 1, if auditors have been changed AS = 0, if auditors have not been changed
Independent variable	Shareholders' behaviors	Proportion of the first shareholder rate	FSR	Proportion of the first shareholder/total shares
		Proportion of the second to fifth shareholder rates	CR25	Proportion of the second to fifth shareholders/total share
		Shareholders' meeting attendance rate	SMAR	Shares attended the annual shareholders' meeting/total shares
		Equity property	EP	EP = 1, if the actual controller is state-owned EP = 0, if the actual controller is not state-owned

(Table 2 continued)

Type of variable	Different dimensions of corporate governance	Variable	Variable symbol	Variable definition
	Director governance	Board scale	<i>BS</i>	Natural logarithm of the number of board directors
		Independent director rate	<i>DR</i>	Independent directors/total directors
		Auditor committee	<i>AC</i>	$AC = 0$, if the listed company does not set an audit committee $AC = 1$, if the listed company sets an audit committee
		Time of the board meetings	<i>BM</i>	Natural logarithm of the number of annual board meetings
	Supervisor governance	Time of the supervisors' meetings	<i>SM</i>	Natural logarithm of the number of annual supervisors' meetings
		The proportion of the supervisor shareholder rate	<i>SSR</i>	Supervisor shareholders/total supervisors
	Manager governance	Proportion of manager shareholder rate	<i>MANA</i>	Shares held by directors, supervisors, and other top managements/total shares
		duality	<i>DU</i>	$DU = 1$, if the chairman is the general manager $DU = 0$, if the chairman is not the general manager
	Information disclosure	Auditor opinion	<i>AO</i>	$AO = 1$, if the listed company had non-standard audit opinion in the year before the change $AO = 0$, if the listed company had standard audit opinion in the year before the change
		Full disclosure	<i>FD</i>	$FD = 1$, if information was not fully disclosed in the year before the change $FD = 0$, if information was fully disclosed in the year before the change
	Stakeholder governance	Lawsuit and arbitration	<i>LA</i>	$LA = 1$, if the company had a lawsuit or arbitration in the year before the change $LA = 0$, if the company did not have a lawsuit or arbitration in the year before the change
Control variable		Financial problem	<i>STPT</i>	$STPT = 1$, if the company was ST or PT in the year before the change $STPT = 0$, if the company was not ST or PT in the year before the change
		Size of the asset	<i>SIZE</i>	Natural logarithm of the total asset

Research Method

Variable Definition

In this study, auditor switching and corporate governance are both dependent variables. At the same time, in order to avoid the impacts of financial condition and the scale of the company, two factors are controlled. Variable definitions are shown in Table 2.

Data Source

The data used by this paper are from two sources. The data are partly the auditor switching data in 2010, which come from the 2010 annual audit report issued by Chinese Institute of Certified Public Accountants (CICPA³) dated from January 18, 2011 to May 4, 2011. The rest of the data are company governance data which come from the China Center for Economic Research (CCER). The details can be seen in Table 3.

³ Retrieved from <http://www.cicpa.org.cn>.

Table 3

Corporate Governance Data Source

Source	Name
CICPA	2010 annual audit report
Date of CCER	Auditor switching
	Proportion of the first shareholder rate
	CR_5 index
	Shareholders' meeting attendance rate
	Equity property
	Scale of the board
	Number of the independent directors
	Audit committee
	Time of director meetings
	Time of supervisor meetings
	The proportion of the supervisor shareholder rate
	Proportion of manager shareholder rate
	Duality
	Listed companies' illegal database
	Type of violation
The general listed companies' financial database	Litigation and arbitration database
	Company status in the lawsuit
	Audit opinion
	Transaction status
	Total assets

Sample Selection

Considering that the corporate governance mechanism of the financial and insurance companies is significantly different from other companies, financial and insurance companies in the sample selection are rejected. The sample selection process is shown in Table 4, selecting a total of 109 listed companies which have changed their auditors in 2010 and 110 listed companies which have not.

Table 4

Sample Selection

Sample selection	Type	Number	Allowance
The companies had auditor switching in 2010	All A-listed companies which had auditor switching in 2010		559
	Reject: changed by firms' merger	427	132
	Data loss and data error	22	110
	Financial companies	1	109
The companies did not have auditor switching in 2010	All A-listed companies in 2010		1,602
	Reject: companies who had auditor switching	559	1,043
	Financial companies	23	1,020
	Data error	37	983
	Selecting randomly 55 companies in Shenzhen and 55 companies in Shanghai Stock Market		110

Empirical Processes and Result Analysis**Descriptive Statistics Analysis**

In order to compare the differences among the companies which had or had not changed their auditors, this paper conducted the *t*-test as shown in Table 5. The result shows that *FSR*, *SMAR*, *BM*, *MANA*, *FD*, *LA*, *STPT*, and *SIZE* pass the test.

Table 5

Descriptive Statistics Analysis

Variable	AS	N	Mean	Standard deviation	t-statistic	Sig.
FSR	1	109	0.335	0.139	-3.000***	0.003
	0	110	0.401	0.181		
CR25	1	109	0.153	0.102	1.245	0.215
	0	110	0.134	0.115		
SMAR	1	109	0.452	0.155	-2.588***	0.01
	0	110	0.508	0.165		
EP	1	109	0.303	0.462	0.489	0.626
	0	110	0.273	0.447		
BS	1	109	1.79	0.305	-1.527	0.128
	0	110	1.85	0.273		
DR	1	109	0.357	0.064	-1.175	0.241
	0	110	0.366	0.057		
AC	1	109	0.991	0.096	-0.006	0.995
	0	110	0.991	0.095		
BM	1	109	2.199	0.327	-1.832*	0.068
	0	110	2.284	0.355		
SM	1	109	1.553	0.382	0.041	0.967
	0	110	1.551	0.338		
SSR	1	109	0	0.002	0.925	0.357
	0	110	0	0		
MANA	1	109	0.011	0.054	1.785*	0.077
	0	110	0.001	0.005		
DU	1	109	0.11	0.314	0.708	0.48
	0	110	0.082	0.275		
AO	1	109	0.156	0.364	1.463	0.145
	0	110	0.091	0.289		
FD	1	109	0.046	0.21	2.279**	0.025
	0	110	0	0		
LA	1	109	0.156	0.364	4.467***	0
	0	110	0	0		
STPT	1	109	0.257	0.439	1.879*	0.062
	0	110	0.155	0.363		
SIZE	1	109	21.222	1.34	-4.463***	0

Note. *, **, and *** indicate significance at the levels of 1%, 5%, and 10% respectively.

Descriptive statistics show that the companies which have auditor switching have lower first shareholder rate, lower rate of general meeting of shareholders' attendance, fewer board meetings, a higher proportion of management ownership, lower reliability of information disclosure, worse financial conditions, smaller company size, and are more prone to litigation and arbitration events. Other nine independent variables are not significantly correlated with the dependent variable.

Variable Selection

In order to eliminate colinearity among independent variables, Pearson correlation analysis model was used to examine the correlation among each independent variable by choosing the variables whose absolute

value of the correlation coefficient is greater than 0.5 as listed in Table 6.

Table 6

Pearson Correlation Analysis Result

Independent variable group	Correlation	Independent variable group	Correlation
<i>FSR—SMAR</i>	0.712	<i>MANA—SSR</i>	0.551
<i>DR—BS</i>	-0.524	<i>SIZE—STPT</i>	-0.514

A strong correlation exists among these four sets of variables. After tests and consideration, four variables, *SMAR*, *BS*, *MANA*, and *SIZE*, are excluded, and the *FSR*, *CR25*, *EP*, *DR*, *AC*, *BM*, *SM*, *SSR*, *DU*, *AO*, *FD*, *LA*, and *STPT* are chosen as the independent variables included in the analysis.

Modeling

To test the relationship between auditor switching in 2010 and corporate governance in 2009, referring to the one of the two commonly-used models (Li & Wu, 2002b) in auditor switching researches, non-conditional logistic regression model was set up as follows:

$$\ln\left(\frac{p_i}{1-p_i}\right) = \alpha + \beta_1 FSR + \beta_2 CR25 + \beta_3 EP + \beta_4 DR + \beta_5 AC + \beta_6 BM + \beta_7 SM + \beta_8 SSR + \beta_9 DU + \beta_{10} AO + \beta_{11} FD + \beta_{12} LA + \beta_{13} STPT + \xi \quad (1)$$

where p_i stands for the probability of auditor switching in the listed company; $1-p_i$ stands for the probability of not having auditor switching in the listed company; α is a constant; β_i stands for the regression coefficient of each independent variable; and ξ is the random disturbance.

Regression Result

In order to automatically filter out the significant independent variables, the backward stepwise selection method (maximum likelihood estimation of partial likelihood ratio) was taken in the logistic regression test. The regression results are shown in Table 7.

Table 7

Regression Result

	Coefficient	Sig.
<i>FSR</i>	-2.081	0.023
<i>DR</i>	-4.085	0.099
<i>BM</i>	-0.862	0.043
<i>FD</i>	20.459	0.001
<i>LA</i>	21.147	0.002
Constant	3.963	0.005

Note. By using the backward stepwise method, the independent variables are rejected under the following sequence: *AC*, *CR25*, *DU*, *EP*, *STPT*, *AO*, *SM*, and *SSR*.

The regression results show that *FD* and *LA* are significant at the level of 1%, while the largest shareholder equity ratio (*FSR*) and the numbers of *BM* are significant at the level of 5%, and *DR* is significant at the level of 10%.

Result Analysis and Explanation

The higher the proportion of the first shareholder (*FSR*) is, the less likely the auditor would be changed, which is consistent with the hypothesis of the supervision by Shleifer and Vishny (1997). The reason may be

that the largest shareholder can coordinate the agency conflicts between shareholders and managers and also effectively monitor the opportunistic behaviors of the managers, in order to protect the interests of the shareholders' investments. With the continued increase of its stake, *FSR*'s desire of protection and supervision continues to enhance, and in this way, the audit process has become an important mechanism to supervise the managers and protect the investors. As a result, the persistent auditors or accounting firms are indispensable.

The higher the proportion of *DR* rate is, the less likely the auditor would change. Independent directors can serve the company independently of the company's shareholders and also have no contact with the company's managers or businesses. Thus, they can make independent judgments on the company's affairs. As independence and professionalism of independent directors determine the fairness of their decisions, they can effectively improve the corporate governance, the normalization in the audit process, and the stability of the auditor as well.

The more the board meetings are, the less likely the company would change its auditors. If the general meeting of shareholders is an important part of corporate governance, then the board is an important part of the core component. The board can directly affect the quality of corporate governance. The numbers of the board meetings can, to some extent, reflect the actual control of the company from the board. More frequently the board activities are, more time the directors have to spend to exchange views to set strategies and monitor management. The board meetings help improve corporate governance, thereby reducing the likelihood of auditor switching. It is ruled in the company law that the board should hold meetings at least twice a year.

The company with full disclosure of accounting information is less likely to change auditors. As a dimension of corporate governance, the quality of information disclosure is not good in China's listed companies (Shi, 2008). Poor quality of information disclosure of listed companies must be caused from some problems, so voluntary, timely, reliable, and adequate information disclosure mechanism is an expression of good corporate governance. To a certain extent, full information disclosure reduces the likelihood of auditor switching.

The company with litigation or arbitration matters has higher possibility to change auditors. The event of corporate litigation and arbitration is a major indicator of measuring the harmony among the companies, shareholders, suppliers, customers, consumers, creditors, employees, communities, government, and other stakeholders. Obviously, the more harmonious the relationships among stakeholders are, the better the corporate governance is and also the less likely the company would change auditors.

Conclusions and Suggestion

This paper analyzes the impact of corporate governance in 2008 on auditor switching in 2009 and proves that corporate governance significantly affects auditor switching. Among all the influencing factors, the proportion of the largest shareholder rate, independent director rate, and board meetings are proportional to auditor switching. On the contrary, litigation and arbitration matters and full information disclosure are inversely proportional to auditor switching.

These findings can help the listed company scientifically find out the factors in the corporate governance that affect the stability of audit in order to improve corporate governance. The investors in the security market can know better about the company's audit condition, so that they would effectively make their decisions. At the same time, accounting firms can know better about their clients to avoid audit risk, regulate their professional ethics and practices, and maintain their public image and credibility. What is more, regulators can

regulate and guide the relevant policy making of auditor switching to develop a healthy security market.

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Ownership Concentration and the Value Effect of Related Party Transactions (RPTs)*

Yaron Amzaleg

Peres Academic Center, Rehovot, Israel

Ronen Barak

Bar-Ilan University, Ramat Gan, Israel

This paper¹ investigates 218 related party transactions (RPTs) in Israel, an economy characterized by a high percentage of closely-held firms and identifies a non-linear inverted U connection between the value effect of RPT and the level of firm ownership concentration. This non-linear connection is similar to the worldwide documented quadratic (inverted U) relation between ownership concentration and a firm's Tobin's Q. The relation becomes even statistically stronger, when measuring ownership concentration using a strategic power approach, in an attempt to identify the source of this puzzling connection.

Keywords: related party transaction (RPT), ownership concentration, private benefits

Introduction

Related party transaction (RPT) is the common term for deals between a company and one (or more) of its controlling entities (i.e., major shareholders and/or management) or alternatively, a transaction in which one (or more) of a firm's controlling entities possesses private interests.

In principle, RPT can be associated with two opposite consequences. On the one hand, RPT can serve as a value-enhancing effect through lower transaction costs, efficiency, and ease of enforcing property rights and imperfect contracts (Coase, 1937; Khanna & Palepu, 1997; Shin & Park, 1999; Fan & Goyal, 2006; Wong & Jian, 2003). The literature refers to this kind of RPT as "propping". On the other hand, however, RPT may also be used as a mechanism to exploit firm resources and divert funds from the company to controllers' other firms or even their private pockets. The terminology for this kind of RPT is "tunneling".

Tunneling occurs in various forms, for instance, when a firm overpays (or has been underpaid) for merchandise or services or gets (provides) loans which bear above (under) market interests (Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2008). Consequently, RPT is a potential form of private benefits of control, which accrues for some firms' controllers and insiders, but not for small and public shareholders (Barclay & Holderness, 1989; Dyck & Zingales, 2004; Albuquerque & Schroth, 2010; Liu & Magnan, 2010; Barak & Lauterbach, 2011).

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Yaron Amzaleg, lecturer of Finance, School of Business Administration, Peres Academic Center. Email: amzalegy@pac.ac.il.

Ronen Barak, lecturer of Finance, School of Business Administration, Bar-Ilan University.

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According to Dyck and Zingales (2004) and La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000; 2002), the magnitude of private benefits of control is negatively correlated with ownership concentration. Therefore, it is reasonable to assume some kinds of relation between the nature of RPT and a firm's ownership structure. In other words, the effect of RPT on firm value, which can serve as a proxy for the intensity of private benefit consumption, should be correlated with firm market value and can be used as a potential explanation to the relation between ownership characteristics and firm performance.

In this study, the authors explore the relation between the value effect of RPT and firm ownership concentration in Israel, an economy characterized by closely-held firms and under median corporate governance quality indicators (La Porta et al., 2000; Dyck & Zingales, 2004). The authors find that this relation is similar to the documented non-linear quadratic (inverted U) relation between ownership concentration and Israeli firms' Tobin's Q presented by Lauterbach and Tolkowsky (2007). This relation is persistent and even statistically stronger, when using more sophisticated strategic-oriented measures of ownership concentration.

The findings of this paper suggest that ownership concentration is a good indicator of the perceived intention behind RPTs and their effects on firm value. The results support the assumption that small shareholders' considerations (as reflected in the market reaction to the deal) incorporate the incentive of controlling shareholders to preserve or expropriate firm resources, as well as their freedom of action level in doing so.

This paper is organized as follows. Section 2 presents the literature review. Section 3 includes the theory and hypotheses, while Section 4 discusses the methodology. Section 5 describes the sample and data used in this paper, while Section 6 is dedicated to the empirical findings and analysis. Section 7 offers conclusions and a brief summary.

Literature Review

The ambiguous nature of RPTs has made it a central issue of several prior studies. Weinstein and Yafeh (1995) revealed that Japanese firms inside business groups, which comprised large banks, tended to pay higher interest rates than other non-affiliated companies. However, Jiang, Lee, and Yue (2010) reported lower interest rates as regards loans provided by Chinese companies to insiders.

Bertrand, Mehta, and Mullainathan (2002) found evidence of tunneling through RPT among pyramidal ownership structures. It appears that controlling shareholders use RPT to divert resources from low cash flow rights to higher ones in the pyramid.

Wong and Jian (2003) described 131 RPTs in China and found them to be significantly common within business groups before public offerings or when a firm faced possible delisting, due to insufficient price levels. They perceive RPTs as a management earning tool serving controllers' interests.

Cheung, Rau, and Stouraitis (2004) supported the tunneling view by presenting a significant and negative relation between a market's reaction to Chinese firms' RPTs and the percentage of holdings of controlling shareholders, as well as the level of a firm's information disclosure. The tunneling view of RPT within Chinese firms is also supported by Aharony, Wang, and Yuan (2005) who report abnormal stock returns of post-IPO² to be significantly and negatively correlated with the extent of RPT with the parent company.

² Initial public offering.

The tunneling nature of RPTs also manifests itself in Liu and Magnan's (2011) findings which show a higher market value in firms from countries with stricter self-dealing³ regulations, such as mandatory disclosure and shareholder approval.

Despite the above proofs, many papers fail to support the tunneling RPT view inside business groups. Khanna and Palepu (2000), for instance, found that group-affiliated firms outperformed non-affiliated ones, while Buysschaert, Deloof, and Jegers (2004) failed to find significant evidence of minority shareholders' expropriation in Belgian business groups.

Gordon and Henry (2005) examined 331 US publicly-traded firms during the years of 2000 and 2001 and found RPT to be associated with earning management through financial transactions, such as loans from and to related parties. Another non-arms' length phenomenon related to companies' loans to insiders in American firms is also reported by Kahle and Shastri (2004). Gordon, Henry, and Palia (2004), in another pre-Sarbanes-Oxley era study, found RPT intensity among US firms to be positively related to weaker corporate governance and negatively related to industry-adjusted returns.

Chief executive officers' (CEOs) compensation schemes may also be treated as a special case of RPTs, as minority shareholders' expropriation (tunneling) can also be made through unjustified compensations to owners' staffed positions. Bertrand and Mullainathan (2000), Amzeleg and Mehrez (2004), as well as Cohen and Lauterbach (2008) documented significantly higher compensation packages for CEOs who were also controlling shareholders.

Barak, Cohen, and Lauterbach (2011) found a positive relation between the intensity of RPTs (which are not part of the CEO's compensation scheme) and the level of excess owner-CEOs' salaries in Israeli family firms. The portion of excess compensation is negatively correlated with the firm's Tobin's Q, suggesting that it is probably a form of private benefits of control. Therefore, excessive compensation to owners' functionaries (similarly to other forms of RPT) most likely serves as a tunneling vehicle.

Thus, it is reasonable to assume that the intensity and nature of RPTs will be reflected in firm value. One can also expect a strong link to exist among ownership structure characteristics which naturally reflect the ability of insiders to propose and pass these special transactions in a company's legal quorums.

The relation between ownership structure and firm value is a major issue for academics and practitioners alike, with a tangent interest in corporate governance aspects. Morck, Shleifer, and Vishny (1988) were the first to document a non-monotonic relation between the percentage of holdings of major shareholders and a firm's Tobin's Q. According to their findings, Q tends to increase with the percentages of holdings in the range of 0% to 5%, decrease in the (holdings) range of 5% to 25%, and increase again from this level of holdings on. It seems that the agency problem, which emerges from the separation of ownership and management, is moderate when ownership concentration increases up to 5%. From 5% and up to 25%, a firm's control group accumulates excessive control power and exploits corporation resources. Beyond 25%, dominant shareholders possess a large fraction of the firm, thus reducing their incentives to sabotage its market value (Jensen, 1986).

In contrast, McConnell and Servaes (1990) reported a quadratic (inverted U) relation. It appears that Q tends to increase with ownership concentration until major shareholders' holdings reach 40%-50% of firm equity. From this point onwards, Q tends to monotonically decrease. The quadratic inverted U relation between a firm's Tobin's Q and ownership concentration persists in later studies of US companies as well as firms in

³ Another term for RPTs.

more ownership-concentrated European economies, such as Norway and Sweden (Bohren & Odegaard, 2004; Beiner, Schmid, Drobetz, & Zimmermann, 2005).

Lauterbach and Tolkowski (2007) reported a similar relation in Israel, a highly concentrated ownership economy with many closely-held firms. According to their findings, Q values increase with controlling shareholders' voting power, which peaks at about 68% and then decreases monotonically. The described quadratic relation has become one of the more puzzling relations in the financial literature, as will be explained in next section.

