

The Interorganizational Challenge of Agricultural Reform in Bosnia and Herzegovina

Eric Martin , Brian Fahey *

Abstract:

The case study reported below examines USAID's "Linking Agricultural Markets with Producers" program. This program complemented Bosnia and Herzegovina's overall sustainable agriculture policies. Implementing organizations quickly recognized that sustainability must be achieved not only from an environmental perspective, but in the interorganizational domain as well. Public, private and nonprofit players had to develop the social, economic and political infrastructure required for sustainable agricultural projects to succeed. These institutional changes were at times more difficult than the sustainable agriculture policies and practices they supported. Framed within LAMP's identification of constraints and proposed solutions for agricultural reform, we explored the interorganizational linkages required for success. We identified three distinct types: 1) those within the international community, 2) those within the local community and 3) those between international and local organizations. The case illustrates the institutional and managerial obstacles to and opportunities for implementing sustainable development reforms in transition settings.

Keywords:

JEL:

DOI:

1. Introduction

The Linking Agricultural Markets with Producers (LAMP) project served as one component of the United States Agency for International Development's (USAID) comprehensive strategy for sustainable economic development in Bosnia and Herzegovina (BiH) in early 2000. LAMP business consultants were charged to work with local agricultural producers, distributors and retailers to develop stronger market linkages throughout the value chain to enhance the maturation and sustainability of the sector.

According to USAID's Sustainable Agriculture Policy, its programs target efforts that are "ecologically sound, economically viable and socially responsible."¹ Such efforts require sound environmental and natural resource management, but, according to the policy statement, only succeed when coupled with sound economic policy

and good governance. Efforts to implement sustainable agricultural best practices in BiH required action far beyond the relatively simple transfer of knowledge and provision of resources.

Development organization representatives and their contractors often served as brokers that maintained, fostered and built relationships throughout the sector to enhance the promise of sustainability in terms of both land use and business development. Three distinct linkage types influenced the successful implementation of their work.

Eric Martin

Eastern Connecticut State University
Department of Business Administration
83 Windham Street, Willimantic, CT 06226
860 465-0245 / MartinE@EasternCT.edu

¹ http://www.usaid.gov/our_work/agriculture/sustainable_ag.htm

- Interorganizational relationships (IORs) existed between *international* and *local* players. This relationship between international development assistance organizations and their local counterparts often received the most attention in literature specifically targeting the *transfer* of assistance from international to host country players.
- IORs existed between USAID, their contractors and other bi- and multi-lateral players, such as the World Bank, the International Monetary Fund, a myriad of NGOs, and the Office of the High Representative (OHR; the UN protectorate government in Bosnia and Herzegovina). These relationships required a different set of competencies and took a different 'tone' than those between international and host as they required a more political, competitive, and occasionally hostile give and take. It was often unclear who the lead agency indeed was, or whose approach would be most effective. As such, the negotiation of social order proved more visible than that between international and local – where the power balance was more obvious.
- IORs existed among local private, nonprofit and governmental organizations (ministries and agencies) at the federal, entity, canton and municipal levels² within the agricultural sector, and beyond (banking, regulatory, transport, etc). These relationships were typically beyond the control of development assistance organizations, though represented the ultimate goal of such development assistance. Strong, functional, cross-sectoral local relationships were required for sustainability in the agricultural sector.

While USAID contracted agencies to transfer funds, resources and expertise through the first IOR vehicle, from international to local, contractors found the success of their programs hinged upon successful relationships across all three types, though performance measurements and indicators of success typically only stressed the first – the actual flow of assistance dollars and technical knowledge. The auxiliary activities that supported such flows were rarely measured.

Employing an overtly interorganizational perspective might help donors and contractors (principals and agents) better understand the auxiliary actions required for programmatic success – in terms of *means and processes*, not just end results and tangible deliverables. If strong, international and cross-sectoral relationships are required for sustainability, and IOR perspective seems

appropriate to measure performance. Such a perspective might improve contracts and agency problems between USAID and its contractors. And this IOR approach can address some classic development questions about local ownership, dependency, conditionality and patronage in a more pragmatic fashion.

2. Research goals and objectives

Below, we describe the LAMP case in Bosnia and Herzegovina, considered by all respondents as a fairly typical, non-controversial³ USAID sustainable agriculture project in a transition setting, with a focus not only on the technical agricultural best practices, but the institutional environment required for success as well. First we provide an overview of the methods used. We then frame the paper with a review of the management literature on both development assistance and IORs more broadly, addressing the various levels critical to IOR analysis.

The LAMP project team identified five needs in the agricultural sector and designed a four-pronged plan to address those needs. We examine the interorganizational dynamics of both 1) the constraints to success and 2) the proposed solutions. By doing this, we exposed three qualitatively distinct types of IORs: Between international and local players, among international players and among local players. We then discuss the implications for program success at various levels, across the three different types of partnerships, identifying opportunities and obstacles for change in each of the three IOR types. We conclude with thoughts regarding the role of IORs in development settings.

3. Methods and materials

The work is based on interviews with development professionals working for and with LAMP and other players in the agricultural sector, as well as site visits to agricultural businesses and LAMP clients throughout Bosnia and Herzegovina. Interviews took place in Mostar, Sarajevo, and rural communities throughout BiH, in 2005. The analysis reported here (a subset of a larger research agenda⁴) relies specifically on 17 interviews with

² The Dayton Peace Accords compromises resulted in one (rather weak) national government, two entity level government, the Republika Srpska and the (Muslim-Croat) Federation. The Federation entity was further divided into cantons.

³ We mention this as many programs in BiH are significantly hampered by difficult ethnic tensions. Apparently, this is not one of them.

⁴ These data were additionally informed by over 150 interviews with development professionals in the field, secured through annual field visits to Bosnia and Herzegovina since 1999 that help frame the authors thinking in terms of Bosnia and Herzegovina's overall development objectives. These interviews provided insight into the broader context within which LAMP activities take place. In addition, the second author directed the LAMP project after over a decade of international development experience and helped write the project's work plan from which the project description in this manuscript draws heavily.

representatives of LAMP, as well as LAMP partner and client organizations. Interviews typically lasted 1-2 hours. Several key individuals were interviewed multiple times.

The long interview format was used (Lofland and Lofland 1995; McCracken 1988; Spradley 1979; Strauss and Corbin 1990). Interviews began with personal backgrounds, overviews of organizational activities and 'grand tour' questions such as, 'Can you tell me about the political landscape in agricultural?' More specific questions followed, as did some crosschecking based on information from previous interviews, such as 'I understand there could be a conflict between your approach and others, how should I view that?'

Official documents were obtained directly from organizations via e-mail or websites. Meeting agendas and minutes, project proposals, and reports were collected during field research. Some respondents provided us with unofficial reports, internal white papers and e-mail exchanges between key players. We also attended agriculture-related conferences and meetings as both participant and observer.

Interviews, observations (recorded through journaling and notes from conferences and meetings) and documents were coded to enhance subsequent interviews and shape new lines of questioning (Lofland and Lofland, 1995; Strauss and Corbin, 1990). Those codes, over several iterations, formed the basis of the framework used to present this paper. Codes revolved around several key concepts including; 1) constraints to success, 2) proposed solutions, 3) levels of analysis, 4) type of interorganizational relationship and 5) various classic development concerns or dilemmas.

4. Literature review

We employed two primary streams of literature. The first targeted development assistance. The second addressed interorganizational relationships. Together, they framed our analysis of the constraints to change LAMP encountered.

We suggest the interorganizational perspective effectively captures the essence of development assistance because of its "meso" level – its position between the high-level political, diplomatic and policy-related dialogues and the more action oriented ground-level results orientated contractors and implementing partners. Development professionals in Bosnia and Herzegovina and throughout the Balkans repeatedly suggested that it was this meso or interorganizational level that constantly surfaced as the primary determining factor regarding the success or failure of reform efforts.

Development Assistance

Development scholars have grappled with the often paradoxical role of the international community in reform and development (Black, 1999; Leeson and Minogue, 1988; Mosse, Farrington and Rew, 1998; Tisch and Wallace, 1994). Dependency theory highlighted the negative influence of the global system on underdeveloped nations (Randall and Theobald, 1998), while modernization theory targeted host country patronage systems, inability and lack of incentives (Todaro, 1994). No single paradigm dominates the field (Sklar, 1987, 1995; Brinkerhoff, 2004). Brinkerhoff and Goldsmith (2004) suggested development is an attitude as opposed to any specific model. Different perceptions of development assistance by different actors in the process influence reform, as practitioners debate the use of various intervention methods, the role of local players, the sequencing of reforms, the use of conditionalities attached to loans, and the ways to promote conditions that would enable reforms to flourish.

In Bosnia and Herzegovina, the international community, primarily through the Office of the High Representative (OHR), the UN quasi protectorate government, imposed reforms and removed obstructionist, though elected, local officials. These actions stripped power from controlling elites who were expected to be active partners in implementing the changes, creating tensions between developers and obstructionists. However, the international community could not succeed in any reforms without local support.

Although development scholars largely abandoned dependency theory in the 1980s (Randall and Theobald, 1998; Sklar, 1995), its logic proved intriguing with respect to development assistance in Bosnia and Herzegovina, and especially the OHR, that might perpetuate ground-level dependency by creating a "moral hazard problem adversely affecting the aid recipients' incentives to undertake structural reform" (Svensson, 1997: 2).

In addition to the paradox inherent in a dependency or modernization approach or perspective, the flow from policy to implementation over time in development work takes place at many levels – both within the international community, within the local host community and between internationals and hosts. Scholars and practitioners have employed public administration, management and organizational research to analyze, understand and improve the transfer of resources and technologies from donor to recipient (Aubrey, 1997; Black, 1999; Brinkerhoff, 1996; Evans, 1996a; 1996b; Griffin, 2000; Hardy and Phillips, 1998; Kiggundu, 1996; Mosse, Farrington and Rew, 1998; Ostrom, 1996; Riggs, 1960; Rondinelli, 1987, 1994; Westley and Vrendenburg, 1997).

Scholars have discussed the value of coordinating policies and activities within the international community (Black, 1999), incorporating strategic management perspectives to capture “the big picture” of development (Goldsmith, 1996). Others have profiled developing country organizations and their environment, reconceptualizing development as a complex set of IORs to interpret policy outputs and implementation, (Aubrey, 1997; Kiggundo, 1996; Njoh, 1993).

Development scholars have also addressed interdependencies between tasks and players, both local and international, through cases studies. Boyce (1995) exposed the relationship between political stabilization and macroeconomic reform in El Salvador. Haughton (1998) stressed that to reconstruct Congo’s war-torn economy, political, social and economic issues had to be addressed simultaneously. Evans (1996a, 1996b) and Ostrom (1996) discussed synergy in development and the importance of convergence between different strains of activity.