A contrasting view was provided by Demsetz and Lehn (1985), who raised the possibility that ownership concentration was endogenous. According to their theory, there is actually no connection between Q and owners' holdings. Instead, major shareholders tend to choose firms according to their preferred given typical Q. Because the value of a chosen Q is a utility-maximizing one, the authors should not expect any motivation to influence or change it. Although the theory fails to explain the deterioration of Q at high holding levels and is only weakly and insufficiently supported by the empirical literature in general, it still receives attention and is constantly examined in most of the studies, once again, usually without significant results.

Theory and Hypotheses Development

RPT may be subjected to two mutually exclusive contradictory interpretations, namely, tunneling and propping. The tunneling view refers to RPT as a form of private benefits of control, namely a means by which to transfer funds from a firm's resources to the hands of controlling shareholders (or management) at the expense of other firms' stakeholders. The propping view, however, treats RPT as a value-enhancing mechanism designed to reduce transaction costs and improve efficiency⁴.

Therefore, the nature of RPT should reflect the firm controllers' incentives to exploit or alternatively promote and preserve the firm's assets. Jensen and Meckling (1976) as well as Jensen (1986) (and others) showed that a significant component of these incentives was derived from the level of insiders' holdings in the firm's equity and its impact on their cash flow rights and voting power.

According to the above descriptions, the motivation to loot a firm's funds decreases as holding levels rise, and the vice versa. The explanation is quite intuitive. The larger the equity fraction owned by insiders, the larger the cash flow rights and the greater the firm controllers' motivation to protect and preserve it. However, as holding percentages increase, voting power increases as well. Thus, major shareholders become strategically powerful and more competent as regards crossing barriers and, in turn, lower their exploitation costs.

The net force of these contradictory effects for each level of ownership concentration should determine the final shape of the relation. The authors expect the holding incentive effect to be more dominant for lower levels⁵, meaning that RPT value effect starts as an increasing function of the holding percentage. Yet, it is hard to determine which effect takes over and becomes dominant, when holding levels significantly grow. If incentive effect of holdings prevails, the authors expect the RPT value effect to increase monotonically. However, if the excessive strategic power effect is overcome, a non-monotonic (similarly quadratic) relation should emerge, as the RPT value's increasing trend eventually inverts into a decreasing one.

⁴ See Friedman, Johnson, and Mitton (2003) for anecdotal evidence of RPT as propping.

⁵ This assumption is consistent with Jensen's incentive effect as well as the model presented in the study of La Porta et al. (2002) which predicts a negative relation between insiders' holding levels and managerial inefficiencies.

Previously related literature gives the authors a clue regarding the nature of the described intriguing relation. If RPT value effect is a good proxy for the value consequences of a firm owner's actions (i.e., the magnitude of private benefits of control as well as the intensity of value-enhancing procedures), the authors expect the relation to be similar to the well-documented relation between ownership concentration and firm value (i.e., Tobin's Q). Most of the studies report a quadratic inverted U relation, implying that the strategic excessive power effect eventually (i.e., when holding levels are high enough) overcomes the incentive effect of holdings⁶.

Reproducing the documented relation concerning ownership concentration and RPT value effect will be far stronger than any other support for the puzzling Q-ownership relation. In fact, it will generate (for the first time, to the best of the authors' knowledge) a direct and empirically-based explanation for (at least one of) its foundations. In addition, because the relation that the authors investigate uses a measure of the value consequences of owners' actions, it will seriously weaken the possibility of a spurious Q-ownership relation, due to the endogeneity of ownership level as proposed by Demsetz and Lehn (1985) and others⁷.

Thus, the authors put forward the following hypothesis:

H1: The relation between the RPT value effect and ownership concentration is a non-monotonic and quadratic inverted U, which is similar to the documented relation between Tobin's Q and controlling shareholders' ownership level.

Lauterbach and Tolkowski (2007) estimated the Q-ownership relation in Israel and received the typical and quadratic inverted U relation. However, their findings deserve a thorough examination, as the ownership structure in Israel is concentrated (like many other worldwide economies outside the USA and the Britain). The vast majority of Israeli publicly-traded firms are closely held, and most of them are dominated by an absolute majority of control holders. Moreover, many of the Israeli companies' control groups are homogenous and comprise only one member or family (i.e., family firms).

In this environment, which La Porta et al. (2002) ranked as an under-median corporate governance economy, the incentive effect of holdings is somewhat saturated, and considerable attention should be dedicated to the excessive strategic power drive.

Family firms are mostly exposed to the surplus effect of strategic power, as their controllers are likely to be more cohesive and cooperative in exercising RPTs. There is ample evidence showing that family ownership decreases both firm performance and firm value, apparently because private benefits tend to be on a larger scale (Volpin, 2002; Bennedsen, Nielsen, Perez-Gonzalez, & Wolfenzon, 2007; Barak & Lauterbach, 2007). Therefore, the authors give special attention to these firms and hypothesize that RPT within family firms is more likely to represent a sub-optimal value event.

Thus, the authors put forward the following hypothesis:

H2: The RPT value effect tends to be lower for family firms, i.e., firms with a homogenous control group comprising only one entity.

⁶ Interesting and surprising are Ding, H. Zhang, and J. Zhang's (2007) findings showing an inverted U-shape relation between ownership concentration and the extent of earnings management practice in Chinese companies. Interpreting their results, they argue that the first dominant effect is the strategic power effect (entrenchment), which gradually gives way to the growing impact of the incentive effect (alignment). This interpretation is contrary to the prevailing notion, as its projection on firm value should be expressed in a straight U relation, rather than the common inverted one.

⁷ See the end of the Literature Review (Section 2) for details.

It is natural that larger firms usually receive higher levels of public attention and therefore higher media coverage intensity. Consequently, larger firms are better monitored and less subjected to value-destroying moves and private benefits of control⁸. Thus, the authors expect RPT in larger firms to be less damaging and more value-enhancing.

Thus, the authors put forward the following hypotheses:

H3: The RPT value effect tends to be higher in larger firms.

Firm leverage is also a factor that has a potential influence on RPT consequences. Debtors (especially banks) are more likely to be cautious and watchfully monitor high-levered firms. Therefore, one should expect a positive relation between the RPT value effect and a firm's financial leverage.

H4: There is a positive relation between the RPT value effect and a firm's financial leverage.

External or independent⁹ directors are another monitoring device which should moderate tunneling acts, such as value-damaging RPTs. Chhaochharia and Grinstein (2006) showed that a higher proportion of external directors within the directorate mitigated CEO agency problems in the US. However, the impact of independent directors on closely-held firms, where the majority of directors belong to the control group, may be much less effective.

A firm's periodical profitability may influence the nature of RPT in two different ways. On the one hand, it could be a signal of proper insider conduct. However, on the other hand, it can also serve as a screening device in the hands of control holders to promote tunneling RPTs. The same rationality and reasoning can be applied towards dividend declaration. Dividends may not only be an indicator of stability and confidence in future earnings, but can also serve to camouflage improper RPTs.

Thus, the authors tend not to be decisive and do not hypothesize the character impact of external directors, firm profitability, and dividend policy on RPT value consequences. Instead, the authors prefer to leave the matter open to empirical examinations.

Methodology

In order to capture the RPT value effect, the authors use the standard event study methodology. Cumulative abnormal returns (CARs) will be calculated using the market model in a 10-day event window around the RPT announcement date, i.e., five days prior to and five days after the announcement. The model's parameters will be estimated 200 days prior to the event window.

The authors are interested in investigating a broad span of RPT, including any fiscal¹⁰ and financial transactions. In this methodological framework, controlling shareholders' salaries, bonuses, and benefits (such as restructuring of options) are treated as a special case of financial RPT.

The basic measure for ownership concentration in this paper is the percentage of the firm's shares held by insiders, including large shareholders, executives, and directors. Nevertheless, the closely-held nature of Israeli publicly-traded firms requires special attention, when measuring the impact of ownership structure. According to the above theory, a higher ownership level moderates the incentive effect of holdings by amplifying the consequences of excessive strategic power. Thus, in a concentrated ownership environment, a particular

⁸ Indeed, Barclay and Holderness (1989) as well as Barak and Lauterbach's (2007) documented lower levels of private benefits of control in larger firms.

⁹ A director without any family (or business) ties with controlling shareholders (or management).

¹⁰ Buying (selling) a real asset or service from (to) a related party.

thought should be dedicated to strategic aspects. For this reason, the authors control homogenous control groups (i.e., family firms) when estimating the impact of ownership holdings over the RPT value effect.

However, the authors also aim towards a more multi-dimensional and strategically-oriented index which will more precisely reflect the degree of ownership concentration and eliminate the need to control controllers' homogeneity. A suitable measure for this purpose was presented by Milnor and Shapley (1978) and has been commonly used ever since in the financial literature¹¹. In this study, the authors use the "oceanic" voting power of small shareholders (the public) as an ownership concentration measure. High values indicate lower concentrations and the vice versa.

Sample and Data

Section 270 of Israeli corporate law from 1999 obligates publicly-traded firms to issue an immediate report of every transaction with a related party. Such transactions must also be approved by both the board of directors and shareholders, with a special majority rule needed of at least one third of all outside shareholders.

The sample includes all the reports from over a two-year period starting from December 2001, with respect to the change in corporate regulation from 1999 and an adjustment period. The transaction reports contain the following information: the exact date of each transaction, the parties involved, the essence of their relations, and a detailed description of the transaction. Further data on a firm's ownership structure, accounting variables, and capital structure come from a firm's annual reports as well as the "Taklit-Hon" database (a private vendor). Data on the stock prices of every public firm come from the "Predicta" (a commercial data base).

Defining the first announcement of the transaction as Day "0" for each security, the authors obtain a maximum of 211 daily return observations starting on Day -205 and ending on Day +5. The first 200 days in the period (Day -205 through Day -6) are used for estimating the security parameters of the market model. The following 11 days (Day -5 through Day +5) are considered as the event period. For a security to be included in the sample, it must have at least 100 daily returns in the first (estimation) period and no missing data during the event period¹². Following this strict requirement, the authors obtain full trading data on 218 transactions from 129 different firms.

Empirical Results

Descriptive Statistics

Table 1 provides some descriptive statistics of the variables and compares family and non-family-owned companies that reported an RPT during the sample period, over a wide range of variables. The sample consists

¹¹ The Milnor-Shapley's oceanic power index measures the power of a player in a voting game as the probability of the player (the public, for instance) to be pivotal in a random coalition. The index differentiates between large players (with substantial voting power) and small players with infinitesimal voting power, and these small players are called "the ocean". Please refer to the Appendix A for more details.

¹² The initial sample was considerably larger and included about 745 reported transactions. Following the strict rule regarding trading days, the authors had to exclude about 70% of the transactions, mostly due to considerably low trade (an average of about 2.4 trading days in the 11-day event window in the excluded transactions). Nonetheless, upon comparing the final and reduced sample, the authors can safely say that the final sample fairly represents the initial one, in terms of corporate performances, ownership, and capital structure, as well as in terms of transaction distribution over time and topics. For robustness, the authors also considered other trading restrictions. The results are quite similar to those reported in this paper.

of 218 RPTs in 129 companies and includes 102 transactions in 53 family-owned companies, where the controlling owner has more than 50% of both controlling and residual rights. The Israeli market is known to be highly concentrated. The average insiders' shareholding is about 74.1%, which is a bit higher than the overall market for this period (Lauterbach & Tolkowski, 2007).

Table 1

Descriptive Statistics—Summary Variables by Ownership Structure

	All	Non-family-owned firms	Family-owned firms	<i>p</i> -value of <i>t</i> -test for difference	<i>p</i> -value of Wilcoxon test for difference
Panel A: Descriptive statistics					
<i>Assets</i>	7.77 (26.9)	9.91 (35.3)	5.33 (10.7)	0.18	0.16
<i>ROA</i>	-1.77% (14.9%)	-3.71% (15.1%)	0.42% (14.4%)	0.04	0.09
<i>Leverage</i>	73.4% (25.5%)	71.7% (25.4%)	75.3% (25.4%)	0.3	0.84
<i>DIV</i>	32.1% (46.8%)	29.3% (45.7%)	35.3% (48%)	0.3	0.34
<i>EXT_DIR</i>	25.0% (8.0%)	24.9% (8.4%)	25.1% (7.5%)	0.85	0.79
<i>HOLD</i>	74.1% (13.7%)	70.0% (15.6%)	78.7% (9.3%)	< 0.01	< 0.01
<i>MSCNT</i>	0.854 (0.179)	0.725 (0.157)	1.00 (0)	< 0.01	< 0.01
Panel B: Average CAR (-5, +5) according to the type of transaction					
Fiscal transaction	1.02% (11.2%) [74]	2.89% (11.6%) [27]	-0.05% (10.8%) [47]	0.28	0.47
Financial transaction	0.70% (12.9%) [92]	1.51% (15.2%) [52]	-0.34% (9.0%) [40]	0.47	0.18
Compensation transaction	-0.72% (15.9%) [52]	1.19% (17.6%) [37]	-5.44% (9.5%) [15]	0.09	0.11
All	0.47% (13.2%) [218]	1.73% (15.3%) [116]	-0.96% (10.1%) [102]	0.12	0.08
<i>p</i> -value of ANOVA	0.75				
<i>p</i> -value of Kruskal-Wallis	0.21				

Notes. (1) The standard deviation is in parentheses; and (2) In panel B, the number of observations is reported in the square brackets.

Table 1 compares the characteristics of companies reporting an RPT classified by ownership structure. *DIV* is a dummy variable equaling one if the company announced a dividend in the current year prior to RPT; CAR (-5, +5) is the 11 days' cumulative abnormal return around the announcement of RPT. *ROA* is the known return on assets. *Leverage* is the book value of debt to the book value of equity. *EXT_DIR* is the proportion of outside directors of the total directors. *HOLD* is the percentage of a firm's shares held by insiders (large shareholders, executives, and directors). *FAM* is a dummy variable equaling to one, if more than 50% of the company's equity is held by a single shareholder. *MSCNT* is the firm controllers' aggregate Milnor-Shapley oceanic voting power index.

Not surprisingly, family-owned RPT firms are more closely held with average holdings by insiders of 78.7% compared with a 70.0% level in non-family RPT firms. The more closely-held RPT firms tend to be significantly smaller, although seemingly more profitable (an average *ROA* of -3.7% compared with a positive 0.4% for family-held RPT firms) than the widely-held RPT firms in the sample.

MSCNT represents the Milnor-Shapley oceanic index for a firm's major owners' strategic control. Naturally, when a single owner or family owns more than 50% of the firm (i.e., family-owned firms), *MSCNT* takes the value of one. The mean of *MSCNT* of the entire sample is 0.85, which further suggests that strategic control power is highly concentrated, with weak control and oversight power by outside shareholders.

Panel B focuses on the CAR around the RPT announcement and its relation to family or non-family-owned firms. The overall (-5, +5) average CAR is about 0.47%, which is statistically and insignificantly different from zero. However, the CAR around an RPT seems to differ as regards ownership structure. Specifically, the authors find an average CAR of 1.73% for non-family firms and a significantly lower CAR of -0.96% for family-owned firms. A closer look reveals that the source of the difference derives from the compensation transactions, whose value effect is substantially lower for family-owned firms. Moreover, although not statistically significant, the average CAR seems to be related to the type of transaction, as it varies from an average CAR of 1.02% around a fiscal transaction to a negative CAR of -0.72% around the report of a compensation transaction. This preliminary evidence suggests that RPTs are complex mechanisms, and further investigation is needed.

Regression Analysis

The authors' main interest in this paper is to reveal the intriguing relation between RPT value effect and ownership structure properties. However, the need to isolate this impact and produce a *ceteris paribus*¹³ conclusion raises the necessity as well as the opportunity to check other possible factors with a potential influence on RPT outcome.

In accordance with the abovementioned hypotheses, the authors regress the CARs (-5, +5) of RPT on the following explanatory variables: (1) firm size as the natural logarithm of total assets; (2) the percentage of external directors in the directorate; (3) firm leverage as the debt to equity ratio; (4) *ROA* as earnings before interest and taxes (EBIT) divided by total assets; (5) *DIV* is a dummy variable that equaling one if the company announced a dividend in the current year prior to RPT; (6) *FAM* is a dummy variable that equals one when a firm is controlled by a single individual or family; (7) *FIST* is a dummy variable that equals one if the RPT is a fiscal transaction; (8) *FINT* is a dummy variable that equals 1 if the RPT is of a financial nature; (9) *COMP* is a dummy variable that equals one if the RPT is the owner's managerial compensation scheme; (10) *HOLD* is major shareholders' cumulative holdings (in decimal terms); and (11) the squared value of *HOLD* which serves as an indicator for the possible non-monotonic nature of the RPT-ownership relation. Finally, in order to take into account possible industry-fixed effects, the authors add four dummy variables according to five major industry attributes.

A proper comment regarding the two of the above variables is necessary. The authors check and find significant correlations between financial leverage as well as the percentage of external directors with firm size. To avoid multi-collinearity problems, the authors "cleaned" these variables from firm size effects by regressing the leverage and the percentage of external directors on Ln (total assets) and using the residuals of these

¹³ It is a Latin phrase, literally translated as "with other things the same" or "all other things being equal or held constant".

regressions as explanatory variables in the RPT CAR regressions.

Table 2 summarizes the results of the multivariate ordinary least square (OLS) regression. Columns I and II present models with industry-fixed effect dummy variables¹⁴ ($IND_FE = \text{Yes}$), differentiated according to RPT type, i.e., fiscal and financial vs. compensation scheme for owner-CEO. Accordingly, Columns III and IV are non-industry fixed-effect models ($IND_FE = \text{No}$), differentiated according to RPT type.

Table 2

Factors Affecting RPT Impact on Firm Value

Variable	I	II	III	IV
<i>SIZE</i>	1.130* (1.69)	1.098* (1.66)	0.767 (1.60)	0.750 (1.57)
<i>EXT_DIR</i>	1.092 (0.09)	0.605 (0.05)	0.565 (0.05)	-0.181 (-0.01)
<i>LEV</i>	5.125 (0.82)	4.968 (0.79)	3.606 (0.59)	3.427 (0.56)
<i>ROA</i>	3.359 (0.39)	3.451 (0.40)	1.015 (0.13)	1.244 (0.16)
<i>DIV</i>	-0.888 (-0.55)	-0.914 (-0.57)	-0.915 (-0.57)	-0.950 (-0.59)
<i>FAM</i>	-4.209** (-2.46)	-4.071** (-2.36)	-4.472*** (-2.85)	-4.327*** (-2.74)
<i>FIST</i>	2.727 (1.14)		3.015 (1.25)	
<i>FINT</i>	1.699 (0.65)		1.951 (0.80)	
<i>COMP</i>		-2.142 (-0.93)		-2.388 (-1.05)
<i>HOLD</i>	49.829** (2.28)	50.637** (2.28)	48.765** (2.05)	49.441** (2.07)
<i>SQ_HOLD</i>	-29.708* (-1.91)	-30.165* (-1.92)	-29.508* (-1.74)	-29.764* (-1.76)
<i>IND_FE</i>	Yes	Yes	No	No
Observations	218	218	218	218
Adjusted R ²	-0.0019	-0.0019	0.0043	0.0079

Notes. *T*-statistics, corrected for heteroscedasticity using the White method, are presented in parentheses below the coefficients; and (2) *, **, and *** indicate that the coefficient is significantly different from zero at the significance levels of 10%, 5%, and 1% respectively.

The authors present the results of the following regression:

$$\begin{aligned}
 CAR_{RPT} = & \beta_0 + \beta_1 * SIZE_i + \beta_2 * EXT_DIR_i + \beta_3 * LEV_i + \beta_4 * ROA_i + \\
 & \beta_5 * DIV_i + \beta_6 * FAM_i + \beta_7 * FIST_i + \beta_8 * FINT_i + \beta_9 * COMP_i + \\
 & \beta_{10} * HOLD_i + \beta_{11} * SQ_HOLD_i + \psi_{ind} * Dumindustry_i + e_i
 \end{aligned} \quad (1)$$

where CAR_{RPT} is the cumulative abnormal return, relative to the market model in the -5, +5 days' window around the RPT announcement; $SIZE$ is the natural logarithm (Ln) of total assets; EXT_DIR is the percentage of external directors of the board; LEV is the debt to equity ratio; ROA is the ratio of EBIT to total assets; DIV is a dummy variable equaling to one if the company paid a dividend in the current year prior to the RPT announcement (zero if otherwise); FAM is a dummy variable equaling to one when a control group is homogenous (otherwise if $FAM = 0$); $FIST$ is a dummy variable equaling to one when RPT is a fiscal

¹⁴ The authors classified the firms according to five main industry attributes.

transaction, and zero if otherwise; *FINT* is a dummy variable equaling to one when RPT is of financial nature, and zero if otherwise; *COMP* is a dummy variable equaling to one when RPT refers to an owner-CEO's compensation scheme; *HOLD* is the major shareholders' cumulative holdings (in decimal terms), while *SQ_HOLD* is its squared value; and *IND_FE* indicates whether industry dummy variables are used to detect industry-fixed effects or not ("yes" or "no" respectively). To avoid multi-collinearity problems, *LEV* and *EXT_DIR* are "cleaned" from *SIZE* effects, i.e., in the regressions of Table 2, the authors use the residuals of the regressions of *LEV* and *EXT_DIR* on *SIZE*, instead of the raw variables themselves. The Columns I and II represent models with industry-fixed effects, separated according to RPT type (fiscal/financial or CEO compensation scheme). Columns III and IV are models without industry-fixed effects which differ with regard to RPT type (fiscal/financial or CEO compensation scheme).