Some work specifically examines Bosnia and Herzegovina with the same interorganizational lens. Hasic (2006) exposed the complexity of the international community, stressing the conflict and lack of coordination that existed despite the interrelatedness of tasks and organizational mandates. Martin and Miller (2003) targeted interorganizational cooperation within the NGO community and Martin (2004) addressed the same in the area of privatization in BiH. Pech (2000) and Shuey (2003) examined the media sector. All of these studies referred to the complex interorganizational arrangements required in Bosnia and Herzegovina in the years after the war, where post-conflict activities, reconstruction, economic and political transition programs, and general development activities were all taking place simultaneously.

The development research discussed above implicitly suggests that three distinct types of IORs exist in

development settings and different opportunities and obstacles to success can be found in each. IORs exist between international organizations and local players, with the power balance and flow of information, funds, and resources putting the internationals in the dominant position. IORs also exist between public, private and nonprofit sector international organizations (i.e. the International Community). And finally, IORs exist among local, in this case BiH, organizations. These organizations must ultimately cooperate, coordinate and collaborate for any international efforts to take hold over time. Figure 1 tries to convey the myriad relationships that existed in this setting, each dominated by different issues, yet nearly all players worked with nearly all the other types of organization.

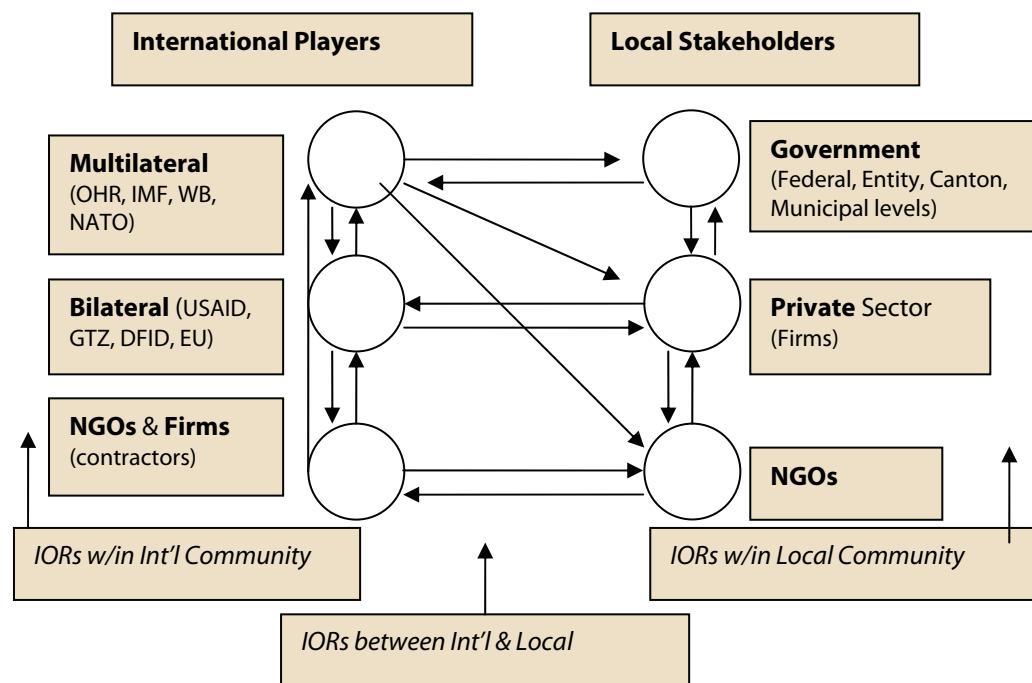


Figure 1: IOR TYPES

Below we target these IORs as the fundamental vehicle through which international development assistance takes place. This perspective proves helpful theoretically as it spans the micro-macro spectrum of organizational and managerial literature. We believe this literature can help inform development studies about the process of development. However, we also believe development studies have much to contribute to IOR literature in terms of understanding the flow of resources in situations of asymmetry across multiple levels, sectors and dimensions.

Interorganizational Relationships

IORs emerge as strategic responses to a variety of factors. Several of these key concerns are addressed below, according to the various levels of analysis where they are likely to emerge, as identified by Hannan and Freeman (1977) and effectively used by Fombrun (1986) to address structural dynamics within and between organizations.

Environmental level. Organizational environmental conditions can be categorized as (1) placid and random, (2) placid and cluttered, (3) disturbed and random, or (4) turbulent (Emery and Trist, 1965; Terreberry, 1968). Actual physical or geographic proximity also have emerged as key variables (Gray, 1985; Schermerhorn, 1975). Benson (1975) extended this line of thinking by conceptualizing interorganizational relationships as political economy. Six aspects of the environment potentially influence whether an IOR might emerge, including resource concentration or dispersion, power concentration or dispersion, network autonomy or dependence, environmental dominance patterns, resource abundance or scarcity, and control mechanisms (Barr, 1998; Clark, 1965; Dickson and Weaver, 1997; Evans and Klemm, 1980; Human and Provan, 2000; Kochan, 1975; Kraatz, 1998; Lammers, 1988; Levine and White, 1961; Meyer, 1982; Provan and Milward, 1995; Ruef and Scott, 1998; Westphal, Gulati and Shortell, 1997).

Population and community levels. The extent of domain consensus (Schermerhorn, 1975), predispositions to cooperate (McCaffrey, Faerman and Hart, 1995) and legitimacy of the industry locally and in its organizational field (Human and Provan, 2000) prove critical to IORs. Research targeting the influence of prior alliances on repeated ties are important (Gulati, 1995a,b; Gulati and Gargiulo, 1999; Parkhe, 1993). Empirical studies of the pre-existing structural dynamics regarding both strong and weak organizational ties (Granovetter, 1973), network position (Rice and Aydin, 1991), organizational similarities (Larsson and Finkelstein, 1999), fit (Molnar, 1978), shifts in bargaining power (Inkpen and Beamish, 1997), and integration, control and stability (Provan and Milward, 1995), within the organizational domain, community or population, allow greater understanding of the changes that a domain might experience as alliances develop.

Organizational level. Organizational goals and norms provide opportunities or obstacles to interorganizational linkages (Schermerhorn, 1975). Boundary permeability reflects the extent to which organizations encourage, prevent or limit external ties. Organizational complexity, formalization, centralization, size and structure prove important potential indicators of IORs (Burns and Wholey, 1993). Firms involved in complex tasks may seek assistance from specialized partners (Powell, Koput and

Smith-Doerr, 1996). Multi-divisional organizations or firms may find it easier to form IORs by delegating authority to departments or divisions that might have experiences with interdepartmental ties (Ghoshal and Bartlett, 1990). Additional organizational variables include strategic flexibility (Young-Ybarra and Wiersama, 1999), differences across organizational levels (Klongan et al., 1976; Turk, 1970), absorptive capacity (Koza and Lewin, 1999; Shenker and Li, 1999), and levels of or capacity for trust (Zaheer, McEvily and Perrone, 1998). Some organizations may or may not have the capabilities, staff, resources or inclination to enter into alliances (Miner, Amburgey and Stearns, 1990; Weber, 1995). Such intra-organizational analysis might be useful to determine some of the potentially enabling characteristics long before IOR formation.

Group and individual levels. Individuals initiate IOR development based upon perceptions of organizational resource scarcity, value expectancy, and coercive pressure (Schermerhorn, 1975). These individuals carry with them various predispositions that indicate the extent to which participants look favorably on cooperative ventures as a feasible strategy at all (McCaffrey, Faerman and Hart, 1995), irrespective of specific needs. Also, much information often is already known about potential partners. In order to enter into an IOR, or realize personal or organizational needs for establishing an IOR, individual participants must be aware of the activities of other organizations, to know with whom to potentially partner (Van de Ven, 1976). This information is gained, in part, through individual level ties, both strong and weak (Granovetter, 1973), individual perceptions and knowledge (Dickson and Weaver, 1997) and individual roles (Ibarra, 1993a, 1993b). Social network analyses (Carrol and Teo, 1996; Gulati and Westphal, 1999; Ibarra, 1993a,b; Tichy, Tushman and Fombrun, 1979) and Putnam's (2000) work on social capital revealed the importance of personal ties. Perceptions of trust, reputation and legitimacy of other individuals and other potential partner organizations (Larson, 1992; Ostrom, 1998) can be established long before organizations enter into alliances.

5. Constraints to agriculture reform⁵

The Agriculture Cluster in Bosnia and Herzegovina

Michael Porter's (2002) notion of cluster competitiveness helped provide an overview to the

⁵ This section relies on the LAMP Work Plan, revised December 2003; Rural and Agricultural Incomes with a Sustainable Environment (RAISE) written by the second author for Associates for Rural Development, Burlington, Vermont.

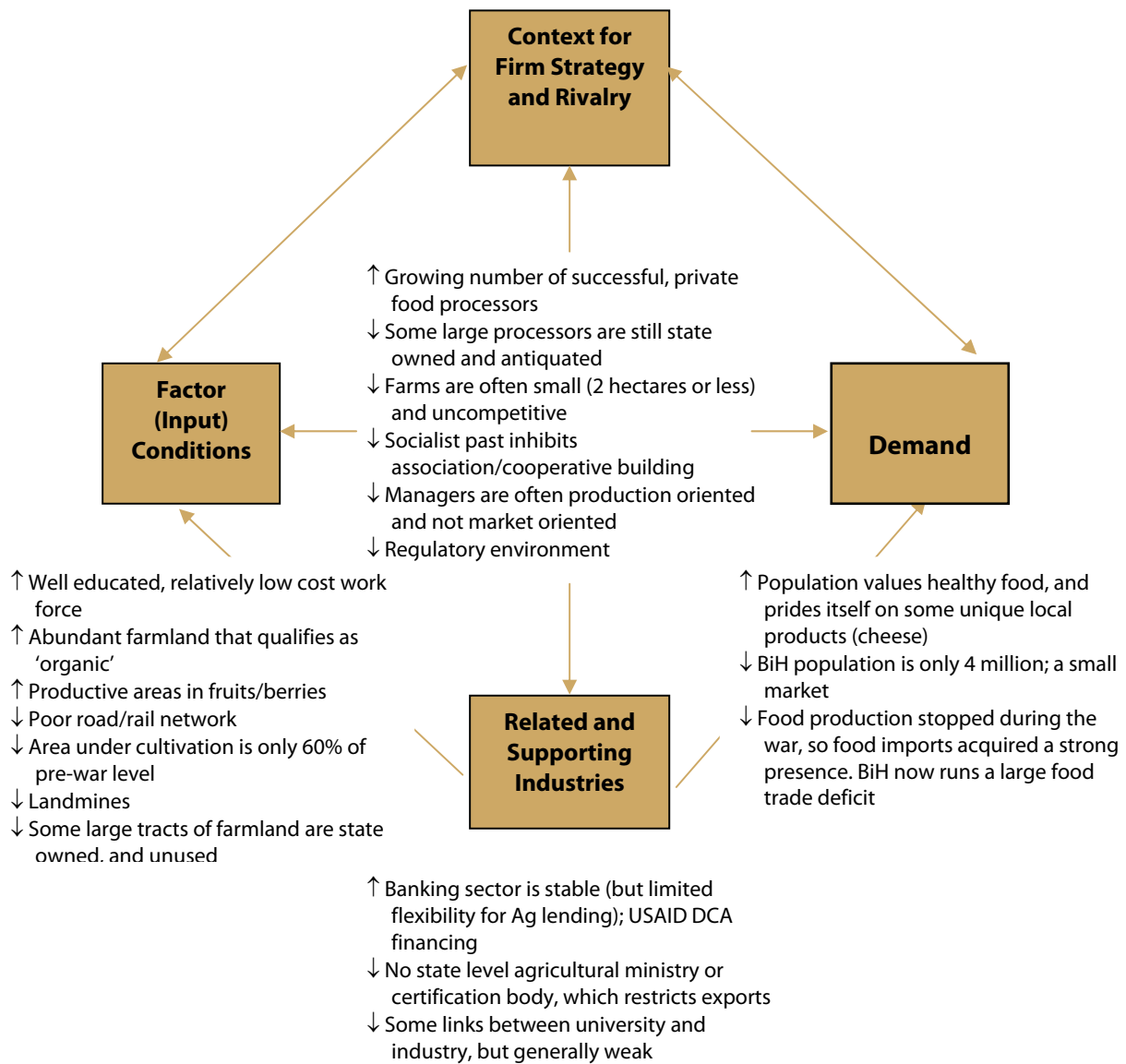


Figure 2 demonstrates that the economic environment for the BiH agriculture sector faces significant obstacles, which impede its ability to compete.

agricultural sector (see Figure 2). Clusters improve competitiveness by enhancing efficiency through competition, increasing innovation and stimulating new business formation that serves to expand the cluster. The BiH agricultural cluster had tremendous potential, but elements of the cluster stifled growth. Although the international community influenced and assisted agricultural reforms, change ultimately relied upon locals. However, action had to take place at multiple levels simultaneously to enact change. As Porter (2002) suggested, "Wealth is actually created in the microeconomic level of the economy, rooted in the sophistication of company strategies and operating practices as well as in the quality of the microeconomic business environment in which a nation's firms compete. Unless there is appropriate improvement at the

microeconomic level, macroeconomic, political, legal, and social reforms will not bear full fruit." The key to enhancing cluster competitiveness is to identify the change makers, and bring them to the table so they can create synergies and overcome the following constraints at multiple levels from policy to implementation.

Below, we first address the constraints to growth and change in the agriculture sector, followed by LAMP's programmatic components designed to address those constraints.

Constraint #1: The Institutional Environment: The Dayton Peace Accords left in place a complex institutional environment based on difficult compromises that were necessary to reach agreement, but no longer effectively serve the country. Major questions existed in areas where legislation was non-existent, inadequate or controversial

since responsibilities overlap multiple agencies. For example, unclear and uneven enforcement of land management laws made it difficult for local producers to use potentially productive farm land. Banking laws prohibited cooperatives from making loans. And micro-credit organizations could make loans, but could not raise operating capital from the savings. Furthermore, they were limited by law to loans of three years or less; inappropriate for the agricultural sector. Additionally, BiH lacked a State Ministry of Agriculture. And the entity level Ministries of Agriculture were overextended with political and administrative problems. Their ineffectiveness left donors and potential investors fearful of an environment marked by confusing and inconsistent legislation at various levels of government, a lack of transparency, corruption, porous borders and a large shadow economy.

Constraint #2: Market Linkages: According to LAMP research, processors faced shortages of domestic products to process, while domestic farmers indicated that they were unable to locate markets for their products. This apparent paradox reflected the immaturity of the sector, the dearth of market information, the influence of imported products and the overall lack of organization in the sector. A key concern was that processors preferred large quantities and thus had trouble working with the many small producers. And those producers did not organize themselves well enough to consistently provide large quantities collectively.

Constraint #3: Inefficient Production: Agricultural production in BiH was below potential and yields were estimated at approximately half of western European levels. Land and labor productivity has not returned to pre-war levels. Less than optimal machinery utilization, low input use, and unimproved seed varieties further reduced efficiency within the producer sector. Imported inputs were also expensive. These factors translated into higher production costs than in other countries.

From the farm gate, high per unit costs derived from the need to aggregate small quantities, inadequate handling facilities leading to high spoilage or losses and processing companies utilizing only low levels of installed capacity. Other high operating costs and margins or taxes further reduce agricultural competitiveness. Management systems are poor and producer groups (associations, cooperatives and partnerships) are limited in size and scope. Poor and outdated seed varieties, technical packages inappropriate for small-scale producers, and outdated farming methods and machinery all hampered the sector.

Constraint #4: Land Ownership: Small, fragmented farms dominated BiH agriculture. Approximately 90 percent of the agricultural land in BiH was owned by individual farmers in multiple plots totaling 2-5 hectares.

For many crops, these small farms contributed to low productivity and limited the ability of the farmer to adopt modern management systems. Pre-war efforts at land consolidation to reduce land fragmentation and the provision of support for farm cooperatives had limited impact. Land sales were also subject to a 6 percent sales tax, leading to inheritance (with no sales tax to immediate relatives) rather than sales to transfer ownership. Over generations, this resulted in land fragmentation as land was divided among beneficiaries. Furthermore, farm land was often not registered in the current owner's name. This was not a concern under the Yugoslav economy, where bank credit to small farmers was often not dependent on land collateral, as is the requirement by most banks today. Additionally, re-registering land was a lengthy, bureaucratic process. There were also legal fees involved in re-registration, which was an impediment for poor farmers to promptly re-register their land. Another problem with land ownership was leasing. Some of the most productive and larger tracks of land were state owned. The regulations to lease land were sometimes unclear or politically influenced. There were cases where state owned farm land had been leased to political friends for periods of 20 years at prices significantly lower than market value. Finally, pre-war urban migration and the more widespread war-induced migration, land mines and uneven resettlement resulted in high levels of unused agricultural land. Some leasing and land sales transactions occurred. However, in general the market for land did not function very well and land was not widely accepted as collateral for loans.

Constraint #5: Rural Credit: Demand for rural credit exceeded supply. Resources remained limited as the micro financing organizations had not effectively tapped into domestic credit sources. Commercial banks were typically unwilling to provide agricultural producer credit. High interest rates and poor terms constrained most potential borrowers, though over time, rates fell and longer-term loans became available. High collateral requirements remained a problem. The government was considering an interest rate subsidization program for agricultural loans although budget and other constraints may prevent this from being implemented. Since 1999, several foreign banks opened branches in FBH and became dominant in the markets for deposits and consumer loans. In the RS, development of the private banking sector proceeded more slowly. Several FBH banks were liquid but the number of viable commercial loan applications being received was limited.

The five constraints are summarized in Table 1.

	Institutional Environment	Market Linkages	Inefficient Production	Land Ownership	Rural Credit
Environmental Level	<ul style="list-style-type: none"> - Dayton Peace Accords - Land / Owner Laws - Credit / Lend Laws - Government Transparency 			<ul style="list-style-type: none"> - Dayton Peace Accords - Land / Owner Laws - Leasing Laws - Land Registration - Urban Migration 	<ul style="list-style-type: none"> - Credit / Lend Laws
Population & Community Level		<ul style="list-style-type: none"> - Market Data - Small Producers Undesirable - Ineffective Cooperatives 	<ul style="list-style-type: none"> - General Land and Labor Productivity - Operating Costs - Inadequate Handling Facilities - Processing Firms not at Capacity - Limited Producer Groups 	<ul style="list-style-type: none"> - Poorly Developed Real Estate Market 	<ul style="list-style-type: none"> - Very High Interest Rates - Poor Terms - High Collateral Requirements - Short Terms
Organizational Level			<ul style="list-style-type: none"> - Minimal Mechanization - Poor Management Systems - Outdated Seed Varieties 		<ul style="list-style-type: none"> Willingness to risk, - Lack of Collateral
Group & Individual Level		<ul style="list-style-type: none"> - Time pressures - Transportation & Communication 	<ul style="list-style-type: none"> - Lack of Management Skills - Lack of Technical skills 	<ul style="list-style-type: none"> - Difficulty navigating bureaucracy - Frustration 	<ul style="list-style-type: none"> - Risk aversion, - Lack of Collateral

Table 1: Constraints

6. LAMP project model⁶

LAMP's goal was to increase the rate of economic growth in Bosnia and Herzegovina through expanded, environmentally sustainable production and sales of value-added agricultural products. By strengthening linkages among producers, processors and their markets, the project enabled agribusiness enterprises to locate and meet domestic and export market demand.

The development and/or strengthening of market linkages among producers, traders, processors and wholesale or retail enterprises was achieved through support and assistance of various kinds at several levels. SMEs, including cooperatives and associations, were provided technical assistance and small grants to enable them to serve as the aggregators and producer counterparts to traders, processors and wholesale/retail personnel. Processing, wholesale, retail and exporting

enterprises were assisted in establishing better information systems and methods of connecting to producer/suppliers and final markets. Many elements of the marketing chain gained better access to credit sources and supplies of credit were increased. And supportive policy and regulatory changes were developed. The LAMP project's four key components are discussed in more depth below.

Component #1 - Market Chain Development: A key constraint was the lack of sales and marketing skills, limited customer or market orientations and a lack of management skills among both producers and processors. Many market chain participants found it difficult to connect to local and regional markets. While the inability to conduct sales within the regional markets was partly due to the lack of functioning state-level certification bodies, it was also due to the limited skills in identifying and penetrating markets and completing transactions. LAMP worked to train, advise and consult with farmers and food processors to address these needs.

Small economies of scale due to small farm size also lead to higher costs and lower profits. And the poor perception of agriculture as an engine of growth limited potential investment. LAMP addressed this by making local agricultural companies more profitable, and actively

⁶ LAMP was a three-year USAID funded project awarded to Associates in Rural Development (ARD) in 2003 as part of a RAISE IQC (PCE-I-00-99-00001-00, order no. 822), for \$22.6 million. ARD subcontracted with Land O'Lakes and other subcontractors.

promoting their successes to reverse the sector's poor reputation. As BiH consumers saw agriculture as a more profitable activity and more frequently purchased high quality domestic food, it might generate interest in the sector. The small size of firms in BiH was addressed through the formation of partnerships, associations and cooperatives designed to enhance buying or selling power. Association meetings were a great avenue to introduce buyers and sellers. LAMP also linked buyers and sellers by inviting expert speakers on critical topics, disseminating more and better market information, including prices, volumes, quality, location, contacts, etc. Additional linkages included an agricultural business directory, web site(s), and trainings for associations to do such activities themselves.