The authors start the inspection of Table 2 by referring first to the significant control variables. The most prominent is the family ownership attribute which significantly lowers the RPT value effect by approximately 4%. This finding, which is compatible with H2, is an additional support for the negative impact of family ownership on firm performance, as described in previous literature.

Firm size effect is positive and significant at the level of 10% in the models with industry-fixed effects and marginally significant at this level in the non-fixed effect regressions. Hence, the authors get some (albeit weak) supports for H3 which proposes that RPTs tend to have a better (or less damaging) impact on larger companies presumably because of the higher intensity of public attention and media coverage.

Although RPT type attributes do not yield significant results, it appears that financial and fiscal RPTs (which present positive coefficients) are more value-enhancing (more propping) and less damaging, in comparison with managerial compensation scheme of RPTs (presenting a negative impact). This result is a *ceteris paribus* support for the higher average CAR of these transactions in the simple and descriptive statistics presented earlier.

Another interesting albeit insignificant result is the lack of external directors' effect on RPT value impact. This finding is clearly a result of the external directors' nomination mechanism in Israel. Almost all Israeli external directors are personal appointments of controlling shareholders, whose future employment depends upon the whims and satisfaction of these same controllers¹⁵. Thus, the authors should not expect them to provide a spectacular monitoring effect and substantially reduce damaging (tunneling) and sub-optimal RPTs.

A firm's leverage coefficients are also totally insignificant and do not support H4 which predicts a positive relation between leverage and RPT value impact, due to lenders' supervision. This result raises the possibility that lenders are insufficiently aware of their publicly-traded debtors' disorderly conducts.

However, as previously stated, the authors' main goal is to reveal the relation between RPT value effect and ownership concentration. The level of holdings coefficient is significantly positive at the level of 5% in all models, reflecting an intrinsic solid incentive effect. In contrast, the effect of the squared transformation of holdings in each model is negative and significant at the level of 10%. Taking into account the two results together yields a support for H1 which predicts an inverse U quadratic relation between ownership concentration and RPT value effect.

¹⁵ This was the case during the sample years. However, in 2011, the Israeli parliament enacted the corporate law 16th amendment act which restrained the influence of controlling shareholders on external directors.

This estimated ownership-RPT impact relation is similar to the well-documented relation between ownership concentration and Tobin's Q. The resemblance actually exposes one of the possible mechanisms behind the Q-ownership phenomenon by providing, perhaps for the first time, a direct measurable factor with similar value consequences. Moreover, the explanation for the puzzling Q-ownership, as emerged from the findings of this paper, seriously weakens the claim of ownership endogeneity originally raised by Demsetz and Lehn (1985). In light of the findings of this paper, the Q-ownership relation is more likely a result of insiders' activity, as it is perceived by the market, rather than an artificial result arising from insiders' predetermined preferable Q choice.

Setting first-order conditions with respect to the level of major shareholders' holdings $-\frac{\partial CAR_{RPT}}{\partial HOLD} = 0$,

while noting that $SQ_HOLD = HOLD^2$, yields a maximized level of CAR_{RPT} holdings which is equal to $\frac{-b}{2a}$,

when a and b represent the coefficients of SQ_HOLD and $HOLD$ respectively. The authors now calculate the above expression based on the model with the highest explanatory power (Model IV) and discover that the level of insiders' holdings which maximizes the RPT value impact is 83%.

The interpretation of the resulting ownership effect in light of the theory is straightforward. According to the obtained maximizing value, the holding incentive effect tends to be dominant when large shareholders' cumulative holdings are less than about 83% of the firm's equity. This dominancy is reflected in the positive ownership-RPT impact relation below the stated level. However, the concave (diminishing marginal change¹⁶) relation indicates that the incentive effect is gradually weakened and gives way to the alternative contradictory effect.

As major shareholders accumulate enough voting rights, they become too strategically powerful. This excessive strategic power helps to ease the RPT approval process within the company's legal quorums and alleviates their costs of other shareholders' exploitation. The described dynamic intensifies, as insiders' holdings approach the threshold of 83%. Beyond this level, the excessive strategic power is potent enough to overcome the incentive effect of holdings. Thus, the joint impact of these two contradictory effects generates a non-monotonic quadratic (inverted U) relation between the RPT value effect and large shareholders' level of equity holdings.

An interesting question is: What is so special about the 83% holding level which reverses the ownership-RPT relation from an increasing relation into a decreasing one? In order to try and answer this question, the authors should first shed some light on the required procedure involved in the RPT approval process.

According to the Israeli corporate laws in existence during the sample years, RPT requires a non-trivial majority in a shareholders' meeting. This majority should include at least one-third of the shareholders' votes, which should not be "contaminated" with possible extraneous or conflicts of interest due to certain private benefits (besides the wealth effect of stock value)¹⁷. Thus, beyond the 83% level, controllers need only the support of a bit more than about 5% of the votes held by the minority of shareholders. Taking into account the

¹⁶ It is obvious that $\frac{\partial^2 CAR_{RPT}}{\partial HOLD^2} < 0$.

¹⁷ The corporate law 16th amendment act (2011) raises the requirement to 50% of "non-contaminated" votes.

low responsiveness and attendance of these shareholders in major votes, the percentage of votes which have to be persuaded¹⁸ is even lower, making for a swift RPT approval process.

Lauterbach and Tolkowski (2007) found firm valuation (*Q*) maximizing ownership in Israel to be about 68%, which is considerably lower than the RPT value maximizing level of insiders' holdings (about 83%) of this paper. This gap could be explained by the difference between the samples. The sample of this paper is not representative and is biased towards companies in which RPTs are considered to be more common events. The dissimilarity of the samples is also reflected in the fact that the average insiders' holdings is about 10% higher than the corresponding value mentioned by Lauterbach and Tolkowski (2007). One possible interpretation is that the tendency to use RPTs is positively correlated with ownership concentration, which is higher in more closely-held firms. The gap in the value maximizing ownership level can also indicate the presence of additional (hidden) factors (beside RPTs) that shape a firm's final valuation. While RPTs are relatively rare and considered to be special events, other factors probably relate to the efficiency of more routine conducts.

Up until now, the analysis was used to aggregate insiders' equity holdings as a proxy for ownership concentration. However, as suggested by the theory and supported by the empirical findings, the authors have learned that a substantial portion of the RPT-ownership quadratic type emerges as a result of a strategically-oriented reason. Moreover, the authors have seen that the homogeneity of a control group (represented by the *FAM* regressor), which basically reflects an aspect of strategic exclusivity, is a significant factor in explaining the value impact of RPTs. Cumulative insiders' holdings lack the ability to concurrently express controllers' strategic power distribution. Therefore, in order to simultaneously capture several strategic aspects, the authors need a more elaborate measure, with the potential to estimate ownership concentration with higher precision. This measure, due to its strategically multi-dimensional approach, will also eliminate the need to control for control group homogeneity.

As an elaborated ownership concentration measure, the authors use Milnor and Shapley's (1978) oceanic voting power of small shareholders. The Milnor-Shapley power index (presented more rigorously in the Appendix A) measures the aggregate probability of shareholders, each with infinitesimal voting power (the public) to be pivotal in formatting a random winning coalition. This index ranges between zero and one and is negatively correlated with ownership concentration. Therefore, its complement¹⁹ is positively correlated with ownership concentration and reflects aggregate insiders' (large shareholders') strategic power. Thus, in Table 3, the authors use the aggregate insiders' Milnor-Shapley oceanic strategic power and its squared value (*MSCTRL* and *SQ_MSCTRL*²⁰ respectively) instead of just aggregate insiders' holdings (*HOLD* and *SQ_HOLD* respectively).

While other factors yield similar results as before, all regression models now present positive *MSCTRL* and negative *SQ_MSCTRL* coefficients which are significant at the level of 1% as well as higher explanatory power (adjusted *R* squares). Thus, the non-monotonic quadratic (inverted U) relation is now much stronger and significant.

¹⁸ Because the term "contaminated with conflict of interests" is subjected to judicial interpretation, the persuasion is sometimes extremely easy and not even necessary (for instance, the case in which a minority shareholder is an employee of the controller).

¹⁹ The divergence from one.

²⁰ *MSCTRL* is the major shareholders' cumulative Milnor-Shapley oceanic voting power index (in decimal terms), while *SQ_MSCTRL* is its squared value.

Table 3

Factors Affecting RPT Impact on Firm Value

Variable	I	II	III	IV
<i>SIZE</i>	1.095 (1.60)	1.065 (1.57)	0.768 (1.58)	0.752 (1.55)
<i>EXT_DIR</i>	1.030 (0.08)	0.537 (0.04)	0.633 (0.05)	-0.127 (-0.01)
<i>LEV</i>	5.251 (0.85)	5.080 (0.82)	3.643 (0.62)	3.480 (0.59)
<i>ROA</i>	4.366 (0.50)	4.461 (0.51)	1.919 (0.24)	2.148 (0.27)
<i>DIV</i>	-0.762 (-0.48)	-0.788 (-0.49)	-0.800 (-0.51)	-0.836 (-0.53)
<i>FIST</i>	3.107 (1.26)		3.347 (1.34)	
<i>FINT</i>	2.125 (0.82)		2.339 (0.95)	
<i>COMP</i>		-2.567 (-1.08)		-2.758 (-1.19)
<i>MSCTRL</i>	73.409*** (3.31)	74.123*** (3.31)	72.429*** (3.2)	73.431*** (3.21)
<i>SQ_MSCTRL</i>	-51.960*** (-3.52)	-52.132*** (-3.5)	-51.949*** (-3.46)	-52.250*** (-3.46)
<i>IND_FE</i>	Yes	Yes	No	No
Observations	218	218	218	218
Adjusted R^2	0.0047	0.0086	0.0111	0.0252

Notes. *T*-statistics, corrected for heteroscedasticity using the White method, are presented in parentheses below the coefficients; and (2) *** indicates that the coefficient is significantly different from zero at the significance level of 1%.

The authors now apply an identical maximizing value procedure using the model with the higher explanatory power and find that the level of insiders' aggregate strategic power (a proxy for ownership concentration used in this paper) which maximizes RPT value effect is 70.26%.

Hence, when estimating ownership concentration using a strategic power approach, the authors discover that RPT value effect tends to increase with insiders' power as long as small shareholders' (the public) strategic power is above approximately 30%. However, when a firm becomes more ownership-concentrated and public power deteriorates below this level, the RPT value effect monotonically decreases together with major shareholders' increasing strategic power.

Interpreting the strategic approach findings, the authors may say that the market (which mainly reflects transactions of small shareholders from the public) "counts" on the major shareholders' incentive effect as long as the public has enough power to effectively monitor and influence insiders' actions. Below the 30% level, public power is perceived as insufficient, and the anticipated insiders' cost of looting the firm becomes diminutive, causing the RPT value effect to decrease with major shareholders' strategic power. This interpretation of enough or insufficient public power also properly explains the negative influence of family firms on RPT value, as public strategic power within family firms is practically zero.

Summary and Conclusions

This paper offers a possible explanation for the well-known relation between firm value (Tobin's *Q*) and ownership concentration by examining the consequences of a firm's controllers' actions through RPTs. The authors investigate 218 RPTs in 129 publicly-traded firms in Israel, an economy with under-median corporate

governance quality, during the years of 2001-2003. The authors find a similar market response (CAR) to fiscal and financial deals but, on average, a lower (negative) market reaction when the RPT is a managerial compensation scheme for a controlling shareholder. The negative value impact of CEO compensation supports previous literature describing significantly higher and unjustified owner-CEO pay in Israel.

In the cross-section analysis, the authors find some supports for the hypothesis that RPTs in large companies are, on average, less damaging (more value enhancing), presumably as a result of public attention and media coverage.

The main purpose of this paper is to illustrate the relation between the value effect of RPTs and ownership concentration. Pursuit of this goal reveals two important phenomena. First, market reaction to RPTs in family firms is *ceteris paribus* significantly lower at about 4%, in comparison with non-homogenous control groups. The result indicates that RPTs in family firms are more likely to be sub-optimal (tunneling) transactions and practically a form of private benefits of control consumption. This finding joins previous findings describing problematic conducts and higher consumption of private benefits in homogenous control groups.

The second revealed manifestation is a quadratic inverted U relation between RPTs' value effect and large shareholders' cumulative equity holdings. This non-monotonic relation is similar to the worldwide and well-documented relation between Tobin's Q and aggregate major holdings. As in the latter case, this is most likely a result of two mutually exclusive effects: the incentive effect and the excess strategic power effect. While the incentive effect is dominant at lower levels of insiders' holdings creating an increasing relation, the excess strategic power effect gradually increases with the growth of insiders' holdings diminishing the marginal RPT value and eventually prevails when major holdings reach the 83% threshold. From this point on, RPT value effect becomes a decreasing function of major shareholders' ownership level.

In order to accurately reflect the strategic effect as well as describe ownership concentration more properly, the authors use the oceanic Milnor-Shapley strategic power index which eliminates the need to control insiders' homogeneity, i.e., the family firm attribute. Replacing the level of insiders' holdings by the elaborated measure yields a better statistical significance of the inverted U relation as well as higher regression explanatory power.

RPT value is an increasing function of ownership concentration as long as public strategic power which correlates the ability to oppose suboptimal actions is above 30%. As insiders' holdings increase or become more homogenous, small shareholders lose their ability to effectively influence or monitor, controllers become too strategically powerful, also due to the easiness of collaboration, and firm abuse turns out to be inexpensive. As a result, the RPT value effect is converted into a decreasing function of ownership concentration, when a firm's controllers exceed the 70% strategic power threshold. The result also explains the negative influence of family firms over RPT value, as controllers in these firms possess full strategic power leaving small shareholders from the public with no power at all.

As a concluding remark, the authors direct attention to the fact that better investor protection should lower the minimum strategic power needed to shield public interests. Consequently, the dynamic described above is subjected to the effectiveness and intensity of regulation as well as the level of enforcement. Thus, the authors expect different judicial and/or corporate rule regimes to yield different variations of the intriguing relation discussed in this paper. Israel's economy and capital markets have gone (and still going) through some major regulatory and structural reforms over the last decade. Therefore, the validity of the findings of this paper should also be examined in light of future researches.

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Appendix A: The Milnor-Shapley Oceanic Voting Power Index

Milnor and Shapley (1978) considered a voting game in which some “large” players possessed sizeable voting power, while the residual votes were divided among many “small” participants, leaving each an infinitesimal weight (the “oceanic” players).

The Milnor-Shapley index calculates the probability of each player to be pivotal in formatting a random winning coalition.

Milnor and Shapley's (1978) voting game refers to the following payoff function:

$$V(S) = \begin{cases} 1 & \text{if } W(S) \geq c \\ 0 & \text{if } W(S) < c \end{cases} \quad (\text{A.1})$$

where $W(S)$ is the fraction of total votes held by coalition S and c is the winning percentage threshold.

The Milnor-Shapley index for a major player i is given by:

$$\phi_i(V) = \sum_{s=M-(i)}^g \int_h^g t^s (1-t)^{m-s-1} dt \quad (\text{A.2})$$

where M is the set $\{1, 2, \dots, m\}$ of major players, S is the set of any possible coalition formed by major players without player i . The cardinal numbers of the sets M and S are denoted by m and s respectively.

The limits h and g are given by:

$$h = \langle \{c - W(S - (i))\} / \alpha \rangle \quad \text{and} \quad g = \langle \{c - W(S)\} / \alpha \rangle \quad (\text{A.3})$$

where α is the fraction of votes held by the ocean, and $\langle x \rangle$ indicates the median among 0, x , and 1.

Since the sum of powers is one, the power of the ocean is given by:

$$\phi_o = 1 - \sum_{i=1}^m \phi_i(V) \quad (\text{A.4})$$

The Prediction of Bankruptcy in a Construction Industry of Russian Federation

Elena Makeeva, Ekaterina Neretina

National Research University Higher School of Economics, Moscow, Russia

The problem of the firm bankruptcy prediction was investigated by foreign researchers in the 1930s and it still remains relevant. Since the publishing of Altman's (1968) major work, based on multiple discriminant analysis (MDA), this methodological area has considerably changed. Taking into consideration that new data have appeared in the course of time, companies' average size has changed, and the accounting standards have changed (Altman, Haldeman, & Narayanan, 1977), methods and models should be renewed so as to be appropriate for current situation. The purpose of this paper¹ is to reveal factors causing bankruptcy and use models appropriate for prediction bankruptcy in the area of a construction industry during the financial crisis. This investigation has been carried out on the basis of logit and probit analysis. The main reasons of bankruptcy revealed in the course of this investigation are the following: (1) non-optimal capital structure formation; (2) ineffective liquidity management; (3) decrease in assets profitability; and (4) decrease in short-term assets turnover. The most reliable indicators which give warning of bankruptcy ahead of others are financial instability and liquidity ratios.

Keywords: bankruptcy prediction, construction industry, logit and probit analysis

Introduction

Since the increasing popularity of bankruptcy prediction in the 1930s, a large number of various methods have been created. A lot of models based on the data from the developed and developing countries have been tested. Russian researchers began to study this matter only at the end of the 1990s after the transition to the market economy. The amount of the investigations of this type has increased considerably after the crisis of 1998. The second wave of interest emerged after the world crisis in the period of 2008-2009. The collapse in a banking industry provoked related and dependent sectors to erosion. The most erupted industry, not only in this crisis period but also before, is the construction industry (Repin, 2011). The list of the main damaging symptoms includes the mortgage crediting lowering from 4.03% in 2008 to 0.75% in 2009 relative to the whole pool of credits in Russia, decrease of price index from 116.9 to 100.1 with cost share in sales growth from 91.3% to 92.1% in 2008 and 2009 correspondingly, and the rise of specific weight of unprofitable organizations². Yu and Zi (2007) showed that cost inefficiency had been a core problem in Korean construction companies. Furthermore, share of capital investment has fallen from 4.60% to 3.50% in these years, and gross

Elena Makeeva, professor, Department of Economics, National Research University Higher School of Economics. Email: len-makeeva@yandex.ru.

Ekaterina Neretina, senior lecturer, Department of Economics, National Research University Higher School of Economics.

¹ JEL classification: G12, G13, G32, G33.

² Retrieved from <http://www.gks.ru>.

added value relative to gross domestic product (GDP) reduced from 6.30% to 5.50%. With more than 5% in GDP and a stable share (7.5%-8%) of employers, the construction industry has remained strategically important³. Decrease in crediting in that industry was depicted also by Kovalenko and Urtenov (2010). Thus, it is necessary to reveal the key factors leading to bankruptcy in this industry by taking into account the aggravating influence of crisis prior to bankruptcy to observe the change in these measures and their dynamics. Consequently, the purpose of this paper is to reveal factors causing bankruptcy of Russian firms in construction industry. The corresponding tasks could be determined in the following way: (1) revealing of separate bankruptcy factors; (2) definition of the most relevant method; and (3) observation of the whole set of these factors' dynamics. The remainder of this paper is organized as follows. The first part is devoted to a review of investigation in the field of bankruptcy prediction and in the construction industry in particular. In the following sections, the used methodology and initial hypotheses are presented. In the last three practical sections, description of data, factor set, and results are shown. And finally, the summary of the results is presented.

Literature Review

In the middle of the 20th century, the most popular method used to predict bankruptcy was classical ratio analysis pioneered by Beaver (1966). The main drawback of this method is the difficulty of a cut-off point choice, since its value depends completely on the sample. However, this tool remains significant in the investigations, being this area the base for other advanced methods.

The first multiple-factor linear model was constructed by Altman (1968) on the grounds of the multiple discriminant analysis (MDA). He used this method to find a linear combination consisting of five variables which were chosen with the help of the correlation analysis. As Slesarenko (2010) pointed out, this model did not take account of all the financial sources of a firm. In 1977, Altman improved his model by taking into account the changes in a quoted companies list, a significant increase in the companies' asset size, and some arguable points in previous investigation. Kucherenko (2008) used this method for investigation of agricultural firms and obtained the model with the classification accuracy of 91.07% for one year prior to bankruptcy. A. A. Friland and D. Friland (2002), on the basis of this technique, developed the IFFR⁴ index for bankruptcy prediction in commercial aviation. The classification accuracy of this index was about 85%-90%. Having compared Altman's (1968) and Beaver's (1966) methods, Deakin (1972) showed an unambiguous superiority of the MDA-based model. Abidali and Harris (1995) with the help of MDA analysis on the sample formed from construction industry showed that Z-score method could only increase the confidence in future failure, although there were a lot of non-financial indicators that could be taken into consideration. Kovalenko and Urtenov (2010) used the adjacent method based on the same premises—cluster analysis.