Finally, most nations in the region established state-level institutions that regulated and monitored food quality, plant health and veterinary standards. Often these standards were in accordance with EU requirements, thus enabling producers and food processors to export to the EU. However, in Bosnia and Herzegovina there was a lack of these necessary institutions at the state-level, thus resulting in the exclusion of many BiH food items for export to the EU. LAMP worked with relevant BiH government institutions to build the capacity to become a respected exporter of products meeting regional or EU standards.

Component #2 - Strengthening Market Integrators: Market Integrators (MI's) provided inputs and/or services within the agricultural value chain and fall into two groups. The first included dealers, transportation providers, storage providers, consulting firms, marketing outlets and buying agents. The second included organizations that combined small producers around a common interest or need, such as producer associations and cooperatives. Many such associations and cooperatives were active in the socialist economy, although they were largely dependent on the state for funding and direction, and not accountable to the member companies or producers. In recent years independent, member-driven associations and cooperatives emerged, but they were challenged to be sustainable. Often they lacked expertise in strategic management, marketing and finance, therefore limiting their effectiveness.

Many opportunities existed to provide technical assistance to increase and improve product standardization and quality, increase the available domestic raw material base, reduce imports and create jobs. Interventions included trainings, technical assistance, assisting in the strengthening and creation of producer associations and cooperatives, facilitating the establishment of long term relationships between MIs and producer organizations. LAMP did face challenges in

these activities, such as finding MI's eligible for interventions, developing local staff and consulting capacity that could provide training and technical assistance in the future, addressing policy issues that were impediments to agricultural development, developing eligibility criteria for small grants to producer organizations, and encouraging banks and MFI's to work with LAMP clients who apply for loans.

Component #3 - Access to Credit: Individual family farmers were consistently blocked in their access to credit from commercial banks because they were not registered businesses, and typically did not have historical records of sales, expenses and productivity. On the other hand cooperatives, market integrators and food processors that may have had access to loans from commercial banks, usually could not take on loans with such high interest rates under short terms.

A fundamental restraint on the availability of credit was a lack of experience and expertise in agricultural lending throughout the BiH financial system. It appeared that some MFI's and banks had not developed models for assessing or managing this form of risk. In turn, they did not have staff trained to lend to agricultural producers, groups of producers, cooperatives, market integrators or food processors. Through one-on-one assistance, provided by LAMP credit specialists, banks and MFI's became better acquainted with due diligence for agricultural lending. LAMP worked primarily with four micro-finance institutions (MFI's) and three commercial banks to improve access to credit. Pre-screened MFI's were eligible for grants that help alleviate liquidity pressures – a major constraint. In cooperation with the USAID/FSBAT Project, businesses were encouraged to work with institutions participating in the Development Credit Authority (DCA) mechanism administered by FSBAT. Essentially, this was a fund that guaranteed up to \$31 million by providing a 50% guarantee to the bank in the event of a loan default. Screening guidelines were created to select business loan projects with good potential for success. These activities were facilitated using a highly-trained staff of Finance Specialists hired from the recently concluded USAID Business Finance Project.

Component #4 - Policy and Regulatory Development: The policy component may have been the most challenging aspect of the LAMP project, but success in this component had the potential to produce the most dramatic results. The issues that negatively impacted the agricultural sector were generally well known and documented by local officials. Yet, despite clear analyses and recommendations, the pace of agricultural policy reform remained slow. Certainly the continually shifting political landscape in Bosnia and Herzegovina contributed to the slow pace.

	Market Chain Development	Strengthening Market Integrators	Access to Credit	Policy and Regulatory Development
Environmental Level				
Population & Community Level	<ul style="list-style-type: none"> - Associations and Cooperatives, to reach economies of scale - member lists, contact numbers - Business directory, websites 	<ul style="list-style-type: none"> - Linking dealers, transportation providers, storage providers, consulting firms, marketing outlets and buying agents 		<ul style="list-style-type: none"> - Become acquainted with donors, learn the issues, work with government officials, and private sector - advocate for local regional cooperative policies - lobby, work with associations
Organizational Level	<ul style="list-style-type: none"> - Provide Market information, data, prices, volume, quality, location, etc. 		<ul style="list-style-type: none"> - Registering businesses - importance of historical record of sales, expenses, productivity, taxes, 	
Group & Individual Level	<ul style="list-style-type: none"> - Improving Sales and Marketing Skills - Train, Advise, Consult with Local farmers and food processors - Expert Speakers, field trips, to link individual players - EU Food Policy regulations (learn, adapt) 	<ul style="list-style-type: none"> - Training in Strategic Management, Marketing and Finance - Developing local consulting capacity 	<ul style="list-style-type: none"> - Training lending agent staff to work with farmers and agricultural players - Provide consulting and workshops for agricultural due diligence 	<ul style="list-style-type: none"> - Identify specific individual Change Agents - workshops for players on lobbying, influencing policy

Table 2: Components

LAMP's policy involvement followed two broad interrelated phases. In the first phase LAMP established itself as an active participant in the agricultural sector by becoming well acquainted with other donors, government officials and private sector forces who seek to influence agricultural policy. USAID and LAMP identified strategic policy reforms that offer the best opportunity for success and positive impact on the agricultural sector. LAMP also identified individuals who were, or had the capacity to be, change agents capable of mobilizing people and resources. The second phase saw LAMP transition to catalyst and supporter of local participatory efforts.

To truly serve as a forum to build consensus and push the agricultural agenda, local participatory efforts had to include key local stakeholders such as the Agricultural Institutes, the private sector, the Regional Development Agencies, local governments, and the agricultural associations, that could all contribute to the development of the policy environment at the local, entity and national levels. These efforts led to the establishment of formal and informal associations, which LAMP trained and supported in their efforts to lobby government. LAMP's activities in this arena were sometimes challenged by the various political machines. By continually pushing forward the agricultural agenda, and by using resources

judiciously, LAMP seemed to have a positive impact on the legislative and regulatory environment.

Table 2 summarizes LAMP's project components designed to overcome the constraints identified.

7. Results and discussion

While LAMP's contract placed it in a position of implementer, the success of LAMP's initiatives required attention and action from myriad stakeholders. Thus perhaps LAMP's role was more akin to a facilitator – a bridging organization designed to match stakeholders and create the scaffolding necessary for development to take place.

By interpreting LAMP's actions as complex sets of interorganizational relationships, we reframed theoretically their fundamental *raison d'être*. We found ourselves reminded of Porter's cluster concept. The relationships discussed below fit nicely into the overall conception of the agricultural cluster. No single local or international organization could reform agriculture. Many organizations played various roles in this process. However, aid organizations may be particularly well placed to create the interorganizational scaffolding, within which success might be achieved, through conferences, meetings, task forces, study trips, consulting, etc. The LAMP program name actually implied as much,

	Institutional Environment	Market Linkages	Inefficient Production	Land Ownership	Rural Credit
Market Chain Development		X			
Strengthening Market Integrators		X	X		
Access to Credit					X
Policy & Regulatory Environment	X			X	

Table 3: Constraints and solutions

overtly; “*linking* agricultural markets with producers.” Below we discuss the constraints and proposed solutions across the three IOR types, summarized in Table 3.

1. Within the International Community

Many donors provided assistance to the agricultural sector, some providing relief commodities at an earlier stage (IFAD, EU, World Bank, the Netherlands) followed by more development-oriented activities. Others were more recently involved in only development issues. The most significant programs were funded by the USAID, World Bank, IFAD, EU and GTZ. The Dutch, Swiss, Swedes, Norwegians and Japanese also provided assistance. For the most part development professionals sought coordinated approaches to insure effective project results. However, relationships within the international community tended to be fraught with personal, international, political and professional barriers that inhibited coordination.

LAMP coordinated and participated in numerous coordination meetings held throughout the country to insure their work complemented and supported those identified above. The task of coordination was limited to some extent by political and legislative mandates and oversight from home country constituents. However, agricultural issues tended to be rather benign in this respect. More often, professionals reported logistical concerns and timing pressures as greater impediments to coordination. Development professionals are tightly bound to their statements of work and often contracts with donors provide minimal flexibility. As such, even where minor efficiencies could be found, budget restrictions, timelines, currency fluctuations, fiscal years and other pragmatic obstacles inhibited better information sharing and cooperative action.

Regardless, much of LAMP’s work revolved around IOR activities, though not explicitly identified in the work plan. For example, when the project work activities began, LAMP contacted as many possible donors and local partners that were active in agricultural sector. They “got a running start” from leads provided by USAID

because they had already contacted many of these organizations when they were designing the LAMP project 9 – 12 months before ARD began its work activities. One of LAMP’s primary goals was not to overlap other projects or duplicate their activities. This was not too difficult since many projects had a smaller geographical focus (i.e. Srebrenica area or the Vlasica plateau area), or the other projects only focused on selective sub-sectors of agriculture (i.e. organic food).

LAMP was instructed by USAID to focus more on commercially-oriented farming, not subsistence farming. Many humanitarian organizations supported return of refugees, which is often subsistence farming. There is a “big gray area” between subsistence vs. commercially oriented farming. If LAMP found clients they could not help, they would be referred to one of the humanitarian organizations. Since it’s been 11 years since the end of the war, and BiH is a very small country, most farmer groups have been in contact with one or more humanitarian organizations.

LAMP also insured that their work built upon USAID’s other projects, for example, Business Finance (BF) and Business Consulting (BC) projects. BF and BC were more oriented to companies and large food processors, however, they provided good contacts for LAMP. The LAMP staff that once worked with BF provided LAMP with instant credibility. And LAMP used those contacts with food processors to connect them to local cooperatives and growers who supplied raw materials. When USAID decided to help the business community in BiH, they first addressed the needs of the banking sector, business regulations and key companies in the supply chain. Once these elements were somewhat rehabilitated, only then could USAID look at other elements of the supply chain such as agricultural suppliers.

LAMP coordinated activities in each of their four strategic components with other international organizations on an ad hoc basis. At one time, the OHR had an agricultural committee, which consisted of various agricultural assistance donors/projects in the country. LAMP was one of many on this committee. The entity ministries of agriculture also participated on the

committee. The committee only met a few times. The problem became that “it was a group of agricultural projects sitting around the table telling each other what they do.” Most players already knew what each other was doing through informal channels. And many were already coordinating with each other where appropriate. As one professional suggested, “back in ‘96 – ‘98 it may have made more sense to form such a committee, but in 2004 it no longer made sense.” The committee just stopped meeting, a common coordination problem.

A good example of donor coordination existed between LAMP and Israel’s MASHAV agency. Israel did not have a resident Ambassador to BiH, nor any offices in BiH. Israel wanted to help BiH, but representatives were uncertain how to deliver their assistance. They approached LAMP to collaborate with MASHAV to deliver agricultural assistance to BiH. MASHAV offered expert agricultural consultants (greenhouse experts) that were available to work overseas for short term assignments, plus MASHAV offered trainings in Israel.

LAMP offered a great network of local consultants on the ground and could identify willing attendees at trainings offered by MASHAV, either in BiH or Israel. An arrangement emerged where LAMP organized (with local partners) all the local logistics (rooms, invite the right attendees, vehicles, etc.) and MASHAV sent their consultants. LAMP also identified key local individuals who would be appropriate for MASHAV classes in Israel. It proved to be a very good relationship.

Activities within the international community tended to be dominated by efforts to provide a forum for the exchange of ideas, and a mechanism to identify niches and avoid overlaps. The international organizations saw working together as an effort to increase advocacy, speak in one voice and garner political support for related actions. And at times, they found ways to actually collaborate on specific projects that were mutually beneficial.

2. Between International and Local Organizations

In general, the International Community’s activities were well-received in the local agriculture sector. At times, locals stressed that international consultants were ill-equipped and uninformed about local conditions. Professionals countered that that awareness was hampered by the lack of participation and active local engagement. As projects and professionals remained in country over time, such complaints diminished considerably. For example, LAMP’s policy coordinator became very well respected by local agricultural stakeholders. After having been in the country for several years, he developed powerful connections and great

insight into the agricultural sector. However, such praise about international advisors proved rare.

The Bulldozer Committee and the geographically focused sub-committees that it formed proved to be successful in mobilizing locals determined to implement change. Unfortunately, the Bulldozer sub-committee for Agriculture and Natural Resources never met. The future success of a Bulldozer subcommittee for agriculture and natural resources could have been the precursor to the formation of successful Competitiveness Council for Agriculture, as some had hoped. But no such organization emerged.

At times some local partners expressed frustration because they equated LAMP assistance with money support (grants) for their activities. Once LAMP rejects a grant request, relationships can tarnish quickly. But the vast majority of LAMP clients understood and appreciated LAMP’s purpose, whether a grant was involved or not. In most cases LAMP clients did not receive a grant from the project, instead only receiving technical assistance, consulting and networking.

With respect to working with local agencies and ministers, LAMP officials found it at times difficult and frustrating, depends on the minister and the entity. Two ministers of agriculture in the RS (there have been three since the LAMP project began) came to LAMP for input. The Federation minister did not seek LAMP input, but his deputy did.

The parliaments in RS and BiH have special agricultural committees made up of legislators. These agricultural committees are partly designed to act as an oversight body of the entity ministries of agriculture. Some members of these committees came to LAMP seeking input occasionally. LAMP was viewed as USAID’s resource to help farmers. The government used LAMP when it helped them achieve their goal, but they did not view LAMP as a “partner.” Government agencies were also constrained by the overly burdensome political structure and corrupt, or at least questionable, partisan appointments of individuals from the ‘right’ party.

The private sector was more eager to work towards solving their problems and introducing new techniques that could make them more competitive. They encouraged the government to institute change that protected their markets or subsidized their production. They also appreciated technical advice. In all, they were perhaps most receptive to LAMP.

With respect to the IOR literature, therefore, relationships between the international community and local governmental agencies seems dominated by the lack of political will, leadership, funding levels, changes in tasks and priorities over time, and the basic organizational concerns of time, skills, and abilities of

local partners. Relationships between LAMP and private sector firms were much more positive.

3. Among Local Organizations

A specific problem for the agricultural sector was the lack of cooperation between the Ministries of Agriculture and the Ministries of Health concerning food safety control. There was also insufficient cooperation between the State Ministry of Foreign Trade and Economic Relations and the Ministries at the entity level to institute, for example, a system of product certification to allow exports of certain agricultural products, or explicit regulations to facilitate better livestock monitoring required, for EU market entry of livestock products of livestock products. These are critical reforms that require close, cross-sectoral working relationships between BiH players.

At the canton level, they are “stuck.” The structure simply isn’t conducive to collaboration between the entities. However, between ethnic groups of farmers, for example, groups seemed willing to work together. For example, the Dairy Processors Association was formed under LAMP’s watch. The Fruits and Vegetables Association grew from eight to 40 members, and there are many local or entity honey associations, and a meeting was organized to establish a BiH level honey association.

With respect to the IOR literature, relationships among BiH stakeholders tend to be dominated by competition, but more often by political problems and the lack of an effective government structure or perhaps more importantly, an effective ideology about the role of government and its relationship to the private sector. Thus the regions cannot work together effectively due to the structures put in place after the war. It is not ethnic barriers, as many claim, rather it is the mechanisms designed to minimize those differences that often prove to be the biggest problem.

8. Conclusions

LAMP consultants, participants and observers of the sector rarely identified ethnic differences as the cause of failed reforms. This was in sharp contrast to reports in other sectors like media, privatization or refugee return for example where ethnic differences and local obstruction stymied reform efforts (Martin, 2004; Martin and Millesen, 2003). More importantly, market links, training seminars and study tours were frequently attended by all three ethnic groups, without incident. However, such success came largely at the individual and local level. At the institutional level, with respect to the state and the entities, cooperation across lines proved

more difficult due to complex regulations, politics and ineffective legislation.

This case highlights the links between levels of analysis in interorganizational studies and development studies. What takes place at one level must be supported and complemented by change at higher or lower levels. Such thinking reflects Porter’s cluster competitiveness approach. While specific components of the sector advanced nicely, the cluster as whole remained handicapped. All components must move together.

LAMP served as a lynchpin organization charged with supporting the entire cluster through their interorganizational matchmaking. LAMP clearly did not act in a vacuum. LAMP recognized the two way flow of information so vital to the success of their work. More importantly, USAID also recognized this. Needs and priorities early in the project were supported and addressed, revealing additional, more nuanced needs and priorities for a later date. AID responded to the concerns and redirected programmatic activity accordingly.

This project helped us think in a very overt way, about redefining the work of LAMP, or any development organization, away from its specific contractual obligations to AID or any donor, towards a more nuanced understanding of the importance of interorganizational relationships as the means, or process for achieving success. AID would do well to more explicitly require expertise in such areas among all contractors, recognizing that accomplishing tasks is perhaps of less importance than creating lasting, sustainable relationships among local players who will ultimately work together to solve those tasks. It is the reincarnation of the old adage of providing fish or teaching to fish.


But we must be sensitive to USAID’s and other development organizations’ missions. In the early years after a conflict, at times, the task itself is dominant. At a more mature stage, a decade after the end of conflict, for example, aid organizations should be more concerned with sustainable processes than outcomes to some degree. LAMP, it seems, realized that only by seeking input, engagement and ownership from all stakeholders, could they succeed in their desired and contracted goals.

In summary, IORs served as the critical mechanism for seeking and securing such broad stakeholder support and sustainability. Our conceptualization of development assistance as a complex system of IORs seemed appropriate. From an IOR analytical perspective, we reframe the constraints and opportunities highlighted in the LAMP work plan as follows.

At the environmental level, interorganizational dynamics were moderated and mediated by the BiH political arena, as well as the macro social, economic and political changes in the country over time. In addition, Bosnia and Herzegovina’s position in the global limelight

for development waned over time. As a result, funding and attention dropped dramatically. At the population level, the International Community describes a unique interorganizational network of action. While on occasion the IC works well together and speaks with one voice, at other times it exhibits sharp infighting. These dynamics are critical to understanding development. Dynamics among and between local players prove equally influential in program success. At the organizational level, we must consider that effective relationships take time, resources and people skilled in brokering a cooperative culture that fosters coordinated action among all stakeholders. Many organizations simply do not have such capacity given staffing and contractual obligations and limitations. At the group level, the importance of personal networks and dynamics within task forces prove important. Individual roles within groups do not always align with organizational positions. And finally, at the individual level, some good leaders have emerged, but ambition, personal agendas and politics play crucial roles that limit successes as much as they advance them.

With respect to development assistance, we return to the notion of dependency. Dependency represents an extreme form of partnership where the power balance is heavily tilted toward the international community. However, creating partnerships, regardless of imbalances, is a first step toward more effective long-term working relationships. The power balance, however, must be respected and monitored as it changes over time, as the country in question, in this case Bosnia and Herzegovina, matures, changes and develops. The overt recognition of the importance of multiple stakeholders and the need to bring them to the table helps create linkages that foster development. The international community serves as matchmaker or broker in this process. To do so effectively facilitates the move toward local ownership of reform so critical to ultimate success.

The paradox of development assistance lies in the difficult practice of determining when that actually can or will take place. When must the donor and implementing organizations relinquish their control and power in favor of less optimal but locally owned reform efforts? We believe our IOR approach helps reconceptualize development assistance and might lead to answers to questions such as these that plague development efforts both theoretically and practically. 

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The Challenges of Competitiveness in Southeast European Countries

Ines Kersan-Škabić, Lela Tijanić *

Abstract:

The article examines the problem of competitiveness in Southeast European countries, with a special emphasis on the position of these countries in World Economic Forum rankings of competitiveness, as well on their potential membership in the European Union. The article determines the most problematic factors for doing business in the region. These factors represent the most important determinants of business sector competitiveness and have implications on national competitiveness. A TOWS matrix was created and established the common characteristics (strengths, weaknesses, opportunities and threats) of the countries in the region. The matrix was also used to suggest strategies for increasing competitiveness. A maxi-maxi strategy ("expansionary strategy") was suggested because it represents the best way to utilise the countries' strengths and opportunities. Cross-section analysis established that increasing gross enrolment ratio in tertiary education and direct foreign investments have the most the positive impacts on GCI scores.

Keywords:

JEL: F40, F43, F15, P27

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1. Introduction

Rapid changes in Southeast European countries (SEE) which began in the 20th century have had a significant impact on the political, economic and social situation in these countries, as well as on international relations and movements. Accession to the European Union has become the strategic aim of each country, which certainly has a large influence on the competitiveness of non-member countries. In the EU accession process, and especially after EU accession (Bulgaria, Romania and Greece), the problem of competitiveness for Southeast European countries becomes more obvious. This problem has been intensified by the globalisation process, which has imposed new challenges on SEE.