Nevertheless, the MDA method has a lot of disadvantages in view of tough premises. For instance, a sample should consist of multivariate normally-distributed observations with equal variance-covariance matrices. Moreover, ex ante failure probability should be known. Neglecting these problems in most cases leads to test biases (Balcaen & Ooghe, 2006). Under these conditions, the popularity of the MDA method declined considerably after the 1980s along with the emergence of methods based on the logit and probit methods, neural networks, envelopment analysis, and other advanced methods which partially helped to avoid these premises.

³ Retrieved from <http://www.gks.ru>.

⁴ Future financial responsibility index (IFFR).

The logit analysis which was pioneered by Ohlson (1980) became a broadly-used method in the bankruptcy prediction area. Among Russian researchers, Evrostopov (2008) built the model for the fourth and second years prior to bankruptcy via this method. The probit model in this sense was firstly used by Zmiewski (1984). Grise and Dugan (2001) checked the sensitivity of Zmijewski's (1984) and Ohlson's (1980) models to the industry effect, generality, and stability over time. They showed that both models' accuracy decreased with time. However, none of them was heavily sensitive to the industry effect. Koksai and Arditi (2004) on the basis of multinomial logit model got 80.40% classification accuracy for the construction industry firms.

There are also a lot of more advanced methods to predict bankruptcy probability. Among them, neural network (NN), data envelopment analysis, option models, and some others could be pointed out. For instance, Back, Laitinen, Sere, and van Wezel (1966) tested the MDA, logit methods, and the NN method. With this technique, the construction of an NN from "neurons" calculated on the basis of financial statements is assumed. The model obtained via this method for one year prior to bankruptcy has a classification error of about 2.7%, whereas the logit model and the MDA model have errors of about 3.51% and 14.86% respectively. However, for the second year, the best model was built with the help of the MDA method. In the study of Kapliński (2008), superiority of NN on MDA method was revealed for construction industry in Poland. However, he got low prediction accuracy for both tools: 70%-80% and 60%-75% correspondingly. Pompe and Bilderbeek (2005) compared the two methods mentioned in the previous investigation (NN and MDA) and the dichotomous classification test used by Beaver (1966). As the results showed, the MDA models based on stepwise selection presented better results than the ones based on the factor analysis. In this factor analysis, the MDA and NN models gave very close results. Cielen, Peeters, and Vanhoof (2004) compared the models based on the data envelopment analysis (DEA), linear programming, and the rule induction models. They conclude that the DEA model exceeds the others with the level of classification accuracy of 85.1%. Premachandra, Bhabra, and Sueyoshi (2009) in their paper compared the DEA and the logistic regression methods. The authors found that the DEA method gives better results (74%-86% against 67%) using out-of-sample data, while logistic regression is favorable for within-sample datasets. For studying construction industry, that tool was used by You and Zi (2007) for different efficiency-analyzing types.

One more approach based on the market parameters and call-option approach described by Agarwal and Taffler (2008) showed results similar to the accounting-based models. As the authors said, the option models were more up-to-date, whereas the value of the accounting-based models was in catching a trend in the company's performance.

As it has been shown, there are a lot of different methods used to predict firms' financial failure. Comparison of the accounting-based methods with more advanced ones shows controversial results. Taking into account the relative simplicity of the basic techniques, their performances should be checked before going to the second stage of analysis with the help of advanced tools.

Methodology

In this work, three main accounting-based methods have been employed—multiple discriminant, logit, and probit analysis. This set of techniques was chosen on the bases of frequency testing in most famous articles and its comparative simplicity. MDA method is implemented through finding linear combinations of measures that make it possible to define which of the two groups the firm belongs to (bankrupt or sound firm). In place of

usual specification, canonical discriminant analysis would be in use due to more sophisticated analysis realization possibilities (Kim, Myuller, & Klekka, 1989). Under this tool, there are some strong assumptions. The strongest ones are factor independency, correspondence to multivariate normal distribution of joint variables, and equivalence of covariance matrices. The canonical discriminant function could be presented in the following way:

$$f_{km} = u_0 + u_1 X_{1km} + u_2 X_{2km} + \dots + u_p X_{pkm} \quad (1)$$

where:

k is the group number or class number;

m is the unit number, for which values of independent variables X_1, \dots, X_p are presented;

u_i is the coefficients which are responsible for the distance between classes.

For relative influence of factors analyzing, it is necessary to transform derived coefficients to standardized form:

$$c_i = u_i \sqrt{\frac{w_{ji}}{n - g}} \quad (2)$$

where:

n is the amount of observations;

g is the amount of classes.

To appreciate the discriminant function quality, it is possible to use such tools as canonical correlation coefficients and Wilk's lambda statistic, having a Fisher's distribution. The first instrument allows ascertaining the dependence between classes and discriminant function and allows for the information contained in eigenvalues. Directly, it helps to estimate the discriminant function usefulness. The second is used in case of inconsistency of a sample to the initial population due to possibility of a spurious dependence.

As Kim, Myuller, and Klekka (1989) pointed out, necessity of prior probability knowledge for chosen classes is another disadvantage of this method. However, the features of the object complicate this task because of impossibility to define inherited properties of initial population in discrete time due to its dynamic nature.

Another type of instruments which allows avoiding tough premises is connected with the method described above—binary choice models (logit and probit). In general, such kind of model specification is the following:

$$E(y_t) = 1 * P(y_t = 1) + 0 * P(y_t = 0) = P(y_t = 1) = F(x_t' * \beta) \quad (3)$$

where:

$x_t' * \beta$ is the determinate part from linear regression model;

$y_t = x_t' * \beta + \varepsilon_t$, where $t = 1, \dots, n$ and is the observation number;

$\beta = (\beta_1, \dots, \beta_k)'$ is the set of unknown parameters—coefficients;

ε_t is the random error with mean of zero and variance σ^2 .

In this model, the specific dependence of binary variable value is assumed:

$$\begin{aligned} y_t &= 1, \text{ if } y_t^* \geq y_{cutoff} \\ y_t &= 0, \text{ if } y_t^* < y_{cutoff} \end{aligned} \quad (4)$$

For logit model, the distribution function has the logistic form: $F(u) = \Lambda(u) = \frac{e^u}{1 + e^u}$; and for probit

model, standard normal: $F(u) = \frac{1}{\sigma\sqrt{2\pi}} \int_{-\infty}^u e^{-\frac{x^2}{2\sigma^2}} dx$.

In both cases, likelihood function is maximized $L = L(y_1, \dots, y_n) = \prod_{y_t=0} (1 - F(x_t' \beta)) \prod_{y_t=1} F(x_t' \beta)$.

Derived value of this function is supposed to be one of model quality criterion along with Akaike, Schwarz, and F -statistic under the test for explanatory power of variables. However, coefficients in these models could not be interpreted in the direct way. To appreciate the relative effect of variables, it is necessary to calculate marginal effects $\frac{\partial P(y=1)}{\partial x} = F'(x' \beta) \beta = p(x' \beta) \beta$.

The models for each year prior to bankruptcy are supposed to be constructed using each of the methods. For instance, if the model for three years prior to bankruptcy is obtained, according to this model, the failed firm tends to go bankrupt in three years with calculated probability.

Hypotheses

In the course of this investigation, the following hypotheses have been formed on the bases of the relevant purpose and tasks which have been proposed. The first hypothesis refers to the whole applicability of the basic methods, such as logit, probit, and discriminant analyses for prediction of Russian firms' bankruptcy from construction industry. Before using such advanced methods as NN or DEA, it is necessary to check the base methods' validity for possible simplification of the instrument employed.

H1: The base methods are applicable for prediction of Russian firms' bankruptcy from construction industry.

The similar hypothesis was implicitly verified in the paper of Kovalenko and Urtenov (2010).

The next hypothesis is connected with the final factor set used in the prediction process. Some authors in their investigations got the same factors on the base of different methods using different samples of non-financial companies. This hypothesis was used in the basic works of Beaver (1966), Altman (1968), and Ohlson (1980).

H2: The best prediction ability factor set does not depend on the method of analysis which is in use.

If the final set of measures is not the same as the results of the other investigations based on the multi-industry samples, then it means that factors of insolvency are unique for such industry companies. On the other hand, results of Beaver's (1966) and Grise and Dugan's (2001) investigations are not determined by the industry.

H3: The factors causing bankruptcy depend on industry.

For verification of these hypotheses, the models depicted above are to be constructed using the sample described in the following section.

Data

The sample includes 120 Russian firms: 60 bankrupt in the first group and 60 sound analogues from construction industry in the second one. Data were collected from the database Ruslana (bureau VanDijk). For selection of sound firms, the matched sample method was chosen to partially and carefully smooth the covariance matrixes' difference for the correct realization of MDA. That procedure was carried out under the following criteria (Altman, 1968; Premachandra, Bhabra, & Sueyoshi, 2009): (1) six-digit industry code (by OKVED⁵); (2) assets size; (3) legal form; and (4) periods of the financial statement available.

There are only construction firms in the sample from two legal forms: open corporations along with closed ones. Iwasaki (2006) showed that in the privatization period, the choice between these legal forms was more political than economic in view of a great number of insiders. Furthermore, managers preferred the closed form because of the scantiness of financial market sources and desire for control keeping. Thus, the two forms can be gathered in one sub-sample in this research in the economic context. The sample includes yearly data from 2002 to 2010: five observation years for every company. After averaging of stock variables, there are four years for analyzing: from the 4th to the 1st year prior to bankruptcy. Because of the fact that in most cases, a firm begins the competitive production procedure one year after the last financial statement, the bankruptcy period covers years of 2006-2011.

Factor Set

The initial factor set consists of 22 variables (see Table 1) which have been chosen according to the mentioned frequency in the literature and their performances in previous investigations of the foreign and Russian authors (Abidali & Harris, 1995; Back, Laitinen, Sere, & van Wezel, 1996; Slesarenko, 2010). These 22 measures for each company for each year prior to bankruptcy were calculated. Six basic groups were assigned on the bases of the correlations and economic logic for which these variables could be referred to: liquidity, turnover, profitability, solidity, size, and cash flow ratios. This was similar to the classification which was presented in Beaver's (1966) work.

Table 1

List of Ratios in the Initial Factor Set

Liquidity	Size	Turnover	Solidity	Profitability	Cash flow
Cash/current liabilities (cashcl)	Ln total assets (lnta)	Account receivable/sales (ars)	Interest coverage (intcov)	EBIT ⁶ /total assets (ebitta)	Cash flow/total assets (cfta)
Quick assets/current liabilities (qacl)		Inventory/sales (invs)	Total debts/total assets (tdta)	Sales/total assets (sta)	Cash flow/total debts (cftd)
Current assets/current liabilities (cacl)		Current assets/sales (cas)	Long-term debts/total assets (ltdta)	EBIT/sales (ebits)	
Cash/total assets (cashta)			Ln tangible assets (lntang)	Net income/total debts (nitd)	
Working capital/total assets (wcta)					
Current liabilities/total assets (clta)					
Working capital/total debts (wctd)					
Current assets/total assets (cata)					

⁵ Общероссийский классификатор видов экономической деятельности (OKVED) is the Russian classification of economic activities.

⁶ Earnings before interest and taxes (EBIT).

On the basis of the descriptive statistics analysis (see Tables 2-7), it is revealed that the factors increasing bankruptcy probability, such as turnover coefficients (see Table 2), debt to assets ratio (see Table 6), are significantly higher for bankrupt group, while the factors with opposite influence exceed counterparts in the second group. For the main factor of the financial stability, the mean for the first year before bankruptcy for the bankrupt firms is significantly more than one (see Table 6) with average negative balance value of equity.

For almost every coefficient, the standard deviation is not great after the initial correction of the sample for outliers. This tendency intensified during the year before bankruptcy, because the final stage of distress was coming.

Table 2

Descriptive Statistics: Turnover Ratios

	bankr	qas1	ars1	cas1	qas2	ars2	cas2	qas3	ars3	cas3	qas4	ars4	cas4
Mean	0	0.57	0.21	0.73	0.42	0.17	0.62	0.77	0.18	0.82	0.75	0.19	0.77
Sd.	0	0.54	0.22	0.74	0.36	0.15	0.61	1.66	0.21	1.73	1.82	0.28	1.75
Cv.	0	0.93	1.05	1.00	0.84	0.89	0.99	2.15	1.17	2.12	2.41	1.42	2.27
Min.	0	0.05	0.01	0.09	0.05	0.00	0.12	0.07	0.00	0.08	0.06	0.00	0.14
Max.	0	2.50	1.39	3.39	1.84	0.86	3.72	10.52	1.24	9.73	10.45	1.35	10.42
Mean	1	1.46	1.05	2.82	1.05	0.67	1.89	0.47	0.22	0.76	0.54	0.24	0.76
Sd.	1	1.86	1.65	3.42	3.15	2.23	5.42	0.29	0.17	0.68	0.89	0.28	0.99
Cv.	1	1.27	1.57	1.21	2.99	3.35	2.88	0.61	0.78	0.90	1.64	1.18	1.29
Min.	1	0.00	0.00	0.10	0.07	0.00	0.16	0.09	0.00	0.17	0.11	0.00	0.17
Max.	1	11.67	10.07	16.72	24.51	17.27	41.84	1.40	0.94	4.85	6.47	1.63	6.88

Table 3

Descriptive Statistics: Liquidity Ratios

	bankr	cashcl1	qacl1	cacl1	cashta1	wcta1	clta1	wctd1	cata1
Mean	0	0.25	1.07	1.43	0.09	0.06	0.62	0.41	0.68
Sd.	0	0.52	0.94	1.21	0.12	0.34	0.28	1.18	0.27
Cv.	0	2.09	0.88	0.85	1.33	5.96	0.44	2.89	0.40
Min.	0	0.00	0.04	0.04	0.00	-0.91	0.07	-0.96	0.04
Max.	0	3.17	4.91	7.33	0.58	0.63	1.14	6.23	0.99
Mean	1	0.02	0.64	0.86	0.02	-0.56	1.28	-0.26	0.72
Sd.	1	0.03	1.19	1.23	0.04	0.93	0.86	0.35	0.24
Cv.	1	2.03	1.86	1.42	2.08	-1.67	0.67	-1.35	0.33
Min.	1	0.00	0.01	0.02	0.00	-4.64	0.09	-0.98	0.02
Max.	1	0.16	9.36	9.77	0.15	0.84	4.74	0.74	0.99
	bankr	cashcl2	qacl2	cacl2	cashta2	wcta2	clta2	wctd2	cata2
Mean	0	0.36	1.38	1.77	0.09	0.08	0.59	0.70	0.68
Sd.	0	0.80	1.91	2.19	0.11	0.32	0.30	2.18	0.24
Cv.	0	2.19	1.39	1.23	1.12	3.86	0.51	3.09	0.36
Min.	0	0.00	0.04	0.05	0.00	-0.91	0.05	-0.95	0.05
Max.	0	4.39	11.98	14.62	0.47	0.73	1.28	13.63	0.99
Mean	1	1.03	0.56	0.90	0.02	-0.17	0.87	-0.13	0.70
Sd.	1	0.07	0.31	0.46	0.06	0.37	0.32	0.36	0.24
Cv.	1	2.69	0.55	0.52	2.72	-2.14	0.36	-2.84	0.34
Min.	1	0.00	0.02	0.02	0.00	-1.56	0.18	-0.98	0.02
Max.	1	0.53	1.38	2.82	0.44	0.39	2.13	0.74	0.99

(Table 3 continued)

	bankr	cashcl3	qacl3	cacl3	cashta3	wcta3	clta3	wctd3	cata3
Mean	0	0.25	1.31	1.64	0.08	0.10	0.60	0.45	0.71
Sd.	0	0.45	1.39	1.47	0.12	0.31	0.27	1.01	0.23
Cv.	0	1.84	1.06	0.89	1.38	2.95	0.46	2.26	0.32
Min.	0	0.00	0.16	0.18	0.00	-0.72	0.05	-0.75	0.11
Max.	0	2.55	8.87	9.19	0.58	0.85	1.05	4.49	0.99
Mean	1	0.04	0.63	0.97	0.03	-0.10	0.81	-0.08	0.71
Sd.	1	0.07	0.37	0.49	0.05	0.31	0.27	0.34	0.24
Cv.	1	1.84	0.58	0.50	1.78	-3.10	0.33	-4.37	0.33
Min.	1	0.00	0.06	0.06	0.00	-1.13	0.10	-0.94	0.04
Max.	1	0.41	1.84	3.11	0.35	0.51	1.50	0.69	0.97
	bankr	cashcl4	qacl4	cacl4	cashta4	wcta4	clta4	wctd4	cata4
Mean	0	0.22	1.04	1.36	0.10	0.05	0.63	0.27	0.68
Sd.	0	0.40	0.83	0.86	0.13	0.29	0.25	0.70	0.22
Cv.	0	1.80	0.79	0.64	1.35	5.74	0.39	2.61	0.33
Min.	0	0.00	0.06	0.09	0.00	-0.86	0.05	-0.91	0.09
Max.	0	2.34	4.69	4.72	0.67	0.63	1.09	2.55	0.99
Mean	1	0.06	0.62	0.97	0.04	-0.08	0.78	-0.07	0.69
Sd.	1	0.10	0.30	0.56	0.08	0.27	0.22	0.36	0.24
Cv.	1	1.74	0.49	0.58	1.81	-3.17	0.28	-4.95	0.34
Min.	1	0.00	0.06	0.07	0.00	-1.07	0.16	-0.93	0.03
Max.	1	0.48	1.53	4.29	0.43	0.53	1.32	1.08	0.99

Table 4

Descriptive Statistics: Cash Flow Ratios

	bankr	cfta1	cftd1	bankr	cfta2	cftd2	bankr	cfta3	ftd3	bankr	cfta4	cftd4
Mean	0	0.02	0.07	0	0.01	0.06	0	0.01	0.02	0	0.04	0.15
Sd.	0	0.11	0.40	0	0.11	0.43	0	0.16	0.48	0	0.14	0.55
Cv.	0	5.13	5.77	0	10.12	6.74	0	11.63	27.55	0	3.56	3.59
Min.	0	-0.17	-0.92	0	-0.44	-0.63	0	-0.77	-2.89	0	-0.38	-0.82
Max.	0	0.38	2.49	0	0.35	2.84	0	0.52	1.39	0	0.59	3.17
Mean	1	-0.01	-0.01	1	-0.01	-0.01	1	-0.01	-0.01	1	0.01	0.01
Sd.	1	0.06	0.05	1	0.05	0.04	1	0.07	0.09	1	0.08	0.12
Cv.	1	-3.13	-5.16	1	-3.78	-4.36	1	-12.5	-13.72	1	7.63	9.52
Min.	1	-0.28	-0.36	1	-0.21	-0.17	1	-0.29	-0.31	1	-0.17	-0.34
Max.	1	0.12	0.12	1	0.08	0.09	1	0.21	0.33	1	0.32	0.45

Table 5

Descriptive Statistics: Profitability Ratios

	bankr	ebitta1	sta1	ebits1	nitd1	bankr		bankr	ebitta2	sta2	ebits2	nitd2
Mean	0	0.12	1.64	0.05	0.22	0	Mean	0	0.11	1.74	0.08	0.23
Sd.	0	0.18	1.13	0.39	0.58	0	Sd.	0	0.15	1.10	0.17	0.51
Cv.	0	1.56	0.68	7.85	2.68	0	Cv.	0	1.42	0.63	2.19	2.25
Min.	0	-0.31	0.04	-2.66	-0.36	0	Min.	0	-0.45	0.13	-0.35	-0.45
Max.	0	1.10	5.12	0.86	4.02	0	Max.	0	0.47	6.21	0.99	2.97
Mean	1	-0.18	0.71	-0.59	-0.18	1	Mean	1	-0.04	1.08	-0.39	-0.08
Sd.	1	0.32	0.69	1.09	0.31	1	Sd.	1	0.15	0.90	2.36	0.13
Cv.	1	-1.80	0.97	-1.84	-1.67	1	Cv.	1	-3.74	0.84	-6.09	-1.71

(Table 5 continued)

	bankr	ebitta1	sta1	ebits1	nitd1	bankr		bankr	ebitta2	sta2	ebits2	nitd2
Min.	1	-2.05	0.01	-6.95	-1.21	1	Min.	1	-0.54	0.01	-18.04	-0.49
Max.	1	0.08	2.60	0.19	0.21	1	Max.	1	0.29	5.52	0.49	0.11
	bankr	ebitta3	sta3	ebits3	nitd3	bankr		bankr	ebitta4	sta4	ebits4	nitd4
Mean	0	0.12	2.02	0.08	0.18	0	Mean	0	0.09	2.06	0.06	0.15
Sd.	0	0.15	1.43	0.13	0.36	0	Sd.	0	0.18	1.29	0.13	0.32
Cv.	0	1.27	0.71	1.58	1.96	0	Cv.	0	1.98	0.63	2.02	2.19
Min.	0	-0.42	0.01	-0.26	-0.60	0	Min.	0	-0.89	0.02	-0.49	-0.56
Max.	0	0.49	8.47	0.81	1.54	0	Max.	0	0.53	5.77	0.74	1.84
Mean	1	0.01	1.46	-0.00	-0.03	1	Mean	1	0.03	1.60	0.01	-0.01
Sd.	1	0.10	0.99	0.18	0.11	1	Sd.	1	0.11	1.11	0.08	0.11
Cv.	1	11.89	0.68	-1.06	-4.29	1	Cv.	1	4.25	0.69	6.62	-9.14
Min.	1	-0.48	0.04	-0.93	-0.38	1	Min.	1	-0.19	0.02	-0.19	-0.35
Max.	1	0.17	4.32	0.49	0.26	1	Max.	1	0.44	4.70	0.26	0.26

Table 6

Descriptive Statistics: Financial Solidity Ratios

	bankr	intcov1	tdta1	ltlta1	Intang1	bankr		bankr	intcov2	tdta2	ltlta2	Intang2
Mean	0	0.24	0.69	0.07	11.27	0	Mean	0	0.12	0.68	0.09	11.09
Sd.	0	0.77	0.28	0.15	1.56	0	Sd.	0	0.82	0.32	0.19	1.50
Cv.	0	3.18	0.40	2.04	0.14	0	Cv.	0	6.62	0.46	2.04	0.13
Min.	0	-0.02	0.07	0.00	7.09	0	Min.	0	-4.07	0.05	0.00	7.03
Max.	0	5.73	1.22	0.73	15.45	0	Max.	0	4.20	1.74	0.82	15.34
Mean	1	-0.46	1.42	0.13	9.88	1	Mean	1	-0.22	0.98	0.10	10.70
Sd.	1	1.80	0.95	0.45	1.57	1	Sd.	1	3.36	0.27	0.17	1.40
Cv.	1	-3.88	0.67	3.35	0.16	1	Cv.	1	-14.9	0.27	1.69	0.13
Min.	1	-10.08	0.43	-0.02	6.74	1	Min.	1	-23.0	0.36	0.00	7.65
Max.	1	1.28	4.93	3.23	13.50	1	Max.	1	7.95	2.17	0.80	13.71
	bankr	intcov3	tdta3	ltlta3	Intang3	bankr		bankr	intcov4	tdta4	ltlta4	Intang4
Mean	0	0.17	0.68	0.08	10.82	0	Mean	0	0.15	0.69	0.06	10.56
Sd.	0	0.38	0.27	0.17	1.60	0	Sd.	0	0.40	0.28	0.16	1.72
Cv.	0	2.32	0.40	2.13	0.15	0	Cv.	0	2.57	0.40	2.55	0.16
Min.	0	-1.22	0.06	0.00	6.27	0	Min.	0	-0.47	0.05	0.00	5.55
Max.	0	1.51	1.06	0.71	15.28	0	Max.	0	1.98	1.74	0.86	15.03
Mean	1	0.61	0.91	0.09	10.73	1	Mean	1	0.02	0.84	0.05	10.75
Sd.	1	2.06	0.21	0.19	1.15	1	Sd.	1	2.44	0.19	0.13	1.26
Cv.	1	3.39	0.23	2.02	0.12	1	Cv.	1	1.07	0.23	2.45	0.11
Min.	1	-2.29	0.51	0.00	7.60	1	Min.	1	-15.3	0.43	0.00	7.61
Max.	1	12.74	1.52	0.89	13.16	1	Max.	1	9.73	1.33	0.68	13.39

Table 7

Descriptive Statistics: Size Ratio

	bankr	lnas1	lnas2	lnas3	lnas4
Mean	0	13.01	12.72	12.59	12.18
Sd.	0	0.98	1.04	0.99	0.99
Cv.	0	0.07	0.08	0.07	0.08
Min.	0	11.27	10.93	10.89	10.16

(Table 7 continued)

	bankr	lnas1	lnas2	lnas3	lnas4
Max.	0	15.98	15.81	15.73	15.40
Mean	1	12.13	12.55	12.60	12.41
Sd.	1	1.09	0.97	1.06	1.05
Cv.	1	0.09	0.07	0.08	0.08
Min.	1	9.89	10.74	11.05	11.03
Max.	1	14.87	15.56	16.82	16.75

Results

The initial analysis has shown that the main assumptions which are under the MDA being presumed are not held at all. The results of Doornik and Hansen's (1994) test have shown that only the distribution of few variables complies with the standard normal law. Furthermore, the revealed tendency is not typical either for bankrupt sound firms' groups. Moreover, the covariance matrices are not equal, meaning that the same group proportions introduced through the sample formation is well-founded. The in-sample classification accuracy has decreased with time before the bankruptcy. For the first year, it is about 86.44%. For the second and third years, it fell to 75.43% and 71.19% correspondingly. And in the fourth year prior to bankruptcy, the classification accuracy was 67.80%. From the error-type view, the first model is the most accurate, because the I-type error is lower and potentially bankrupt firm would be classified as sound with the smaller probability (see Table 8).

Table 8

Discriminant Analysis Models' Quality

	1-I-type error (%)	1-II-type error (%)	Class accuracy (%)	Prob Wilks' lambda	Canon corr.
$t - 1$	89.83	83.05	86.44	0.0000	0.7006
$t - 2$	77.88	77.97	77.93	0.0000	0.4786
$t - 3$	67.80	74.58	71.19	0.0000	0.4743
$t - 4$	67.80	67.80	67.80	0.0009	0.3389

The extremely small P -values of Wilk's lambda statistic indicate that these discriminant functions are sufficient for classification. Values of canonical correlation coefficient also become lower with a decrease in classification accuracy. In Table 9, intervals for Z-scores are presented. Obviously, there is no any strict dependency between the year prior to bankruptcy and Z-score interval width and asymmetry. However, the first year interval is narrower than that of Abidali and Harris's (1995) Z-score for the UK firms from construction industry but is broader than in Altman's (1968) work.

Table 9

Z-Score From $t - 1$ to $t - 2$ Year Prior to Bankruptcy

$t - 1$	-1.82	Z1	2.21
$t - 2$	-0.95	Z2	1.29
$t - 3$	-2.33	Z3	2.23
$t - 4$	-2.10	Z4	2.31

While choosing the final set of variables, the factor analysis and stepwise selection were carried out. In the fourth year prior to bankruptcy, two measures—sales to total assets and total debt share in total assets (with the

prevalent influence of the second factor), meaning that the core reasons of future distress leading to bankrupt stage are non-optimal capital structure formation and decrease in profitability (see Table 10). Standardized coefficients for the $t - 3$ period showed absolutely similar results. However, in the second year prior to bankruptcy, main indicators are profitability, liquidity, and turnover measures in the lowering influence order. The main role has profitability of assets as before and more sort-run indicator—profitability of sales under operating profit. In the first and the most critical period, measures of size and interest coverage coefficients have been added, and the liquidity coefficient has the least influence that is illogical under the generally accepted conception of bankruptcy. That fact could be described through the crisis phenomenon that facilitates inherit problems in companies that lead to bankruptcy not at the critical stage. However, this method is not completely confirmed as valid by tests, because the P -value for Wilks' lambda is extremely small, indicating a spurious dependence because of the inconsistency between initial population and the sample in use (Kim, Myuller, & Klekka, 1989).

Table 10

Standardized Coefficients in Discriminant Analysis Models

	Standardized coefficient			
	$t - 1$	$t - 2$	$t - 3$	$t - 4$
ebitta1	-0.50			
lnas1	-0.36			
cashcl1	-0.13			
ars1	0.33			
intcov1	-0.28			
sta2	-0.29	-0.65		
cashcl2		-0.55		
invs2		0.13		
ebits3		-0.50		
sta3			-0.50	
tdta3	0.47		0.91	
sta4				-0.54
tdta4				0.84

Table 11

Quality of Logit and Probit Models

	$t - 1$		$t - 2$		$t - 3$		$t - 4$	
	logit	probit	logit	probit	logit	probit	logit	probit
LR stat.	85.97	85.84	50.04	47.16	39.16	42.54	12.5	12.24
P -value (LR stat.)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002
L max.	-38.81	-38.87	-56.77	-58.21	-62.21	-60.52	-75.54	-75.67
Rsqu. (McFadden)	52.55%	52.48%	30.59%	28.83%	23.94%	26.01%	7.64%	7.48%
AIC	87.62	87.74	121.54	124.43	130.42	129.04	157.08	157.34
BIC	101.47	101.59	132.63	135.51	138.73	140.12	165.39	165.65
Predict +	88.14%	86.44%	83.05%	84.75%	83.05%	89.83%	66.10%	64.41%
Predict -	84.75%	84.75%	71.19%	71.19%	67.80%	64.41%	64.41%	64.41%
Predict whole	86.44%	85.59%	77.12%	77.97%	75.42%	77.12%	65.25%	64.41%

Notes. (1) LR stands for the likelihood ratio; (2) AIC is Akaike information criterion; and (3) BIC is Bayesian information criterion.

The results of binary choice models are slightly different and better in average. Classification accuracy falls also as in the discriminant analysis case. However, the I-type error is relatively smaller than in the previously-used method (see Table 11).

Values of AIC and Schwartz increase along with the other indicators' deterioration (LR statistic, McFadden R^2 , and likelihood function maximum) towards the most distant year prior to bankruptcy, but are sufficiently high. Thus, the first initial hypothesis has been rejected only partially. For both specifications, logit and probit, the coefficient results are extremely similar with the exception in the second and third years (see Table 12).

Table 12

Logit and Probit Models Results

Variable	log1	pr1	log2	pr2	log3	pr3	log4	pr4
lnas1	-1.3***	-0.748***						
cashcl1	-12.2*	-6.72*						
cas1	1.05**	0.577**						
tdta3	4.44*	2.63**		1.68*		1.6*		
ebitta2				-2.47*				
cashcl2			-7.57*	-3.66*				
ars2			2.06*					
tdta2			2.82*					
ebitta3					-7.22**	-2.8*		
cashcl3					-7.72**	-3.82**		
wcta4							-1.49*	-0.951*
ebits4							-5.07*	-2.74*
_cons	12.2**	6.94**	-2.45*	-1.02	1.04***	-0.836	0.159	0.0782

Note. Legend: * $p < 0.05$; ** $p < 0.01$; and *** $p < 0.001$.

Table 13

Logit and Probit Models Marginal Effects

Variable	log1	pr1	log2	pr2	log3	pr3	log4	pr4
lnas1	-0.31**	-0.29**						
cashcl1	-2.88**	-2.60*						
cas1	0.25*	0.22**						
tdta3	1.05*	2.02**		0.59*		0.62*		
ebitta2				-0.87*				
cashcl2			-1.67**	-1.30**				
ars2			0.46					
tdta2			0.62*					
ebitta3					-1.69**	-1.07*		
cashcl3					-1.81**	-1.47**		
wcta4							-0.37*	-0.38*
ebits4							-1.27*	-1.09*

Note. Legend: * $p < 0.05$; ** $p < 0.01$.

The probit specification insignificantly differs in quality criteria from the logit model. In the fourth and third years prior to the critical state of insolvency, there are two main indicators, i.e., liquidity and profitability,

at which the influence of the second is more meaningful (see Table 13). In the fourth year, there are working capitals to total assets and profitability of sales under the operating profit. In comparison with MDA results, the last mentioned indicator had influence on the third period, and in place of the liquidity measure, the debt share was derived. In the third year, there is only difference between testable specifications—Debt share in total assets in the probit model is presented. In two residual models, this factor is included with different lags. For the second year, the account receivable turnover in the logit model and profitability of total assets in probit specification are inserted. For the most critical year before the bankruptcy announcement, such additional factors as size and current assets turnover were appended. It is necessary to note that the most significant factor for the bankruptcy prediction is absolute liquidity coefficient. Derived results coincided with those of Abidali and Harris (1995), who also depicted profitability, leverage, and liquidity. That reasoning gives the ground to the second initial hypothesis rejection.

As the binary choice models overcome the discriminant analysis tool and probit specification, the final results explanation would be in this model frame. Thus, the universal indicators augmenting the bankruptcy probability are the liquidity coefficients. The second-level factors are profitability and leverage, and the most short-term indicators are turnover and size. The last mentioned measure has a crucial role only at the last stage before bankruptcy, because it is easier to take a credit in crisis period for a big construction company. The current assets and significant factors of account receivable turnover for such type of a company are due to advanced payment financing system. In the middle of the first crisis year, the construction companies faced a lack of current assets, and their expectations about the summer peak of construction were not realized (Kovalenko & Urtenov, 2010). However, the third hypothesis was not proved in the course of similar investigation. For instance, Back, Laitinen, Sere, and van Wezel (1966) also showed that absolute liquidity coefficient had meaningful influence on the whole period before bankruptcy. The rest of derived measures are similar to the factors presented in basic works of Beaver (1966), Altman (1968), and Ohlson (1980). Although Kaplinski (2008) pointed out that the method should be adapted to industry, it could be done to increase classification accuracy and predictive ability.

Conclusions

In the course of the financial crisis of 2008-2009, one of the most erupted industries was the construction industry. It was determined by the substantial decrease in mortgage crediting, price index, capital investment, and level of cost growth. Due to the importance of that industry in the country economy, it is necessary to define the main risk factor leading to the bankruptcy of companies of such type. This research has been carried out to reveal corresponding indicators. Used sample contained 138 Russian firms from construction industry, 69 out of 138 companies were bankrupt. In this investigation, three main accounting-based methods are presented: canonical discriminant, logit, and probit analysis. The Wilk's test showed invalidity of the first method, and quality criteria led to the selection of the probit specification as superior. The profitability coefficients have the crucial role in every period as the liquidity measures. The latter coincided with the results of Back, Laitinen, Sere, and van Wezel's (1966) work. Among meaningful measures, total debt share in total assets and size could be pointed out. The specific factor for this industry, current assets turnover, was derived (Kovalenko & Urtenov, 2010). However, the received factors correspond to the factors presented in works carried out on multi-industry samples. The models may be adapted for various lists of ratios to increase classification quality considering

predictive ability.

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Appendix A

Table A1

Correlation Analysis: Turnover Ratios

	qas1	ars1	cas1		qas2	ars2	cas2
qas1	1.00			qas2	1.00		
ars1	0.84	1.00		ars2	0.98	1.00	
cas1	0.76	0.77	1.00	cas2	0.98	0.97	1.00
	qas3	ars3	cas3		qas4	ars4	cas4
qas3	1.00			qas4	1.00		
ars3	0.33	1.00		ars4	0.36	1.00	
cas3	0.90	0.26	1.00	cas4	0.98	0.40	1.00

Table A2

Correlation Analysis: Liquidity Ratios

	cashcl1	qacl1	cacl1	cashta1	wcta1	clta1	wctd1
qacl1	0.52	1.00					
cacl1	0.61	0.96	1.00				
cashta1	0.64	0.27	0.27	1.00			
wcta1	0.25	0.44	0.48	0.24	1.00		
clta1	-0.26	-0.39	-0.43	-0.21	-0.94	1.00	
wctd1	0.82	0.70	0.80	0.39	0.52	-0.48	1.00
cata1	-0.00	0.19	0.22	0.11	0.33	-0.00	0.21
	cashcl3	qacl3	cacl3	cashta3	wcta3	clta3	wctd3
qacl3	0.55	1.00					
cacl3	0.55	0.96	1.00				
cashta3	0.66	0.21	0.18	1.00			
wcta3	0.36	0.67	0.74	0.15	1.00		
clta3	-0.40	-0.57	-0.64	-0.04	-0.72	1.00	
wctd3	0.63	0.74	0.80	0.25	0.76	-0.66	1.00
cata3	-0.01	0.21	0.22	0.16	0.48	0.25	0.24
	cashcl2	qacl2	cacl2	cashta2	wcta2	clta2	wctd2
qacl2	0.78	1.00					
cacl2	0.73	0.97	1.00				
cashta2	0.68	0.44	0.38	1.00			
wcta2	0.39	0.53	0.57	0.35	1.00		
clta2	-0.42	-0.49	-0.52	-0.29	-0.78	1.00	
wctd2	0.71	0.96	0.98	0.37	0.55	-0.49	1.00
cata2	0.00	0.12	0.15	0.14	0.45	0.20	0.16
	cashcl4	qacl4	cacl4	cashta4	wcta4	clta4	wctd4
qacl4	0.51	1.00					
cacl4	0.46	0.86	1.00				
cashta4	0.85	0.30	0.24	1.00			
wcta4	0.41	0.65	0.77	0.30	1.00		
clta4	-0.33	-0.64	-0.73	-0.10	-0.65	1.00	
wctd4	0.61	0.77	0.87	0.36	0.82	-0.69	1.00
cata4	0.15	0.14	0.21	0.27	0.57	0.24	0.31

Table A3

Correlation Analysis: Cash Flow Ratios

	cfta1		cfta2
cftd1	0.67	cftd2	0.70
	cfta3		cfta4
cftd3	0.90	cftd4	0.81

Table A4

Correlation Analysis: Profitability Ratios

	ebitta1	sta1	ebits1		ebitta2	sta2	ebits2
sta1	0.23	1.00		sta2	0.36	1.00	
ebits1	0.50	0.31	1.00	ebits2	0.21	0.14	1.00
nitd1	0.75	0.19	0.32	nitd2	0.65	0.16	0.13
	ebitta3	sta3	ebits3		ebitta4	sta4	ebits4
sta3	0.30	1.00		sta4	0.26	1.00	
ebits3	0.63	-0.03	1.00	ebits4	0.68	-0.08	1.00
nitd3	0.80	0.14	0.46	nitd4	0.76	0.18	0.49

Table A5

Correlation Analysis: Financial Solidity Ratios

	intcov1	tdta1	ltlta1		intcov2	tdta2	ltlta2
tdta1	-0.12	1.00		tdta2	-0.05	1.00	
ltlta1	0.02	0.39	1.00	ltlta2	0.05	0.20	1.00
Intang1	0.23	-0.31	0.10	Intang2	0.01	-0.16	0.33
	intcov3	tdta3	ltlta3		intcov4	tdta4	ltlta4
tdta3	0.04	1.00		tdta4	0.04	1.00	
ltlta3	0.07	0.16	1.00	ltlta4	-0.01	0.31	1.00
Intang3	0.00	-0.14	0.22	Intang4	-0.12	-0.15	0.05

Innovation and Firm Performance: Evidence From the Capital Market

Vichet Sum

University of Maryland, Eastern Shore, USA

This paper¹ examines the role of innovation in firm performance by drawing empirical evidence from the capital market. The current study analyzes risk premiums and risk-adjusted excess returns of a portfolio of the most innovative firms in the US from 2006 to 2010. The results show that average risk premiums of an equal-weighted portfolio of the most innovative firms in the US are economically larger than the CRSP² value-weighted index risk premiums four years in a row from 2006 to 2009 and are economically greater than the standard and poor (S&P) 500 index risk premiums from 2006 to 2010. The portfolio exhibits average statistically significant and positive risk-adjusted excess returns for the 3-year and 5-year holding period intervals. The findings serve as evidence of the favorable role of innovation in firm performance.

Keywords: risk premiums, risk-adjusted excess returns, innovation

Introduction

Continuous innovation capability is a key element for firms to be successful and competitive in the long run in the knowledge-based economy with rapidly-evolving business models and constantly-changing market environment. Porter and Stern (2002) assert that companies operating in advanced nations whose economies are innovation-based will not obtain a sustained competitive advantage, if they are not able to “create and then commercialize new products and processes and shift the technology frontier as fast as their rivals can catch up” (p. 2). Likewise, Johnson, Meyer, Berkowitz, Ethington, and Miller (1997) content that a firm must be innovative in order to stay relevant and survive in a volatile market environment. As noted by Mone, McKinley, and Barker (1998), innovation capability is the most important determinant of firm performance. Calantonea, Cavusgil, and Zhao (2002) report a significant and positive relationship between firm innovativeness and firm performance. Hult, Hurley, and Knight (2004) empirically confirm innovativeness as a vital determinant of firm performance and emphasize that “innovative activities are generally important to the success of the industrial firm” (p. 436). In addition, Klomp and Van (2001) provide evidence that innovation contributes significantly to the overall sales performance, productivity, and employment growth. Another study by Renko (2011) shows innovativeness is a key determinant of return on assets and sales growth.

In contrast to many empirical evidences mentioned above, many studies, nonetheless, find zero or negative relationship between process innovation and firm productivity. For instance, in a comparative study of

Vichet Sum, assistant professor, Department of Business, Management and Accounting, University of Maryland, Eastern Shore.
Email: vsum@umes.edu.

¹ JEL classifications: G11, G12, G14.