The common features of these countries are low competitiveness and extremely slow reform processes, which are necessary for improving the situation in the region. The region's countries (aside from Greece) have only started to establish institutional relations with the EU in the last decade. These relations above all involve trade,

but also include the possibility for these countries to gradually integrate into EU structures. However, this group of countries is different from developed West European countries in terms of their political and economic features. The region is characterized by its recent wars and ethnic conflicts, deficient democracies and the lack of political pluralism. Not enough attention is paid to the imperative of respecting human rights and

Ines Kersan-Škabić

Juraj Dobrila University of Pula
Department of Economics and Tourism «Dr. Mijo Mirković», P.Preradovića 1, 52100 Pula, Croatia,
e-mail: ikersan@efpu.hr

Lela Tijanić

Juraj Dobrila University of Pula
Department of Economics and Tourism «Dr. Mijo Mirković», P.Preradovića 1, 52100 Pula, Croatia,
e-mail: letijan@efpu.hr

those of national minorities. On the other hand, this region is economically underdeveloped when compared to the EU, leaving open the possibility that the EU integration process could bring many negative effects because of the insufficient development of competitiveness in these markets, which in turn could lead to ineffective production. Because of this situation, these countries have reached a turning point in their development, and must use their advantages in order to survive and prosper in today's increasingly competitive global markets.

The aim of this research is to investigate the factors of SEE competitiveness, and to analyse their underdeveloped areas in order to suggest optimal measures for improving their position on the European and world markets.

Previous studies of the competitiveness of SEE are rare and usually deal with specific aspects of competitiveness. This research goes one step further by offering a complex approach to the analysis of competitiveness. It analyses current indicators of SEE's competitiveness according to the Global Competitiveness Report and Lisbon Agenda goals (regarding the EU). A SEE TOWS matrix was made in order to propose strategies for the region. The impact of the gross enrolment ratio and FDI inflow on the countries' competitiveness is determined using multiple regression analysis.

2. *Characteristics of South East European countriesⁱ*

The major part of the region was caught in armed and ethnic conflicts during the turbulent 1990s which resulted in numerous casualties and extensive material damage and led to the alienation and isolation of these countries. It must not be forgotten that five (or six, including Kosovo) of the countries from this region came into existence after the break-up of the ex-Yugoslavia; until the 1990s they had enjoyed good cooperation.

Since these countries, both during and after the war and ethnic conflicts, terminated their cooperation almost completely (or reduced it to a minimum) and lacked the good will and courage to rehabilitate and rebuild their relations, the international community played an important role in this respect.

2.1. *Establishment of Cooperation in the Region*

The Central European Initiative was the first attempt to establish cooperation in Central Europe. It was founded in Budapest, in 1989, when the Ministers of Foreign Affairs from Austria, Italy, ex-Yugoslavia and Hungary signed an agreement and established a common declaration of cooperation called the Quadrilateral Co-operation. It gradually expanded, so that today it consists of 18 member states. In 1992 the name CEI was accepted. The main characteristic of this initiative is to encourage multilateral cooperation between its members and to intensify mutual relations with the aim of achieving higher growth, adopting European standards, as well as helping the countries in their efforts to integrate further into the European Union.

The South-East European Cooperation Process (SEECP) was launched in 1996 on Bulgaria's initiative for the purpose of strengthening regional co-operation, creating an atmosphere of trust, good neighbourly relations and stability. Its members include Albania, Bosnia and Herzegovina, Montenegro, Bulgaria, Greece, Croatia, Macedonia, Moldova, Romania, Serbia and Turkey. A special feature of SEECP is that it was launched precisely on the initiative of the countries in the region. The objectives of SEECP are as follows: strengthening the political situation and security cooperation, intensification of economic relations and co-operation in human resources, democracy and battling illegal activities. The fundamental document is the *Charter on Good Neighbourly Relations, Stability, Security and Co-operation in South Eastern Europe* which was signed at the meeting of these countries' presidents and governments in Bucharest on February 12, 2000.

In 2006, the EU accepted the Southeast European Cooperative Initiative (SECI), which was initiated by the United States with the aim of encouraging cooperation among its participating states and facilitating their integration into European structures. The initiative included the countries of the region (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Romania, Serbia and Montenegro), as well as Hungary, Moldova, Slovenia and Turkey.

The Stability Pact for South Eastern Europe (SP) was adopted in 1999, from an EU initiative, with more than 40 partner countries and organisations included. It represents a comprehensive, long-term conflict prevention strategy based on worldwide international experience and lessons which have helped solve crises

around the world. Conflict prevention and fostering peace can be successful only if they occur at the same time in three key sectors: the creation of a secure environment, the promotion of sustainable democratic systems and the promotion of economic and social well being. (Stability Pact. <http://www.stabilitypact.org>)

Since the Stability Pact was conceived as a temporary initiative lasting until February 2008, and because of the positive changes in the region's countries, the Pact was transformed. In collaboration with the European Commission, international partners and the region's countries, a plan for the Stability Pact's transformation was devised. The products of this plan were the South-East European Cooperation Process (SEECP), a political framework for cooperation, and the Regional Cooperation Council (RCC), whose headquarters are in Sarajevo (MVPEI 2007). The activities of the RCC will be focused on six priority areas: economic and social development; infrastructure; justice and home affairs; security cooperation; building human capital, and parliamentary cooperation.

The "New" Central European Free Trade Agreement was signed in December, 2006.ⁱⁱ This agreement was signed by Albania, Romania, Bulgaria, Croatia, Macedonia, Bosnia and Herzegovina, Montenegro, Kosovo, Moldova and Serbia. It replaces the network of 31 free trade agreements that the Southeast European countries made on a bilateral basis and foresees the formation of a free trade area until the end of 2010. According to this model, integration can contribute the most to economic cooperation among the region's countries.ⁱⁱⁱ

2.2. Economic Development

The region's countries, although mostly developing countries (aside from Greece), differ according to their levels of economic development. Petrakos and Totev (2000) described in detail the economic development of these countries during the last decade and concluded that the whole region is confronted with unfavourable structural adaptations, as well as a tendency toward divergence rather than convergence with developed European countries. They suggest the possibility that this fragmented economic area will remain poor and on the periphery of Europe. Since then, certain improvements have been realised, but the region still remains far behind EU countries.

The indicators presented show that the largest country is Romania, and that Greece has the highest GDP per capita. There are some common characteristics among these countries' economic developments concerning certain negative trends. The unemployment rate is very high in Bosnia and Herzegovina, Macedonia and Montenegro. All the observed countries have deficits in trade balance and Montenegro, Greece and Bosnia and Herzegovina have the lowest export-to-import ratios. Croatia and Bulgaria received the highest FDI per capita but are at the same time the most indebted countries. Aside from Greece, which has for years belonged to the EU, the most developed country in SEE is Croatia.

Countries	Population in millions	GDP p. c. at PPP (EUR)	Unemployment rate in %	Inflation in % (CPI)	Current account in % of GDP	Export to import ratio in %	FDI inflow p.c.	Foreign debt in % of GDP
Albania	3.2	4670	13.6	2.4	-7.6	27.2	566.3	20.0
B&H	3.8	5810	44.8	7.2	-10.7	44.1	736.8	22.0
Bulgaria	7.7	8700	9.0	7.4	-15.7	68.4	2041.9	78.0
Croatia	4.4	11730	11.1	3.2	-7.8	50.2	4719.5	87.8
Greece	10.7	22700	8.9	3.3	...	33.0
Macedonia	2.0	6420	36.0	3.2	-0.4	65.1	1050	38.1
Montenegro	0.6	6180	29.6	3.0	-29.4	36.2	2025	27.0
Romania	21.6	8800	7.3	6.6	-10.3	68.7	1434.7	30.0
Serbia	10.1	7280	20.9	11.6	-11.5	51.1	823.5	59.0

Export-to-import ratio is calculated as the ratio export/import * 100 and is expressed in percentages. If the calculated value is lower than 100, it means that the country imports more than it exports.

Table 1: Main economic indicators of SEE in 2006

Source: WIIW (2007): WIIW Handbook of Statistics 2007. Wien, AT: The Vienna Institute for International Economic Studies.

2.3. Relations with the EU

SEE do not enjoy the same status in relation to the EU: some countries are full-members of the EU (Greece, Romania and Bulgaria), while for the others the EU established the Stabilisation and Association Process (SAA) in 1999. Among SEE, Greece was the first to become a full-member of the EU, in 1981 after the end of G. Papadopoulos's dictatorship. In 1949 Greece became a member of the Council of Europe and in 1952 a member of NATO as well. But in 1967 colonel Georgios Papadopoulos led a coup d'état, a military junta was established, the constitution was abolished and all political parties were banned. On behalf of the junta he controlled the overall legislative and executive authority (he also initiated a new constitution). Because of this, Greece's membership in the Council of Europe and NATO was suspended. In 1974 a referendum decided on the establishment of the current parliamentary republic and a new constitution was introduced, thus initiating the gradual democratisation of Greece and its path towards the EU. Although Greece signed the Association Agreement with the European Economic Community in 1961 (prior to the period of dictatorship), it applied for full membership in the EU only in 1975. The European Commission expressed a negative opinion, that is, a recommendation that before its final integration into the EU, Greece had to implement a transitional pre-accession period because of its economic problems at the time. Nevertheless, due to political reasons, the European Council rejected the opinion of the European Commission, so that membership negotiations started in July 1976 and Greece became a full-member of the EU in 1981.

The EU launched the Stabilisation and Association Process, which has been an effective framework for political dialogue, trade development between the EU and SEE, as well as a particular help for the Western Balkans. A new type of contract which the EU set up for countries included in this process was set out as its most important element - the Stabilisation and Association Agreements (SAA) that EU signed with all of the region's countries, aside from Kosovo. It is interesting that EU signed this agreement with Serbia at the end of April 2008, even though Serbia did not prove its cooperation with the International Crime Tribunal for the former Yugoslavia at the Hague, which the EU insisted on during negotiations for signing the SAA with Croatia. Because the Netherlands and Belgium were opposed, the SAA

ratification will start and the Interim Agreement will come into force only after Serbia realizes full cooperation with the ICTY. Regardless, this approach to the signing of the SAA with Serbia represented an exception in the EU's policy toward SEE.

3. Competitiveness of southeast european countries

Today, competitiveness is the key point of interest among both developed and developing countries. Developed countries, for example EU countries, try to find measures and ways to increase their competitiveness, welfare and prestige on the world market. On the other hand, developing countries fight against high and often increasing trade deficits which are the result of both growing consumption and the banks' credit activity, which leads to higher foreign indebtedness.

Although competitiveness represents an important and pressing problem regarding the economic prosperity of each country, research on the determinants of SEE competitiveness are rare and, usually focus just on one country. Ickis (2006) studies the effect of competitiveness councils on the microeconomic business environment, analysing the role of these councils using the examples of Ireland, Croatia and five countries in Central America. He points out the importance for the business sector to take over the responsibility for competitiveness, while the government has to play its role in stimulating a friendlier environment for entrepreneurial development. Weihrich (1999) analyses Germany's competitiveness by using the TOWS matrix approach, which renders a nation's business activities more feasible and efficient within the international arena through proper identification and optimal utilization of each country's factor endowments, thereby promoting the nation's continued global success. Ouardighi and Somun-Kapetanovic (2007) study the differences and economic convergence of the Balkan countries, while Stančić (1998) deals with economic cooperation in Southeast Europe.