² The Center for Research in Security Prices (CRSP).

innovation-productivity relationship in France, Germany, Spain, and the UK, Griffith, Huergo, Mairesse, and Peters (2006) find that process innovation only explains productivity (with the coefficient of 0.07) in France and does not explain it in other countries at all. Moreover, Hall, Lotti, and Mairesse (2009) report a negative relationship between process innovation and productivity after analyzing a sample of firms in Italy. A negative or zero relationship between productivity and process innovation is also reported in studies conducted by Loof and Heshmati (2006) and Van and Klomp (2006).

Consequently, this study is set up to examine the role of innovation in firm performance by drawing empirical evidence from the capital market. The problem of this study is to analyze risk premiums and risk-adjusted excess returns of a portfolio of the most innovative firms in the US from 2006 to 2010. This study is warranted due to the fact that an inconclusive debate concerning the relationship between innovation and firm performance exists. The current study is necessary, because few studies examine innovation-performance relationship in the capital market in the current literature. This study is also relevant and important in the asset pricing and valuation fields which are one of the most popularly researched fields in financial economics. The results of this study further the understanding of the various factors affecting stock performance. This study offers important information and implications to the pricing and valuing of stocks.

Data and Method

This study constructs an equal-weighted portfolio of publicly-traded companies ranked by *Bloomberg Business Week* as the most innovative companies in the US consecutively from 2006 to 2010. In particular, only the US publicly-traded companies that were ranked consecutively from 2006 to 2010 were included in the construction of the equal-weighted portfolio. Table 1 shows the names of the companies in the portfolio. The monthly return data are obtained from the Center for Research in Security Prices (CRSP) database maintained by the University of Chicago and accessed through the Wharton Research Data Services at the University of Pennsylvania. The monthly data related to risk-free rate, size, growth, and momentum factors are obtained from Kenneth R. French's data library³.

To compare the portfolio risk premiums with the market risk premiums, Equation (1) is used. The single-index Model (2) (Sharpe, 1966) and four-factor Model (3) (Carhart, 1997) are used to calculate risk-adjusted excess returns on the portfolio.

$$R_{pt} - R_{ft} = R_{mt} - R_{ft} = R_{s\&pt} - R_{ft} \quad (1)$$

$$R_{pt} - R_{ft} = \alpha_1 + \beta_m (R_{mt} - R_{ft}) + \varepsilon_{t1} \quad (2)$$

$$R_{pt} - R_{ft} = \alpha_4 + \beta_m (R_{mt} - R_{ft}) + \beta_{smb} SMB + \beta_{hml} HML + \beta_{mom} MOM + \varepsilon_{t4} \quad (3)$$

where:

R_{pt} = The return on the equal-weighted portfolio in month t ;

R_{ft} = The return on a 30-day T -bill in month t ;

R_{mt} = The return on the CRSP value-weighted index in month t ;

$R_{s\&pt}$ = The return on the standard and poor (S&P) 500 index in month t ;

³ Retrieved from http://www.mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

SMB = The difference between the return on a small-cap portfolio in month t and return on a large-cap portfolio in month t ;

HML = The difference between return on a high book-to-market (value-stock) portfolio in month t and return on a low book-to-market (growth-stock) portfolio in month t ;

MOM = The difference between return on portfolio with higher year (from month -12 to -2) return and return on portfolio with lower prior year (from month -12 to -2) return;

α_1 = The risk-adjusted excess return on the equal-weighted portfolio from the single-index model;

α_4 = The risk-adjusted excess return on the equal-weighted portfolio from the four-factor model;

β_m = The sensitivity of the excess return on the equal-weighted portfolio to the excess return on the CRSP value-weighted index;

β_{smb} = The sensitivity of the excess return on the equal-weighted portfolio to a size factor;

β_{hml} = The sensitivity of the excess return on the equal-weighted portfolio to a value factor;

β_{mom} = The sensitivity of the excess return on the equal-weighted portfolio to a momentum (hot-hand) factor;

ε_{t1} = Random error term: excess return on the equal-weighted portfolio in month t not explained by the single-index model;

ε_{t4} = Random error term: excess return on the equal-weighted portfolio in month t not explained by the four-factor model.

Results

A list of publicly-traded companies ranked by *Bloomberg Business Week* as the most innovative companies in the US consecutively from 2006 to 2010 is shown in Table 1. An equal-weighted portfolio of these companies is formed in each respective year for the analyses of risk premiums and risk-adjusted excess returns reported in this study.

Table 1

Most Innovative Companies in the US From 2006-2010

Company	Ticker	Industry
Amazon.com	AMZN	Retail (catalog and mail order)
Apple	AAPL	Computer hardware
AT & T	T	Communications services
Cisco Systems	CSCO	Communications equipment
General Electric	GE	Consumer financial services
Hewlett-Packard	HPQ	Computer hardware
International Business Machine (IBM)	IBM	Computer services
Intel	INTC	Semi-conductors
McDonald's	MCD	Restaurants
Microsoft	MSFT	Software and programming
Nike	NKE	Footwear
Procter & Gamble	PG	Personal and household products
Verizon	VZ	Communications services
Wal-Mart	WMT	Retail (department and discount)
Walt Disney Co.	DIS	Broadcasting and cable TV

The portfolio average risk premiums are reported in Table 2. For the 1-year holding period interval, the average portfolio risk premiums are greater than those of the CRSP value-weighted index four years in a row from 2006 to 2009 and outgain the S&P 500 index average risk premiums five years in a row. The portfolio average risk premiums are all positive for the 3-year and 5-year holding period intervals. They are greater than the CRSP value-weighted index and the S&P 500 index average risk premiums by as low as 19 basis points and as high as 129 basis points. As shown in Columns 2 and 3 of Table 4, for the 1-year holding period interval, the portfolio average risk-adjusted excess returns from the single index model are positive four years in a row ranging from 13 to 163 basis points. All of the portfolio average risk-adjusted excess returns, the single-index model, and four-factor models are positive for the 3-year and 5-year holding period intervals—ranging from 31 to 109 basis points. Except for the period of 2009-2010 which includes only two years of monthly data in the calculation, the alphas are statistically significant at the level of 1%.

Table 2

Portfolio Arithmetic Average Risk Premiums and Market Risk Premiums

Year	$R_p - R_f$	$R_m - R_f$	$R_{s\&p} - R_f$	$(R_p - R_f) - (R_m - R_f)$	$(R_p - R_f) - (R_{s\&p} - R_f)$
2006	1.34%	0.88%	0.69%	0.46%	0.65%
2007	1.88%	0.25%	-0.06%	1.63%	1.93%
2008	-2.66%	-3.85%	-3.93%	1.19%	1.27%
2009	2.98%	2.49%	1.96%	0.50%	1.03%
2010	1.39%	1.51%	1.14%	-0.13%	0.25%
2006-2008	0.19%	-0.91%	-1.10%	1.10%	1.29%
2009-2010	2.19%	2.00%	1.55%	0.19%	0.64%
2006-2010	0.99%	0.26%	-0.04%	0.73%	1.03%

To compare portfolio risk premiums, CRSP value-weighted index, and S&P 500 index risk premiums, monthly return data are calculated using Equation (1). The portfolio arithmetic average risk premiums, CRSP value-weighted index, and S&P 500 index risk premiums are calculated for the 1-year holding, 3-year holding, and 5-year-holding period intervals. Respective average risk premiums for the portfolio, CRSP value-weighted index, and S&P 500 index are reported in Columns 2, 3, and 4. The differences in arithmetic average risk premiums for the portfolio, CRSP value-weighted index, and S&P 500 index are reported in Columns 4 and 5. $R_p - R_f$ equals the average risk premiums of the equal-weighted portfolio; $R_m - R_f$ equals CRSP value-weighted index average risk premiums; and $R_{s\&p} - R_f$ equals S&P 500 index average risk premiums.

Table 3

Portfolio Geometric Average Risk Premiums and Market Risk Premiums

Year	$R_p - R_f$	$R_m - R_f$	$R_{s\&p} - R_f$	$(R_p - R_f) - (R_m - R_f)$	$(R_p - R_f) - (R_{s\&p} - R_f)$
2006	1.30%	0.87%	0.68%	0.44%	0.63%
2007	1.83%	0.21%	-0.09%	1.62%	1.92%
2008	-2.85%	-4.07%	-4.11%	1.23%	1.26%
2009	2.84%	2.29%	1.76%	0.55%	1.07%
2010	1.24%	1.37%	1.00%	-0.13%	0.24%
2006-2008	0.07%	-1.02%	-1.20%	1.10%	1.27%
2009-2010	2.03%	1.18%	1.38%	0.21%	0.65%
2006-2010	0.85%	0.11%	-0.17%	0.74%	1.02%

To compare portfolio risk premiums, CRSP value-weighted index, and S&P 500 index risk premiums, monthly return data are calculated using Equation (1). The geometric average portfolio risk premiums, CRSP value-weighted index, and S&P 500 index risk premiums are calculated for the 1-year holding, 3-year holding, and 5-year holding period intervals.

Table 4

Average Portfolio Risk Adjusted Excess Returns

Year	Average risk-adjusted excess return (α_1) from the single-index model (%)	Average risk-adjusted excess return (α_4) from the four-factor model (%)
2006	0.47	1.49
2007	1.63***	0.62
2008	0.60	0.13
2009	0.97	0.99
2010	-0.14	-0.13
2006-2008	1.00***	1.09***
2009-2010	0.39	0.31
2006-2010	0.76***	0.79***

Note. *** indicates significance at the level of 1%.

To obtain the portfolio average risk-adjusted excess returns (alphas), monthly return data are calculated using Equations (2) and (3). The portfolio average risk-adjusted excess returns are calculated for the 1-year holding, 3-year holding, and 5-year holding period intervals. The portfolio average risk-adjusted excess returns from the single-index model are reported in Column 2. The portfolio average risk-adjusted excess returns from the four-factor model are reported in Column 3.

Conclusions

Innovation is a key element for success and competitiveness of firms operating and competing in the knowledge-based economy with rapidly-evolving business models and constantly-changing market environment. Although many empirical studies provide evidence in support of this claim, many studies in the literature point to the zero or negative relationship between process innovation and firm productivity. This study is set up to examine the role of innovation in firm performance by drawing empirical evidence from the capital market. The problem of this study is to analyze risk premiums and risk-adjusted excess returns of a portfolio of the most innovative firms in the US from 2006 to 2010.

The results show that average risk premiums of an equal-weighted portfolio of firms with low employee turnover are economically larger than the CRSP value-weighted index risk premiums five years in a row from 2006 to 2009 and are economically greater than the S&P 500 index risk premiums from 2006 to 2010. The portfolio exhibits average statistically significant and positive risk-adjusted excess returns for the 3-year and 5-year holding period intervals. The findings serve as evidence of the favorable role of innovation in firm performance.

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Expanding the Definition and Measurement of Knowledge Economy: Integrating Triple Bottom Line Factors into Knowledge Economy Index Models and Methodologies*

Denise A. D. Bedford
Kent State University, Kent Ohio, USA

The application of knowledge is a primary source of growth in the knowledge economy. The World Bank Group has developed a rigorous assessment methodology for assessing a country's ability to access and use knowledge to become more competitive in the knowledge economy of the 21st century. The World Bank's annual knowledge economy index is grounded on a four-pillar model: (1) economic incentives and institutional regime; (2) education and skills; (3) information and communication infrastructure; and (4) innovation systems. An argument can be made that the model lacks coverage of some key factors that pertain to intellectual capital and the production and consumption of knowledge. The model's heavy focus on economic incentives and open institutional regimes comes at a societal cost. This paper proposes an alternative knowledge economy index which is grounded in a more holistic and balanced view of a knowledge society. Adopting the perspective of triple bottom line shifts the purpose and design of a knowledge economy from one of aggregation and reporting to action and involvement. The World Bank's scorecard and indexing methodology are adaptable to this new perspective and a new set of indicators.

Keywords: knowledge economy index, triple bottom line, natural capital indicators, human capital indicators, societal regime, intellectual capital, economic indexes, knowledge society

Introduction

The focus of the work reported in this paper is on the development of a model and methodology to monitor progress towards a knowledge economy at a state or local municipal level in a developed country. A knowledge economy is the one in which knowledge in the form of intellectual capital is a primary factor of production. While there is a rich body of literatures about the knowledge economy (Allee, 2002; Bell, 1973; Dahlman, 2003; Dahlman & Chen, 2005; Dahlman & Aubert, 2001; Drucker, 1969; Edvinsson, 2002; Houghton & Sheehan, 2000; Kahin & Foray, 2006; Lin, 2007; Lundvall & Johnson, 1994; Machlup, 1980; Porat & Rubin, 1977), many focuses are on the transition capacity of the emerging and developing economies. Three challenges present themselves when applying the current theory to local economies in the developed countries. The first challenge is the lack of a clear agreement on what constitutes a knowledge economy (Carlaw, Oxley, Walker, Thorns, & Nuth, 2006). The second challenge is that the current models are grounded

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Denise A. D. Bedford, Goodyear professor of Knowledge Management, Kent State University. Email: dbedfor3@kent.edu.

in economic systems at the aggregate level rather than in knowledge production and consumption. The third challenge pertains to data sources and capture and the overall architecture of the economic index. This work proposes a model and a methodology that addresses these three challenges. The research suggests a practical approach for designing a knowledge economy for use at a local level.

Methodology

The research leveraged a four-phase methodology. The first phase involves adopting a definition of the knowledge economy and grounding that definition in a faceted view of a knowledge society. The second phase involves the identification of indicators that represent knowledge transactions, knowledge production, and knowledge consumption. The third step involves designing a knowledge economy scorecard for data collection and analysis. The fourth and the final phases involve: (1) designing solution architecture to support an actionable use of the scorecards; and (2) the creation of composite indexes at the city and state levels.

Phase 1: Grounding the Knowledge Economy in a Knowledge Society

While there is a rich body of literatures about the knowledge economy, a clear agreement on what constitutes a knowledge economy is lacking (Carlaw et al., 2006). Smith (2002) suggested that “The weakness or even complete absence, of definition, is actually pervasive in the literature... This is one of the many imprecision that make the notion of ‘knowledge economy’ so rhetorical rather than analytically useful” (p. 4).

For the purpose of this research, the author adopted the characterization of the knowledge economy offered by the United Kingdom Department of Trade and Industry’s white paper (1998) as one in which knowledge plays a predominate role in the creation of wealth. Knowledge is a key resource whose use and exploitation are integral aspects of all forms of economic activities.

This definition is grounded on knowledge as a core factor. It emphasizes the point that a knowledge economy cannot be understood outside a knowledge society (David & Foray, 2002; Cummins, 2006). To ensure that this research was grounded in the broader knowledge society context, the researcher reviewed current economic indices and assessment models pertaining to knowledge and knowledge societies, knowledge cities and organizations (McPhee, Corman, & Dooley, 2002; Prusak, 2001; Wenger, 1998), knowledge economy (Carter, 1996; Daugeliene, 2004; Gregory & Stuart, 1999; Leydesdorff, 2006), triple bottom line, societal factors (Brown & Duguid, 1998), political engagement, human development, human capital management, and the quality of life (International Living, 2010; OECD, 2011). Five facets of a knowledge society were identified: (1) business environment; (2) civic context; (3) societal regime; (4) human development; and (5) environment.

A knowledge society (see Figure 1) is comprised of an open and robust business environment, a societal regime which is infused with a knowledge-rich culture, knowledge-rich communications, strong interactions among society members, strong family and community units, a civic context which is characterized by rich citizen participation, knowledgeable public officials, knowledge-grounded laws and judicial bodies, open and free public discourse, civil liberties and the right to freely associate, a physical environment which supports the well-being, health, safety, and the resources which can sustain life, and a human development system which recognizes that people are now the primary engines of economic growth and societal and political health and invests in the development of every individual in that society. The heart of the knowledge society, however, is knowledge production and consumption by individuals, communities, and organizations.

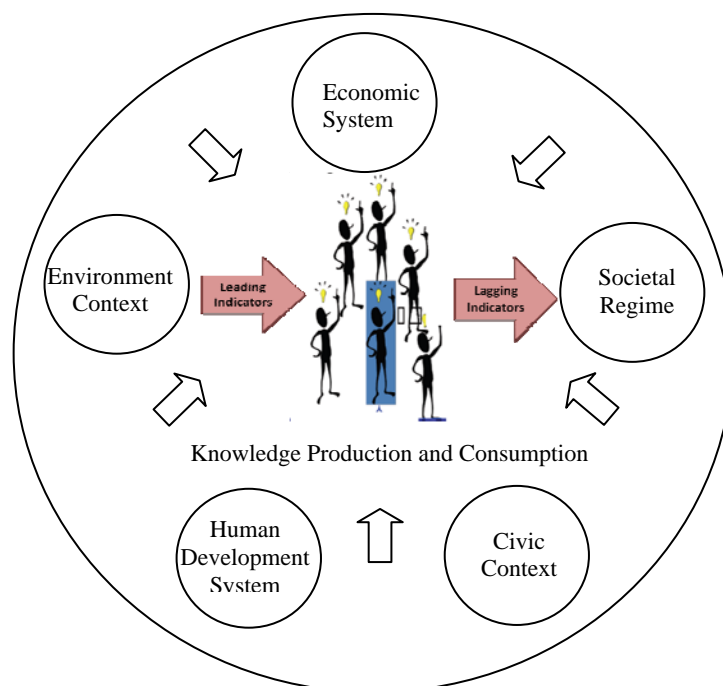


Figure 1. Knowledge society and knowledge economy context.

Phase 2: Grounding the Model on Knowledge Production and Consumption

The researchers associated knowledge transactions with the production and consumption of intellectual capital (i.e., human capital, structural capital, and relational capital) and with people, communities, and organizations. For the purpose of this research, the researchers adopted Andriessen's (2004) characterizations of intellectual capital: (1) human capital; (2) structural capital; and (3) relational capital. The researchers looked to Wiig (1997) and McElroy (2002) for characterization of the knowledge life cycle and to Benbya and Van Alstyne (2010) for guidance on knowledge transactions.

The second phase involved identifying knowledge-related indicators for each facet. The research team manually reviewed the existing models and frameworks, including those that are currently used to track preparedness and progress at country, state, and city levels. Frameworks reviewed included the networked readiness index (Dutta & Mia, 2011), global knowledge-based economy index (Foray & Lundvall, 1996), human development index (United Nations Development Programme, 2011), growth competitiveness index (Schwab, 2011), Machlup's (1962) assessment methodology, information society index (Minton & Glasheen, 2010), science citation index (Garfield, 1955), INEXSK¹ methodology (Mansell & When, 1998), new economy index (Progressive Policy Institute, 2002), OECD² knowledge economy model (OECD, 2002), World Bank knowledge economy index (Dahlman & Chen, 2005), APEC³ framework (New Economy and APEC, 2001; Atkinson & Andes, 2010), UNECE⁴ (2002) model, Kaufman Institute (Weitekamp, Pozel, & Norton, 2010), Milken Institute (DeVol, Kowden, Collins, Wallace, Wang, & Bedroussian, 2004), Michigan State University (LaMore, 2005), and Clemson University (Barkley, Henry, & Li, 2004).

¹ Infrastructure, experience, skills, and knowledge (INEXSK).

² Organization for Economic Cooperation and Development (OECD).

³ Asia-Pacific Economic Cooperation (APEC).

⁴ United Nations Economic Commission for Europe (UNECE).

The research team found that the existing frameworks were grounded in business environments, information, technology, and coincidental factors that represented an advanced industrial economy context. The research team observed that this was a logical result of adopting a national- or regional-level definition of an economic system. Few of the frameworks were grounded on knowledge transactions and few included references to intellectual capital indicators.

The researchers developed a model comprised 99 indicators⁵. Indicators were drawn from the five facets of a knowledge society and focused directly on knowledge production and consumption. Indicators were evaluated based on whether they:

- (1) Contributed to or incentivized the production of intellectual capital;
- (2) Described a form of intellectual capital;
- (3) Contributed to or incentivized the consumption of intellectual capital.

Phase 3: Data Sources, Capture, and Analysis

The third phase of the research addressed sources of data and data collection methods for the 99 indicators. The researchers observed that the most effective level of data collection for the 99 indicators was either the community and organization levels or the individual and household levels. Scorecards were developed to support data source identification and collection. The 99 indicators were first divided into levels and types of knowledge transactions: (1) at the community or organizational level; and (2) at the individual or household level. Next, the indicators were designed into scorecards which were aligned with the five facets of a knowledge society (see Tables 1 and 2).

Table 1

Community and Organization Scorecard

Knowledge economy factor	Indicator
Business context	City-level patents and trademarks Community culture Density of labor market (job abundance, knowledge-related jobs) Entrepreneurial activities Home ownership Intercity co-authorship International co-authorship Job creation ages 50+ Local economic impacts Low cost access to advanced communication networks Material prosperity Ratio of female to male earnings Research activities in proximity to city Community unemployment rate
Civic context	Distinct individuals serving in official capacity Knowledge-based agencies in city government Knowledge rich, city level portal, and communications with citizens Civic activities and meetings Non- and not-for-profit organizations Political expression and security Political stability (elections, recalls, and peaceful changes) Strategic development plans for city Strategic vision for city Trust in government

⁵ The full set of indicators can be retrieved from <http://www.kmef.iwiki.kent.edu/Knowledge+Economy>.