There has been no complex analysis of competitiveness in SEE. Therefore, two methods of examining competitiveness will be applied in this study: a TOWS matrix to establish the main strengths, weaknesses, threats and opportunities for competitiveness, as well as regression models in order to determine the impact of the chosen variables on competitiveness.

There are numerous determinants of competitiveness: basic requirements (institutions; infrastructure;

Countries	GCI rank	Subindexes			BCI rank	Subindexes	
		Basic requirements	Efficiency enhancer	Innovation and sophistication factors		Quality of the national business environment	Quality operations and strategy ranking
Albania	109	99	105	125	122	122	113
B&H	106	104	95	123	107	105	119
Bulgaria	79	76	72	91	83	77	95
Croatia	57	53	61	53	60	61	63
Greece	65	48	57	59	53	52	57
Macedonia	94	72	98	101	95	96	98
Montenegro	82	59	87	97	85	80	89
Romania	74	88	62	73	73	74	81
Serbia	91	78	88	88	91	90	102

Ranks are on a 1-to-7 scale. The higher the rank, the more competitive the country.

Table 2: The position of Southeast European Countries according to the GCI 2007-08

Source: WEF (2008): The Global Competitiveness Report 2007-08. <http://www.weforum.org> (accessed May 15, 2008)

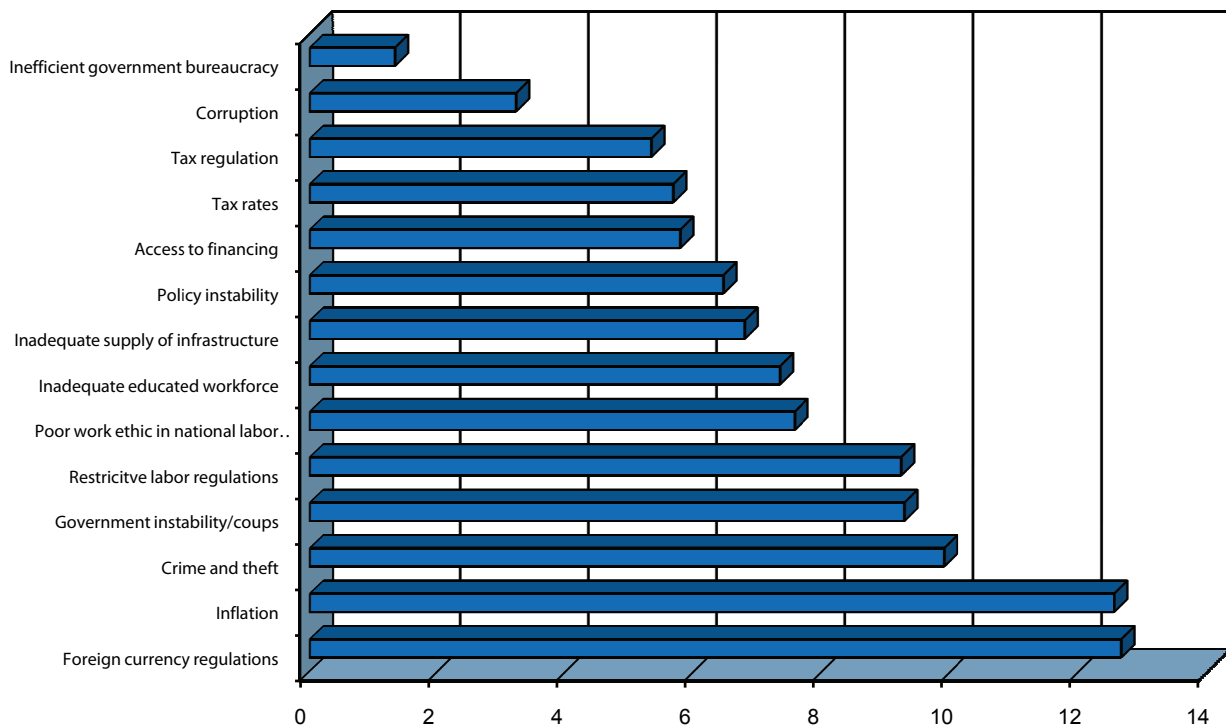
macroeconomics; health care and primary education); efficiency enhancers (higher education and training; goods market efficiency; labour market efficiency; financial market sophistication; technological readiness; market size); innovation and sophistication factors (business sophistication; innovation). (GCR, 2007-08, 4-7). Potter divided the different ways of overcoming and fulfilling the aforementioned determinants according to the following: factor-driven, efficiency-driven and innovation-driven economies. When observing SEE it can be pointed out that there are differences in terms of their belonging to a specific group:

- Albania, Bosnia and Herzegovina belong to the transition phase from stage 1 (factor-driven economies) to stage 2 (efficiency-driven economies);
- Bulgaria, Macedonia, Montenegro, Romania, Serbia belong to stage 2 (efficiency-driven economies);
- Croatia is in a transition phase from stage 2 to stage 3;
- Greece is in phase 3 (innovation-driven economy).

Factor-driven economies base their competitiveness on available factors, which usually refer to unskilled labour and natural resources; they compete with prices (as the results of the low labour force costs) and they also sell basic products. The countries in stage 2 start developing more effective production and quality products, while in stage 3 countries compete with new unique products- through innovations and the use of the most sophisticated processes of production (wages and standards of living are high). Among SEE, only Greece is in the 3rd stage; Croatia is approaching this stage, but most of the countries are in stage 2.

The World Economic Forum measures the competitiveness of nations and issues the annual Global Competitiveness Report. Countries are ranked according to two key indexes: GCI (Global Competitiveness Index), which takes into account the microeconomic and macroeconomic foundations of national competitiveness: the quality of the macroeconomic environment, development of public institutions and technological achievements, and the BCI (Business Competitiveness Index) which refers to strategies and economic policies supportive of high current levels of productivity and also measures the quality of the microeconomic environment in which the companies compete. The GCI for 2007-08 comprised 131 countries, and the BCI 127 countries.^{iv}

According to the GCI, Croatia has the best total rank and, at the same time, the best individual ranks. The biggest difference between Croatia and the other observed countries are innovation and sophistication factors, where Croatia ranks 53rd with a score of 3.8, while most of the countries are ranked below 70th. Bosnia and Herzegovina and Albania have the worst results and rank 106th and 109th respectively. The reasons for this are their low scores concerning innovation and sophistication factors, institutions, infrastructures and market efficiency. According to the BCI, the highest ranked country is Greece, which has the highest scores in terms of quality of national business environment and quality of operations and strategy. Croatia is in 2nd place, while the lowest ranked are again Albania and Bosnia and Herzegovina.



Ranks were calculated by adding up the individual ranks of the problematic areas in the countries examined (according to business executives' responses), so that the lowest rank represents the most problematic area (the one most of the respondents rank as the most problematic), and the highest rank represents the least problematic area.

Figure 1: The most problematic factors for doing business in Southeast European Countries

Source: authors' calculation, according to the WEF (2008): The Global Competitiveness Report 2007-2008

According to the questionnaires addressed to business executives (GCR part), the 5 most problematic factors in doing business are the following: inefficient government bureaucracy; corruption; tax regulations; tax rates and access to financing.

Besides the WEF rankings of competitiveness, it would be interesting to analyse these countries' levels of progress according to the Lisbon Agenda goals (which regard EU membership). The World Economic Forum analysed the progress among EU member states and potential candidate countries according to the Lisbon strategy goals. It measured eight separate dimensions which comprise critical areas of competitiveness: creating an open and competitive information society for everyone, development of the economy based on innovations, research and development; liberalisation (setting up a Single European Market, state aid and competition policy); industry development networks in telecommunications, utility services and transport; creating effective and integrated financial services; improvements in the business environment (start-up and legislative framework); incremental social inclusion. (involving people in the work force, additional

qualifications and modernising social protection; enhancement (assurance) for sustainable development. (WEF 2006))

The table shows that Greece, although ranked lower than Croatia (according to the GCR), here still holds the 1st position as well as having the best scores in all sub-indexes. The only exception is for the sub-index regarding the Information Society, where Croatia achieved better results. This is the result of a higher level of development in that country's competitiveness strategy, which Greece still has to work on as an EU member. Considering there are 25 member states of the EU, the position of Greece is poor, ranking 23rd (running behind Italy, Poland, and now Romania and Bulgaria). More detailed analyses show that these countries lag behind mostly in the following sub-indexes: Information Society, Sustainable Development and Social Inclusion. They lag behind the least in Network Industries. This indicates the need for a more systematic approach toward the problem of competitiveness and, at the same time, for the countries to be active in different areas.

Countries	Final Index		Subindexes							
	Rank	Score	Information Society	Innovation and R&D	Liberalization	Network Industries	Financial Services	Enterprise	Social Inclusion	Sustainable Development
Greece	1	4.19	3.17	3.77	4.32	5.09	5.27	4.14	3.79	3.98
Croatia	2	3.93	3.69	3.32	4.07	4.65	4.53	3.81	3.40	3.96
Romania	4	3.59	3.21	3.17	3.89	3.51	4.19	3.91	3.62	3.33
Bulgaria	5	3.31	3.09	2.92	3.49	3.86	3.80	3.43	2.87	3.00
Macedonia, FYR	6	3.28	2.51	2.79	3.56	3.71	3.98	3.51	3.17	3.04
Serbia and Montenegro	7	3.14	2.80	2.94	3.50	3.39	3.77	3.32	2.80	2.59
EU25 average		4.84	4.58	4.24	4.92	5.36	5.60	4.59	4.40	5.05

Ranks are on a 1-to-7 scale. The higher the rank, the more competitive the country.

Table 3: Rankings and Scores of Southeast European Countries

Source: WEF (2007): The Global Competitiveness Report 2006-2007. <http://www.weforum.org> (accessed May 15, 2008)

National Framework for Increasing Competitiveness

The perceived need for increasing competitiveness indicates that it is necessary for the countries to have a strategy of economic development and to act in a direction that will realise certain goals of competitiveness, through different activities, subjects and institutions. Special bodies play important roles as well. For example, the National Competitiveness Council in Ireland explores the country's existing situation, including the weaknesses and strengths of Ireland's competitive position, as well as determining the challenges of competitiveness which Ireland's economy will have to face and deal with in the future.

The National Competitiveness Council in Croatia was founded according to Ireland's example in 2002. The members of the Council come from different groups: government officials, economic experts, union officials, scientists and academics. The aim of this Council is to promote and stimulate competitiveness and the productivity of the Croatian economy in the long run (which will finally result in a continuous sustainable growth of the standard of living and a better quality of life). The Council publishes the Annual Report on Croatian Competitiveness every two years, and issued "55 Policy Recommendations for Raising Croatia's Competitiveness" in 2004. It is currently occupied with trying to find the best way to prepare Croatia for entering the EU, as well as preparing Croatia to become a member of the group of the 40 most competitive countries in the world.