(Table 1 continued)

Knowledge economy factor	Indicator
Societal regime	Business ethics Citizen to citizen interactions with other cities Citizen-to-citizen interactions within city Clubs and associations open to citizens Investment of business in social activities Languages spoken in the community Open meeting places for citizens Organizational communication indicators Organizational culture indicators Organizational memory indicators Ratio of arriving/departing citizens
Environment	Abandoned industrial sites and brownfields Access to potable water Ave. age of buildings in city/age of city biodiversity richness Community environmental activities (recycling, cleanup, etc.) Crisis management activities Emissions control capacity Environmental pollution measured at the community level

Table 2

Individual- and Household-Level Scorecard

Knowledge economy factor	Indicator
Business context	Gross domestic product (GDP) per person (material well-being)
Societal context	Community engagement indigenous community involvement
Environment	Extent of pollution encountered (air, food, water, and land)
Human development	Ability to retain fruits of their labors Access to community sports and recreational activities Access to cultural institutions (museums, galleries, and theatres) Access to excellent public library network Access to parks and outdoor spaces Affordable access to health care Ave. number of generations in single families in a city Ave. number of leisure hours per year Divorce rate Easy access to public transportation (PT) (distance to PT, cost of PT) Extent of pollution encountered (air, food, water, and land) Happiness rating Incidence of contagious diseases Incidence of non-contagious diseases Number of friends in a city Personal security and safety (neighborhood watch-association activities) Quality of education Safety in travel Satisfaction with residence Skills enhancement and training opportunities (continuing education, community colleges, etc.) Universities in proximity to city Value assigned to knowledge Number of individuals incarcerated

Phase 4: Solution Design and Architecture

The work completed in Phase 1 through Phase 3 resulted in a solution design and architecture that was different than originally anticipated. The solution architecture is composed of three components: (1) knowledge economy dashboards built around the scorecard designs; (2) composite indexes at the city level, which is

created from the dashboard data created by organizations, communities, and households; and (3) composite state indexes constructed from city-level indexes.

Index architecture and design. The prototype architecture (see Figure 2) represents a state-level knowledge economy index aggregated from city-level composite indices and city-level indexes which are composites of household, community, and organizational data. The knowledge economy index models and methods in use today adopt a “top-down” approach and are constructed from data collected at a national level. This presents challenges for interpreting data for identifying actionable results. The Ohio knowledge economy index model, instead, begins at the source—at the level of knowledge transactions. The expectation is that a bottom-up approach will not only ground the index in knowledge transactions, but will enable any member of a knowledge society to engage in setting a vision for and monitoring the health of the knowledge economy.

Dashboards. Web-based dashboards are available to households, community and civil society organizations, government agencies, and business organizations. Participation is voluntary. Dashboards support data collection, provide feedbacks to individual contributors, and provide an insight into the overall health of a city and state’s knowledge economy. Dashboards are designed around scorecards which are partitioned appropriate to the source and type of data.

City-level composite index. The city is the highest level at which the author can see knowledge production and consumption. Assessing the health of a knowledge economy at the city level also provides an opportunity for the city, its organizations, government, businesses, and citizens to define its goals for the knowledge economy. City-level indexes can be viewed holistically or at the facet level. Facet-level views provide feedbacks that can be used by sectors of the economy to set or adjust a course.

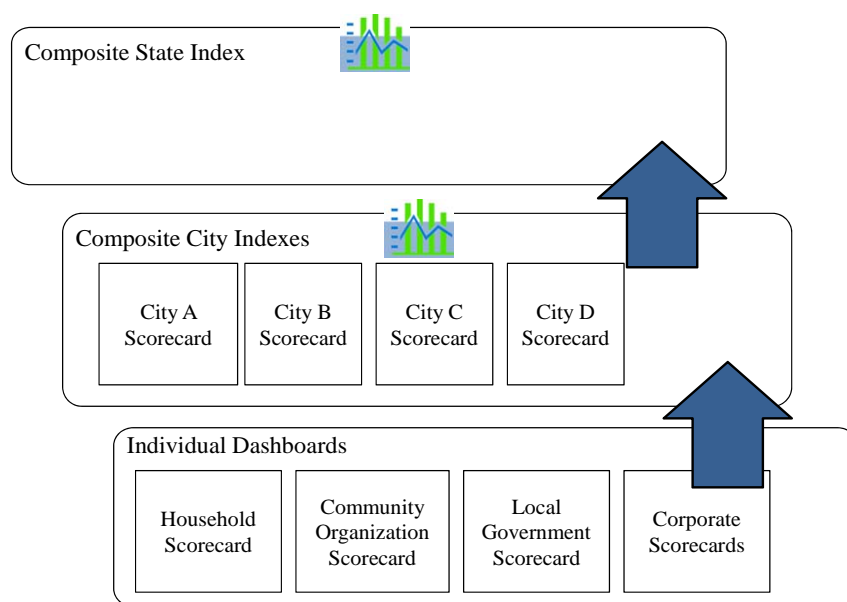


Figure 2. Big picture solution architecture for Ohio knowledge economy index.

State-level composite index. State-level indexes provide insights into the health of the knowledge economy at policy levels—above the level of knowledge transactions. Insights derived from the state-level composite index, however, would allow a state to formulate policies and build partnerships with organizations to set or adjust a course towards a knowledge economy.

Findings and Discussion

The research has produced five findings to date, including:

(1) A knowledge economy index should be grounded in intellectual capital and knowledge transactions, tracking the production and consumption of knowledge. This implies a “bottom-up” design for data capture and a progressive aggregation and interpretation;

(2) A knowledge economy index should be designed for action and involvement. A knowledge economy index is a continuous process that goes beyond one time report and comparisons. The purpose of a knowledge economy index should be to gauge its health and provide actionable results for members of a knowledge society to set directions or make course corrections;

(3) Role of the city has emerged as a key to manage a knowledge economy. It appears to be the highest level at which knowledge transactions can be observed and the lowest level at which the author can observe an economic system at work. State-level indexes, the original goal of the research, cannot be generated directly, but can be generated only indirectly as aggregates from city-level indexes;

(4) City-level indexes are a productive level for knowledge economy actions. State-level indexes are a productive level for establishing knowledge economy policies;

(5) National accounting systems are designed for physical and financial entities. They are not effective approaches for assessing knowledge or intellectual capital assets. The researchers observed that current approaches to track and measure knowledge economies using national accounting methods in fact focused on the role of information in advanced industrial economies.

What began as a simple attempt to extend the application of an established model and methodology to a smaller economic level resulted in a fundamental recognition of the inadequacies of the current models and methods. These five findings suggest a need to revisit and redefine the current knowledge economy index models and methodologies. A shift to a knowledge economy is a sign of a broader shift to a knowledge society. As such, any knowledge economy index or measurement effort must take into account all facets of that society. Measuring the change from an economic perspective means considering the economic impacts of all facets, not only those that represent business or a single economic system. Changes that are observed in an economic aspect may have their origins in a civic or social aspect of a knowledge society. The focus on a knowledge society encourages the author to focus on the level at which a society functions—cities and communities. To date, cities and communities have only played a small role in the discussion of either a knowledge society or a knowledge economy.

These findings will continue to be tested and updated as the research moves into its next stage. The next stage involves rolling out the architecture to nine cities across the state of Ohio.

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An Empirical Test of Optimism Bias in Capital Budgeting Decisions

Jale Sözer Oran, Seda Gürol Perek
Marmara University, Istanbul, Turkey

Behavioral finance is a field that is scrutinizing the adequacy of traditional financial theories using insights from the disciplines of psychology and sociology. Many studies within its realm test the stock market behaviors, and behavioral phenomena are still to be tested in the area of corporate finance. This study aims to contribute to the behavioral corporate finance literature by a research in one of the psychological phenomena affecting the decision makers' abilities to reach conclusions rationally. In this study, it is aimed to investigate one of the biases, namely, the optimism bias in corporate capital budgeting decisions. Optimism in decision making can be associated with estimating lower costs and higher revenues. Thus, by assessing the forecasts of decision makers, the existence of optimism in their decisions is tried to be seen. This study aims at contributing to the literature in that it is conducted in an emerging country like Turkey.

Keywords: behavioral corporate finance, optimism bias, capital budgeting decisions, Turkey

Introduction

As a part of the studies in the realm of behavioral corporate finance, this paper seeks to address and evaluate the current and the most significant researches and investigate behavioral corporate finance, especially the optimism bias in capital budgeting decisions, in order to achieve a better understanding of the term "optimism bias" and the implications of it on the current capital budgeting decisions. With the purpose of providing a comprehensive work on optimism in capital budgeting decision making, this paper starts off with an explanation of behavioral finance.

Behavioral finance is one of the interdisciplinary areas, which take roots from finance and economics as well as cognitive and social psychology, other behavioral sciences, and many others. Behavioral finance can be defined as the discipline analyzing the psychology and behavior dimension of financial decisions made by individuals and effects of these decisions on financial markets, institutions, companies, and various economic activities in general (Oran, 2008).

The first paper to mention human behavior in the financial market context was that of Burrell (1951), although overlooked for many years until the discussions of organizational and behavioral disciplines. Burrell (1951) suggested that "... The behavior of markets is... reflection of relatively constant human behavior patterns and that experimental studies designed to reveal how men behave in the market may be of value in understanding how security markets work" (p. 211).

Human decision-making behavior is the concern of many fields, although the way it is analyzed can be quite different. Nevertheless, a priory assumption of self-interest behavior is not rejected by anyone. People are generally thought to be effective in pursuing their goals, especially if they have the chances to learn from experience. Optimal decisions increase the chances of survival in a competitive environment. The appeal of the rational choice axioms provides an acceptable basis of choice behavior. However, as Tversky and Kahneman (1986) pointed out, the deviations of actual behavior from the normative model were too widespread to be ignored, too systematic to be dismissed as random errors, and too fundamental to be accommodated by relaxing the normative model.

As suggested by Kahneman and Reipe (1998), the biases of judgment and decision making have sometimes been called cognitive illusions. Like usual illusions, the mistakes of intuitive reasoning are not easily eliminated. Behavioral finance discipline inclines to define and classify the behavioral phenomena that influence financial decision making in all contexts: personal, corporate, or fiduciary. Since it is a relatively young discipline, there has been no consensus reached on the taxonomy of behavioral errors yet. However, a common ground can still be found. Hirshleifer (2001) suggested taxonomy of judgment and decision biases¹ under four headings: heuristic simplification, self-deception, emotions and self-control, and social interactions. Optimism is classified under self-deception by Hirshleifer (2001), although Metcalfe (1998) argued that it was not exclusively attributable to self-deception, but rather yielded up by the cognitive system and in combination with heuristics.

Optimism

Optimism is an individual difference variable reflecting the extent to which people hold generalized favorable expectancies for their future. Higher levels of optimism have been related prospectively to better subjective well-being in times of adversity or difficulty (Carver, Scheier, & Segerstrom, 2010)². People who are more optimistic work harder, expect to retire older (therefore expect to live longer and happier with his/her job), and are more likely to remarry, and they invest more in individual stocks and save more (Puri & Robinson, 2007). However, McKenna (1993) argued that there was clear evidence in favor of the illusion of control, but there was no evidence in favor of (unrealistic) optimism as a result of his research. According to De Meza and Southey (1996), if optimism arises from the illusion of control, it is unlikely that priors will be properly incorporated.

There are some angles from which optimism provides some kinds of advantages or drives for the well-beings of humans. Studies concerning health (Rasmussen, Scheier, & Greenhouse, 2009; Allison, Guichard, & Gilain, 2000), school success (Solberg-Nes, Evans, & Segerstrom, 2009; Ruthig, Hanson, & Marino, 2009), career and professional performance (Segerstrom, 2007; Lounsbury, Gibson, Sundstrom, Wilburn, & Loveland, 2004), and coping with adversity and stressful situations (Solberg-Nes & Segerstrom, 2006; Lee, Ashford, & Jamieson, 1993; Fontaine, Manstead, & Wagner, 1993) demonstrate that optimism is associated with good prospects and ultimately with the survival of individuals.

Optimism and pessimism are broad, generalized versions of confidence and doubt. They are confidence and doubt pertaining to life rather than to just a specific context (Scheier & Carver, 1992). Similarly, Lench and

¹ Behavioral errors are described with different terms, as errors, biases, traps, all of which indicate the behaviors that are contrary to the classical rationality axioms and against self-interest.

² There is an excellent and comprehensive coverage of optimism and relevant literature in the study of Carver et al. (2010).

Ditto (2008) argued that people were consistently optimistic in their predictions and that optimism was not influenced by incentives for motivated reasoning or rewards for accuracy. Therefore, as an inner tenet, optimism together with confidence also appears in other facets of life, i.e., in social settings, business, and investing.

Optimism is essential for survival, although there are instances in which optimism fails to convey an advantage and instances in which even it may convey a disadvantage (Carver et al., 2010). The reasons for the latter case may be due to erroneous self-protection behaviors, contrary to self-interest. The resultant effect is the concern in this research, rather than the investigation of the causes.

Overconfidence implies over-optimism about the individual's ability in succeeding his/her endeavors (Hirshleifer, 2001). Research about behavioral corporate finance usually incorporates overconfidence into optimism issues or takes both in the same context. However, the above suggestions by earlier researches rather point out optimism as a personal trait, which is necessary for the survival, hence implying that over-confidence accompanies optimism or with a more common saying, over-optimism. As suggested by Tversky and Kahneman (2004), "The main advantages of optimism may be found in increasing persistence and commitment during the phase of action toward a chosen goal, and in improving the ability to tolerate uncontrollable suffering" (p. 733). The determinism in the above expression may also empower overconfidence.

Managerial Optimism

Managerial optimism can explain a number of interesting corporate finance phenomena, even when there is no asymmetric information and managers are loyal to shareholders. Therefore, managerial optimism provides an explicitly behavioral approach to corporate finance that contrasts in important ways with rational asymmetric information and rational agency/empire building models (Heaton, 1999; Baker, Ruback, & Wurgler, 2004). Incentives like stock options are also influential for more risk taking than shareholders prefer. (Malmendier & Tate, 2005a)

Managerial optimism has been investigated in many facets of corporate decision making. These are mergers and acquisitions, investment and financing decisions, and entrepreneurial decisions. There is a vast amount of evidence for the existence of optimistic managers. Top managers' optimism positively influences problem recognition and problem-solving actions, but negatively influences the firm's performance (Papenhausen, 2006).

Research evidence suggests that optimistic managers believe that capital markets undervalue their firms' risky securities and the firms themselves (Heaton, 2002; Baker et al., 2004). According to a survey conducted by Kamath (1997), only 37.3% of the managers admit that market prices for securities are fair. Optimistic managers believe that they can control the firm's performance as suggested by McKenna (1993) and tend to ignore risks associated with the business environment (March & Shapira, 1987).

One of the solid findings about optimistic managers is that they overinvest (Baker et al., 2004; Gombola & Marciukaityte, 2007). Reason for that is that they overestimate the returns and therefore overvalue their own projects, and they may invest in negative net present value (NPV) projects even when they are loyal to shareholders (Heaton, 2002; Malmendier & Tate, 2005b). Biased managers also invest earlier than their rational counterparts. Nevertheless, their investment practices have greater benefits than their costs (Hackbarth, 2009).

Optimistic predictions result in debt financing (Gombola & Marciukaityte, 2007). Optimistic managers choose higher debt levels (Hackbarth, 2009; Heaton, 2002; Lin, Hu, & Chen, 2005). When faced with an

attractive growth opportunity, they deviate from target capital structure and employ more debts. They are flexible in capital structure decisions (Kamath, 1997).

Optimism also plays a crucial role in mergers and acquisitions. Optimistic managers in both acquiring and target firms are associated with large premiums in final prices (Brown, 2006). Optimistic managers, infected by hubris, pay too much for their target companies. Management intentions may be fully consistent with honorable stewardship of corporate assets, but actions need not always turn out to be right (Roll, 1986). The resistance by target company's managers is relevant with optimism as well. The research conducted by Boehmer and Netter (1997) demonstrated that managers of both acquiring and target firm did not change their trading patterns as insiders (proxy for personal beliefs) around the significant corporate acquisitions.

Entrepreneurs are known as great optimists. Aspiring entrepreneurs are systematically over-optimistic in evaluating their future prospects. People, especially those with above-average abilities, tend to overestimate their abilities. Best-documented instance in economics is overbidding in auctions, which is known as "winner's curse" (De Meza & Southey, 1996). However, Hmieleski and Baron (2009) argued that there was a negative relationship between optimism and venture performance. Lowe and Ziedonis (2006) had found evidence that entrepreneurial optimism was not a determining factor in the decision to found a firm, but it was a determining factor in the decision to continue unsuccessful development efforts for longer periods.

It seems like that there is no cure for optimism, even if there are factors and situations that support optimism. According to Hackbarth (2009), promotion decisions can implicitly reward optimism and overconfidence and perhaps even condition rational individuals to turn into optimists. Hunton and McEwen (1997) found out in their experiment that motivational incentives intensified the analysts' tendency to provide optimistic forecasts. Malmendier and Tate (2005a) argued that if chief executive officers (CEOs) were too optimistic about the value they could generate, then stock and options were not helpful in improving corporate decision making. The reason for that is that overconfident CEOs do not need incentives to maximize the market value of the firm's equity, and that is what they believe that they are doing already.

Methodology and Data

Methodology

In order to test the optimism bias in capital budgeting decisions, a questionnaire is used to get the forecasts of subjects regarding costs and revenues associated with a capital investment project. Subjects were given the forecasts of two advisors (one optimistic and one pessimistic) and asked to provide their own estimates.

The weights that participants assign to the optimistic and the pessimistic forecasts are calculated using the formula that is substantially in line with the one used by Statman and Tyebjee (1985):

$$F = wO + (1 - w)P$$

where F is the forecast made by the participant, O is the optimistic cost or revenue figure, P is the pessimistic cost or revenue figure, and w is the weight assigned to the forecast. In their study, Statman and Tyebjee (1985) measured the weights given to upper and lower forecasts and interpreted that if weights given to forecasts of cost were higher, decision makers implied that they saw an optimistic bias in the forecast and adjusted for the optimism bias. The reverse is true for sales' forecasts.

The authors instructed the subjects to make their own forecasts, given the consultants' estimations. Thus, they are not in the position to question or correct the forecasts made by the consultants, but they can use the estimations as data to rely on. Therefore, the authors believe that the forecasts are the products of their own

optimism or pessimism. If subjects assigned weights greater than 0.5 to revenue figures and weights less than 0.5 to cost figures, this would mean that they were optimistic. If the reverse is true, it means that subjects are pessimistic. In order to have uniform data to analyze, cost figures were taken as $1 - w$.

Independent samples, *T* test and Kruskal-Wallis test, are used for the analysis. Data were adequate for a parametric test, if the authors were to analyze two variables. Therefore, *T*-test was appropriate. However, if the authors break down the data into more than two categories, a non-parametric analysis would be better. The details of the analysis are presented in Section 4.3 (Findings and Discussion).

Data

The cost and revenue figures in this study are provided by means of an interview with a company, which is currently introducing a new line of products to the market. The major cost items determined by the general manager of the company are market research, research and development (R&D), initial investment, and marketing costs. Revenue estimates are provided for three different cities in which the company is planning to introduce its new product. The questionnaire is conducted on 135 students of undergraduate and graduate programs. The students are specifically chosen from the ones who are making a degree in accounting and finance majors.

If the weights assigned by students, as decision makers in this case, to lower cost figures and higher revenue figures are higher than 50%, this indicates that decision makers are optimistic. Similarly, if the weights assigned to higher cost figures and lower revenue estimates are higher than 50%, this indicates that decision makers are not optimistic in their decision-making processes. After conducting the one-step questionnaire on participants, the weights assigned are calculated and averaged for both four of the cost and three of the revenue figures. The outcomes are then compared for gender, the last degree received, and work experience.

Findings and Discussion

At the initial stage, descriptive statistics are calculated. As seen from Table 1, all cost items have $w < 0.5$ (mean = 0.4029) with the exception of initial investment, which has $w = 0.5085$, while $w > 0.5$ for all revenue items (mean = 0.8170), which is even greater than 1.0 for Izmir. Costs estimates were pessimistic, and the ones related to marketing were more pessimistically determined than R&D and initial investment. Izmir revenues item was the item about which the subjects were the most optimistic. Weight assigned to Bursa revenues was the least optimistic.

Independent sample, *T*-test, is used in order to observe the differences of weights assigned by the respondents to different cost and revenue items. There is a significant difference between weights assigned to average costs and average revenues ($p < 0.01$, see Table 2). Revenues were forecasted with optimism, while cost figures were forecasted pessimistically. In other words, subjects tend to overestimate both the revenues and costs. These findings are not in line with the findings of Cyert, March, and Starbuck (1961) and Statman and Tyebjee (1986), who found that subjects tended to correct both sales and costs with a thought that assistants were optimistic. However, Armstrong, Davila, Foster, and Hard (2007) had similar results in their survey that managerial forecasts, five years ahead, were optimistic in revenues and pessimistic in costs.

According to Kruskal-Wallis test results, no gender difference could be found. Male and female subjects were on average at the same optimism and pessimism levels. This is contradicting with the arguments of Felton, Gibson, and Sanbonmatsu (2003) who found that in an investment game, males had made more risky investment choices than females, primarily due to males' optimism. They also argued that these results

depended on the domain.

Table 1

Descriptive Statistics of Weights

	<i>N</i>	Minimum	Maximum	Mean	Std. deviation
Marketing research	135	-7.70	1.15	0.3152	0.92340
R&D	135	-3.03	1.34	0.4122	0.51024
Initial investment	135	-2.76	1.41	0.5085	0.49907
Marketing	135	-4.25	1.21	0.3756	0.78625
Average cost	135	-1.51	1.00	0.4029	0.45760
Istanbul revenue	135	-0.19	4.94	0.7882	0.58502
Bursa revenue	135	-0.12	3.90	0.5558	0.46196
Izmir revenue	135	-0.08	9.07	1.1069	1.39537
Average revenue	135	0.07	4.93	0.8170	0.69056
Gender	135	1	2	1.47	0.501
Undergraduate, graduate, or Ph.D. students	135	1	3	1.58	0.717
Work experience	135	1	5	2.47	1.348
Valid <i>N</i> (list wise)	135				

Table 2

Paired Samples Test

		Paired difference					<i>t</i>	<i>df</i>	Sig. (2-tailed)
		Mean	Std. deviation	Mean std. error	95% confidence interval of the difference				
					Lower	Upper			
Pair 1	Average cost—average revenue	-0.41408	0.99012	0.08522	-0.58262	-0.24553	-4.859	134	0.000

Table 3

Kruskal-Wallis Test Results, Work Experience, and Optimism

	Work experience	<i>N</i>	Mean rank
Marketing research	None	38	65.70
	Less than one year	45	67.57
	1 < exp < 2	21	69.71
	3 < exp < 5	13	60.85
	More than six years	18	77.11
	Total	135	
R&D	None	38	69.93
	Less than one year	45	64.30
	1 < exp < 2	21	58.67
	3 < exp < 5	13	79.04
	More than six years	18	76.08
	Total	135	
Initial investment	None	38	74.83
	Less than one year	45	64.74
	1 < exp < 2	21	64.24
	3 < exp < 5	13	65.04
	More than six years	18	68.25
	Total	135	

(Table 3 continued)

	Work experience	<i>N</i>	Mean rank
Marketing	None	38	64.45
	Less than one year	45	69.00
	1 < exp < 2	21	75.24
	3 < exp < 5	13	61.77
	More than six years	18	69.06
	Total	135	
Average cost	None	38	68.92
	Less than one year	45	66.18
	1 < exp < 2	21	65.38
	3 < exp < 5	13	69.77
	More than six years	18	72.39
	Total	135	
Istanbul revenue	None	38	64.34
	Less than one year	45	67.00
	1 < exp < 2	21	93.90
	3 < exp < 5	13	43.27
	More than six years	18	65.86
	Total	135	
Bursa revenue	None	38	63.54
	Less than one year	45	69.28
	1 < exp < 2	21	83.55
	3 < exp < 5	13	53.15
	More than six years	18	66.81
	Total	135	
Izmir revenue	None	38	66.26
	Less than one year	45	63.66
	1 < exp < 2	21	79.57
	3 < exp < 5	13	54.15
	More than six years	18	79.03
	Total	135	
Average revenue	None	38	64.28
	Less than one year	45	66.66
	1 < exp < 2	21	87.57
	3 < exp < 5	13	45.27
	More than six years	18	72.81
	Total	135	

However, when breaking down the data for work experience, there is an association between experience and optimism levels of male participants, which are not observed among females (see Tables 3 and 4). Optimism level increases along with the work experience for Istanbul and Bursa revenues, except three to five years, for which there is lower optimism.

Partitioned data for education level have also shown that there is an association between males' education level and their optimism on initial investment ($p < 0.05$). The highest optimism is found for graduate level, and the lowest for Ph.D.. Similarly, females' optimism regarding marketing costs is associated with their education levels ($p < 0.01$). Optimism is the highest for women with Ph.D. and the lowest for women at the graduate level. These findings demonstrate that there is a gender effect on optimism levels, although it cannot be observed directly.

Table 4

Kruskal-Wallis Test Statistics

	Marketing research	R&D	Initial investment	Marketing	Average cost	Istanbul revenue	Bursa revenue	Izmir revenue	Average revenue
Chi-square <i>df</i>	1.602	3.506	1.753	1.414	0.466	14.905	5.794	5.562	10.317
Asymp.	4.808	4.477	4.781	4.842	4.977	4.005	4.215	4.234	4.035

Note. Grouping variable is work experience.

Conclusions

Optimism is one of the topics that attract interests of both psychology and behavioral sciences in general and behavioral finance in past years. Research concerning optimism in behavioral finance is behind the robust findings about overconfidence, which is usually associated with optimism bias. This study aims at discovering the influence of optimism on capital budgeting decisions. Results demonstrate that subjects who are finance and accounting students at various levels have an overall optimism regarding sales revenues, while they are pessimistic about costs within a project at the cash flow estimation stage. The findings do not match with two previous works of Statman and Tyebjee (1985) and Cyert et al. (1961). Both the studies found that subjects assumed and corrected optimism bias in the forecasts of two assistants.

Although a gender difference could not be found in aggregate data, there were different findings for males and females about their education levels, work experience, and their optimism levels, when the partitioned data were analyzed. Male education level had a significant effect on the level of optimism regarding initial investment. Females also have different levels of optimism for marketing costs with respect to their education levels. Finally, the work experience has an impact on optimism about revenues. Optimism level for males increases in line with their work experience, except for the group with three to five years' experience.

Results of the current study may guide new works and point out areas in which there are new opportunities for further researches.

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Intellectual Property: Access to Culture and Sustainable Competition

Ingrida Veiksa

University Turība, Riga, Latvia

This paper deals with intellectual property protection problems in the information society, when it is so easy to access unauthorised content (to pirate). Society does not care much about the damages of right owners. Internet is often considered as a “public place”, and works on Internet are considered as “displayed in public places” from which a lawful restriction of rights is permitted. It promotes unfair competition and hinders the development of sustainable business. Lawful use of protected copyright content is a tool for ensuring equal and sustainable competition level among entrepreneurs. On Internet, there are many copyright-protected works available. Many members of society wish to get an access to these works, which means that a solution should be found. For private and non-commercial use, there should be reasonable limitations. Combating piracy on Internet using enforcement tools alone does not yield results. Piracy should be placed in a frame accepted by a civilized society, and the society and authors should get the maximum benefits from it.

Keywords: copyright, information society, competition, piracy, “culture access” fee

Adequate Regulation of the Intellectual Property Rights (IRPs)—Bases for Balanced and Sustainable Cultural Development

The legal regulation of intellectual property has formed in recent time. Certainly, results of intellectual work are found in all ages, even at the earliest stages of civilization, but its legal regulation has developed much later than other fields of law (Rozenfelds, 2004).

Intellectual property and related issues are important in the development of every country and economy. Intellectual property rights may constitute a significant capital. However, from the moment when a person acquires or creates objects of intellectual property, one must be aware of the perils from those people who wish to violate these rights and use them in their favor and the possibilities against such violators (Viluma, 2005).

Why is it so necessary to grant and defend copyright? Simply because there is nothing more easy to steal, copy, duplicate, and distribute than incorporeal or intangible property, i.e., musical or literary work, computer programmes, song performances, sound or film recording, or broadcasting organizations’ signal. Authors’ works can be stolen easily. Although the work is an intellectual property of its creator, it can pass borders of states without any effort in the pocket of a thief. It does not take much effort to:

- (1) Make a copy from sound or film recording and then sell it for half price;
- (2) Record the performance of popular singers and then use it in bars or clubs for customers’ attraction;
- (3) Publicly perform a song without compensation for copyrights;

- (4) Download a software for drawing a competitive project of architecture or design;
- (5) Translate a book without the author's permission;
- (6) Sell pirated audio or video recordings;
- (7) Re-broadcast illegally intercepted television signals.

Usually, if there is no doubt regarding the necessity of prosecuting car thieves or burglars, the same conviction is not always applied towards people who infringe on copyrights.

The following methods are used in this paper:

(1) Analysis of various documents and normative acts, finding out certain modifications to the Latvian and international normative acts that should be made and administrative or legal measures that should be carried out to improve the situation;

(2) Observations in everyday work;

(3) Survey (viewpoints expressed, interviews, and personal conversations).

Undoubtedly, it is very important for an author to receive remuneration from users of his/her work. Therefore, legislation has created rights such as copyright. Moreover, copyright nowadays protects not only literary and artistic works, but also performers of work and contributors to films (film producers), broadcasts (broadcasting organizations), and phonograms (sound-recording companies). These rights are known as "neighboring rights". However, each copyright system has to find a balance between two interests: those of the copyright holders and those of the society (United Nations General Assembly, 1948).

The two fundamental principles clash in virtually every copyright conflict: the necessity to protect the financial interests of the work's creator from one side and the necessity to provide each individual with the right to access the human art and knowledge treasures from the other side.

What are the main problems of copyright development? How to keep them on the right track? How to keep a balance among groups of right holders and society? Why does the society support the illegal use of copyright works and ignore the negative consequences of piracy?

Need of a Balance Between Right Holders and Society

The main goal would be to find out the balance among rights of society to obtain the information and rights of authors to be paid for creative works done by them. This balance is requested by almost every international instrument, such as Universal Declaration of Human Rights (Article 27), International Covenant on Economic, Social, and Cultural Rights (Article 15), International Covenant on Civil and Political Rights (Article 19), European Council Convention for the Protection of Human Rights and Fundamental Freedoms (Article 10), etc..

On the Internet, there are many copyright-protected works available. Many members of society wish to get an access to these works, which means that a solution should be found. For private and non-commercial use, there should be reasonable limitations. Combating piracy in Internet with only enforcement tools is the same as combating the storm with a fisher net. It does not give results. Piracy should be placed in a frame accepted by a civilized society, and the society and authors should get the maximum benefits from it.

Online service providers often compare the Internet to a street, namely, a public place, where each member of information society (each of us) has the right to freely wander along and freely release and receive information. In this connection, a comparison with cars parked along the street comes to mind. It is definitely

not harder to open and steel them than download latest movies, music records, or computer programmes. It is likely that some cars have been left unlocked, but even those that have been locked can surely be easily decoded using the latest technological achievements. Yet, car theft is somehow considered as a crime, while theft of an author's work is not. It is a simple and daily activity carried out by everyone, and it is anything but condemnable. At the same time, this agreement in no way prohibits the members of information society (each of us) from going into any store operating legally in this street and buying any product supplied legally to this store.

The example of Germany, where the idea about the introduction of "culture flat fee" is under discussion, should not be under-evaluated. It would be a fair and wise solution, and in the end, it will be much cheaper for society, as paying (by tax) for enforcement actions is done by polices, prosecutors, and court system. The system might be similar to the license fee system for public broadcasting introduced in many countries.

If such an overall tax system would not be deemed as reasonable, then at least additional charges for usage of Internet should be imposed. This extra cost may be added to payment for providers of Internet services, and this sum, like the private copying levy, would be divided by collecting societies.

Protection of IRPs—Ensuring of Fair Competition in Entrepreneurship

Not to fight piracy means to develop a black market, it means to contribute to grey economy and undermine a fair competition in business.

Although the new copyright law (The Republic of Latvia, 2000) which changes the old "soviet rules" has been adopted in Latvia since 1993 and Latvia has rejoined the international Berne Convention for the protection of literary and artistic works since 1995, the term "copyright" is not always understood. However, the term "neighbouring rights" is hardly recognized at all. Such an ignorance on a part of property rights, although incorporeal, is not justifiable, because without protection of intellectual work and skills of creative people (writers, composers, and artists), it is impossible to establish and maintain a civilized and harmonic society, but without the legal protection, the further users of these works cannot exist, i.e., performers, producers of sound tracks and films, and radio or television organizations.

Why does it happen like this? Partly because neither in secondary nor in higher education has adequate attention been devoted to explaining principles of intellectual property, raising the awareness of one's rights, and building a general understanding of negative effects of piracy on the national economy.

The society supports rather than disapproves these illegal activities by saying that everything is so expensive anyway and "how can you not take something if it is so easy to do technically...".

Today, it is hard to imagine an area of business or state institution which would not be dependent in one way or another on different information technology resources. Moreover, today's world shows an increasing tendency to systematically connect both state administration and business to electronic information processing, transmission, and storage. This means that unhampered efficient activities of a company are significantly dependent on the stability, quality, and safety of information technology (IT) solutions used. Nowadays, international communication mainly takes place through electronic communications. General trends show that the number of network crimes committed keeps rising every year (Segliņš, 2011).

International Intellectual Property Alliance (IIPA) mentioned Latvia again in 2011 as an unsafe country in terms of protection of IPRs and recommended to include Latvia into United States Trade Representative's (USTR) 301 report watch list (IIPA, 2011). Taking into account that intellectual property is one of the core

economical instruments in the modern knowledge-based economy, the situation creates additional risks for Latvia's economy, especially in the period of financial difficulties.

Business Software Alliance (BSA), a non-governmental organization (NGO) which represents software manufacturers, conducts studies on a regular basis in order to gather information about the use of unlicensed software in different countries all over the world by regions. Latvia is included in central and Eastern Europe region consisting of 25 countries (IIPA, 2012)¹ in total.

The software piracy study of 2010 showed that the commercial value of illegal software installed on computers in Latvia totaled 15 million Latvia Lats (LVL) in 2010, which was 25% more than that of a year before (13 million LVL in 2006). The software piracy rate is reported to be 56%, which is the same as that of the last five years. This can be described as a stable figure, but in fact, this is stagnation which can hurt not only the owners of the software, but the entire economy in the country as well². The software piracy study of 2011 (BSA, 2011) showed that piracy rate in Latvia decreased to 54%, but it was still very high.

It would also be interesting to learn the piracy rate in other authors' works (music records, audiovisual pieces, photographs, books, etc.), but unfortunately, no other organization conducts such comprehensive studies.

Attitude of the Government Regarding Protection of IPRs in Latvia

True reasons of piracy are not the economy of funds, but the lack of organizational skills and mentality that accepts illegal actions itself. Therefore, the government should show a good example to the public. If the government itself is struggling with legalizing its software, it shows its attitude to the society and makes it very difficult to expect it from home users.

The government action plan (Cabinet of Ministers of Republic of Latvia, 2012) for the next three years includes only a couple of sentences regarding the protection of intellectual property. Clause 122 defines that the plan shall provide an efficient mechanism for the protection of intellectual property, including authors' rights. This sounds really nice, except that it neither explains the mechanism itself nor its introduction. The plan stipulates the necessity to draft a document "Protection of Intellectual Property Rights for 2013-2017" in order to establish fundamental principles, aims, and main directions of the policies for IPRs. Such aims include creating preconditions for development of entrepreneurship with higher added value in terms of IPRs and for educating the society. Every year, the government prepares an informative report on implementation of this plan in Latvia, but the problem remains the same and does not diminish. Apparently, it is not enough with formal documents, a real effective action from the state institutions must follow.

The protection of IPRs should be added again into the list of state priorities to drive the knowledge-based economy and fight against a black market. It is very important to have a proper focus on police forces, prosecutors, and judges on IPR cases and encourage cooperation with colleagues from other European Union (EU) and developed countries.

It is quite easy to calculate that due to piracy, the state loses more than 3 million LVL in value-added tax (VAT) alone. But there are other taxes to consider, for example, income tax which is harder to evaluate. Therefore, it is clear that the total loss to the state budget is much bigger.

¹ A list of countries in which IIPA has contributed public comments (Retrieved from <http://www.iipa.com/countryreports.html>).

² Some other countries like Russia (65%), Rumania (64%), Bulgaria (65%), Croatia (54%), Poland (54%), Slovenia (47%), Slovakia (42%), and Hungary (41%).

Despite the cooperation agreement with state revenue service regarding the tax audit initiative already for years, there is a need to revive the program. The agreement between NGOs of software producers and state revenue service has been concluded, stating that members of NGOs will preserve salaries at a certain level in their business, thus guaranteeing payment of certain amount of tax, while state revenue service will assist in controlling software licenses. The guidelines for entrepreneurs were prepared and placed into the website of the state revenue service reminding of necessity to take care of software legitimacy explaining legal, social, and other aspects.

Ministry of interior is planning to establish new advisory board for protection of IPRs.

Ministry of justice should make an effort to include the fight against piracy in the government action plan and ensure real activity of the intellectual property board.

Ministry of foreign affairs is thinking about preserving international ratings. On April 30, 2007, Latvia managed to get removed from the so-called “watch list” created by IIPA, and after that, the concern expressed by state institutions about intellectual property protection in the country practically came to an end. Unfortunately, this idleness leads to Latvia’s “falling back” and in 2011, Latvia again got back in the list at this time at a different location: “countries deserving special mention” (IIPA, 2011). Copyright division of the ministry of culture was shut down. Thus, special attention is no longer paid to intellectual property protection. This area is currently under supervision of the ministry of justice and ministry of culture, however without certain distribution of responsibility.

Activities of NGOs Regarding Protection of IPRs in Latvia

BSA³ regularly conducts mystery shopper studies aiming at grasping actual situation in relation to the offer of legal and illegal software available in Latvian computer stores. According to the latest study data, more than half of the store employees surveyed have positive attitude towards the use of illegal software, and 29% of them are ready to assist customers in obtaining illegal software (TVNET, 2011). Mystery shopper test is a method widely used in market research. During this test, previously selected people corresponding to characterization of a typical customer of the specific company visit the company, make a purchase (or uses service), and after the visit, evaluate the company according to previously established criteria.

In autumn of 2011, Mystery shopper visited 121 stores within the framework of this study looking for a computer with inexpensive software for personal use. In addition to gathering information about the offer of licensed and unlicensed software, the aim of this study was also to find out store employees’ attitude towards installation and use of illegal or unlicensed software, as well as to ascertain whether store employees understand risks of illegal software and are willing and able to warn customers about them.

Less and less Latvian companies offer installation of illegal software on computers as a service, however, a large part of people in Latvia still lack an understanding of intellectual property protection and piracy threats. Therefore, it would be necessary to improve the public understanding of the fact that supporting products developed illegally or activities conducted illegally not only impedes an effective development of the country but also specifically endangers one of the basic human rights, i.e., to enjoy scientific, cultural, and artistic achievements accumulated by society. The use of unlicensed computer programs produces not only moral but also financial effects. Therefore, it is necessary to regularly repeat the simple truth that creators of incorporeal

³ BSA, a NGO established for supporting software and computer manufacturers. BSA is the major organisation promoting safe and legal digital environment. Its headquarters are in Washington DC, but its activities cover 80 countries all over the world.

works should also receive payment for their work, and this payment should be balanced with the actual purchasing power.

Conclusions

In order to improve the fair competition and the development of sustainable business, the following should be required:

(1) Society does not much care about the damages of right owners due to absence of a study subject on protection of IPRs in study programmes. Intellectual property and protection of IPRs should be an integral part of curricula starting from elementary school and going all the way through university, so that children and young people would have an understanding of the necessity to protect intellectual (incorporeal) property from an early age and would treat the intellectual property exactly as corporeal property;

(2) Tightening liability of online service providers for violations tolerated online in case of infringement of authors' rights and related rights on the specific website, as well as actually applying adopted legal provisions both during pre-trial investigation proceedings and trial proceedings;

(3) Lawful use of copyright protected content is a tool for ensuring equal and sustainable competition level among entrepreneurs. For development of fair completion, the intellectual property protection should be placed under supervision of the ministry of justice by establishing a separate division and ending distribution of responsibility among different ministries. Until now, this area is supervised by the ministry of justice, ministry of culture, and ministry of economics, and they do not have common views and a clear vision on abovementioned matter;

(4) Promoting training of law enforcement officers (police, prosecutors, and judges) in issues of intellectual property protection;

(5) Making amendments to the copyright law of Latvia, so that an author would have a real (instead of only theoretical) possibility to receive compensation for infringement of his/her rights;

(6) Providing state institutions involved in the protection of IPRs with modern material and technical resources and supporting and sustaining capabilities of the state police division in charge of such matters as cybercrime and protection of IPRs;

(7) Starting a discussion about the introduction of "culture flat fee", which would be the enlarged "private copy levy". The system might be similar to the license fee system for public broadcasting introduced in many countries. If such an overall tax system would not be deemed as reasonable, then at least additional charges for usage of Internet should be imposed. This extra cost may be added to payment for providers of Internet services, and this sum, like the private copying levy, would be divided by collecting societies.

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