Macedonia has had its National Entrepreneurship and Competitiveness Council since 2003. It was founded with the aim of improving the business environment of Macedonia, as well as increasing its international competitiveness. The challenges it faces include increasing employment, attracting investments, improving infrastructure, preparing for EU accession, implementing the rules of the WTO and increasing the standard of living. Albania, Bosnia and Herzegovina, Serbia and Montenegro have neither national competitiveness councils nor integral strategies for increasing their economies' competitiveness. Their data on the competitiveness of specific activities are segmented and often only certain sectors are pointed out. The USAID (United States Agency for International Development) plays an important role through its Economic Growth Programme (in Albania and Bosnia and Herzegovina), the purpose of which is to improve economic policy and the business environment, increase the competitiveness of the private sector, strengthen the financial services sector and improve access to finance, as well as developing and improving access to economic and social infrastructure.

According to the revised Lisbon Strategy, Greece, Romania and Bulgaria are obliged to introduce National Reform Programmes as strategies for increasing the national competitiveness. Greece introduced this programme in 2005, Romania and Bulgaria in 2006. These programmes define the priorities, aims as well as activities that need to be carried out in order to achieve

INTERNAL ENVIRONMENT**STRENGTHS (S)**

- availability of natural resources, diverse countryside, cultivated land, fruitful areas for different products and cultivation, water wealth
- favourable transport position (connection between Europe and Middle East)
- closeness of developed EU countries
- tourism and developed plans for better positioning
- large markets
- reform implementation within the context of EU accession
- high rates of economic growth
- promoting the development of small and medium enterprises
- FDI inflow
- well educated labour force
- the Bologna process implementation in the system of higher education
- promoting innovations, orientation on science, research and development

WEAKNESSES (W)

- unused natural resources
- problems in agriculture: abandoned rural areas, insufficient capital for agriculture infrastructure development
- decreasing trend of energy intensity, high energy import dependence
- unrecognised products and services in other countries (EU)
- big gap between the development levels of the countries (and between various regions inside countries)
- areas with development problems
- insufficient programmes which can help regions with development problems
- consequences of the wars, sanctions in the region
- political instability
- aging population (aside from Albania)
- trade deficit
- high public debt
- high price of telecommunications (barrier for trade)
- defects in basic institutions
- non-transparent legislative
- underdeveloped infrastructure
- high unemployment (especially of the young labour force)
- underdeveloped linkages between entrepreneurs
- outstanding land ownership problems
- social problems and poverty
- problems with national minorities
- corruption
- crime
- underground economy
- low technological development and business sophistication
- brain drain
- inadequate protection of intellectual property

EXTERNAL ENVIRONMENT**OPPORTUNITIES (O)**

- benefits of the EU accession
- international peace and stability initiatives
- SAA
- participation in international trade flows
- regional trade agreements and agreements with other countries
- expanding into the markets outside the EU
- reduction of the market segmentation
- mutual cooperation and helping countries in the region
- development programmes to reduce the gap between the development levels of the various regions and to reduce poverty
- active cooperation with international institutes
- help from World Bank, EBRD, EIB
- EU funds financing

THREATS (T)

- relationship with the EU and potential membership
- cost of the EU accession
- political instability- relations in Kosovo, threats for the whole region
- regional conflicts (Kosovo, Albania- Serbia, Serbia- B&H, Greece- Macedonia...)
- Middle East conflicts- war in Iraq
- risk of terrorist attacks
- competitiveness of other EU countries, USA and Japan
- pressure of foreign private companies on domestic companies
- ecological and other EU constraints

Table 4: TOWS Matrix- Southeast European Countries**Source:** authors' research

positive effect by stimulating the countries to develop continuously. In general, only a few countries have developed an integrated approach for solving the problems of competitiveness, while the remainder have neither the integral policy nor the institutions to monitor them.

4. Challenges facing competitiveness in Southeast Europe

4.1. TOWS Matrix of National Competitiveness

When developing the national strategies that small countries need to be able to survive competition on the global market, different analyses from the field of strategic management can be carried out, such as the TOWS matrix. This approach supplements Porter's analysis of comparative advantages (Wiehrich 1999).

the Lisbon goals. The implementation of the programmes is monitored through annual Implementation Reports which point out the achieved results, and which have a

<p>S-O strategy: Maxi- maxi Using strengths to take advantage of opportunities</p> <ul style="list-style-type: none"> □ using natural resources for development of products which will compete in the international trade market and with other EU countries □ utilising the favourable geographic location for the exchange of goods and for travellers □ further development of tourism will bring the possibility for SEE to compete with the most developed EU countries □ many reforms will set up stability in the region, increase cooperation between the region's countries within a wider frame □ using potential to attract direct foreign investment □ foreign investment should be directed toward production; it is necessary to invest in research and development, research institutes, development of innovation □ a skilled and low cost labour force represent an advantage for SEE □ investment in small and medium entrepreneurship can increase cooperation between countries in the region and lead to higher investments in neighbouring countries. It is necessary to promote domestic and cross-border entrepreneurial partnerships □ financial help from international institutions and also EU funds represent opportunities to maximise the countries' strengths through the realization of projects that will contribute to increasing the countries' competitiveness 	<p>W-O strategy: Mini- Maxi Conquering weaknesses to take advantage of opportunities</p> <ul style="list-style-type: none"> □ natural potential should be optimally used where there is space □ developing recognized products and services in international trade flows □ reducing the gaps between the development levels of the various regions will contribute to cohesion and expand the market of SEE □ stabilising the political situation and conflicts in the region is essential for international trade flows and cooperation with the EU □ increasing the macroeconomic stability in the region's countries in order to compete with other EU countries □ reforming basic institutions and initiating the reconstruction and modernisation of the infrastructure, all with international contributions □ highlighting social problems that are barriers to establishing peace and stability □ addressing the problem of refugees, particularly because their number has increased because conflicts in the region □ special emphasis should be given on measures to combat corruption and crime □ educated experts should be employed and rewarded to prevent their emigration (brain drain) □ promoting innovation, research and development of technology
<p>S-T strategy: Maxi- Mini Using strengths to parry or minimise threats</p> <ul style="list-style-type: none"> □ natural resources must be used in a way that successfully confronts their competitors □ favourable geographic location should be used in order to establish cooperation with Middle Eastern countries and Asia Minor, which can contribute to a decrease in the risks of conflicts among the countries in the region and also to cut down on the risks of terrorist attacks □ reforms in the context of EU accession can help achieve a stable situation in the region and to minimise conflicts among the countries □ reforms spent on time and well decrease the costs after EU accession (for non member countries) and ensure familiarity with EU restrictions □ investment in small and medium enterprises increases small countries' competitiveness □ by monitoring education processes and with more investment in research and development, countries will answer the challenges of modern changes in developed countries and become more competitive 	<p>W-T strategy: Mini- mini Conquering weaknesses to avoid or parry from threats</p> <ul style="list-style-type: none"> □ using natural resources and creating recognized products and services, countries can compete with the EU as well as with other competitors □ reducing the gaps between the development levels of the region and reducing the development obstacles will result in minimised social problems, contributing to stability in the region □ it is necessary to realize adequate measures to solve the many consequences of the conflicts and sanctions in the region in order to stabilise relations between the countries and to prevent further political confrontations □ reforms of basic institutions and the development of infrastructure will lead to better stability in the region and to cut the costs of entering the EU □ modernisation of the infrastructure and infrastructure interconnections will contribute to better transport linkages and enhance international trade flows □ combating crime will lead to better quality of life and region stability □ development of technological efficiency and business sophistication (investing in research and development) will increase these countries' competitive positions □ prevention of educated experts' emigration will be an answer to competition's challenges

Table 5: Strategies to increase SEE's competitiveness

Source: authors' research

The TOWS matrix was originally introduced for analysing micro-environment levels (formulation of company strategies) but it also plays an important role on both the regional and national level. The abovementioned analysis gives a conceptual framework for developing national strategies which requires a systematic analysis of strengths and weaknesses and their integration with global opportunities and threats. These four factors are the basis for the strategy that will set out the guidelines for future development.

The TOWS matrix of SEE national competitiveness is given hereafter. Opportunities and threats represent the external environment, while the internal environment consists of strengths and weaknesses. The analysis of the countries' strengths determined the advantages by which countries can compete. Weaknesses were defined as the segments in which the countries lag behind the competition and which they can and must develop.

In creating the TOWS matrix the PEST/PESTLE analysis of environment was also used. PEST analysis describes a framework of macro- environmental factors used in external environmental scanning. Within this analysis, political, economic, social and technological, as well as legislative and environmental factors (in the PESTLE analysis) were identified. In analysing the macro-environment, it is important to identify the factors which might in turn affect a number of vital variables that are likely to influence an organization's supply and demand levels as well as its costs. Changes that occur in society create an uncertain environment and have an impact on the country's competitiveness. The PEST/PESTLE analysis is important, especially in determining the opportunities and threats for these countries in the future. Countries must optimize their strengths and weaknesses within opportunities and threats.

The connections between external and internal factors represent the difference between the TOWS and SWOT matrices. SWOT analysis does not represent this relationship. Strengths, weaknesses, opportunities and threats were reviewed separately for Bulgaria, Romania, Albania, Bosnia and Herzegovina, Montenegro, Greece, Croatia, Kosovo, Macedonia and Serbia. Based on this, the TOWS matrix of national competitiveness was derived for the group of the Southeast European countries, which is presented in Table 4. According to this matrix, optimal strategies for further development were proposed with the aim of increasing the nations' competitiveness.

Considering the very marked weaknesses and threats of SEE countries, the mini-mini strategy would be a very

good solution ("preventive strategy"). However, using this strategy, these countries' strengths, which offer the possibility for future development, would remain neglected because they would not be optimally utilized. The countries' strengths and opportunities would be optimally used with the maxi-maxi strategy ("expansionary strategy"), which is the best way to overcome weaknesses as well as to parry or avoid threats.

The SEE countries have various (natural, social...) potentials for further development that could increase competitiveness. If Southeast Europe is viewed as part of a wider Central and Eastern Europe, it can be considered a large economic market that will be attractive in the coming years. However, in order to use this large market potential effectively, it is necessary to minimize market segmentation. Small fragmented separate markets and significant differences between SEE countries in their levels of economic development additionally hinder rapid economic development. Southeast Europe still doesn't function as a unique economic complex or market, which results in the fact that other countries do not see this area as a region but as an area with many small, separate markets. Regional cooperation is one of the important elements in creating new relations in Southeast Europe characterised by political stability and economic development and represents important preconditions for the EU accession and integration.

Among SEE it is necessary to develop cooperation between the region's countries in order to compete with other larger markets. To succeed in this, the political problems and marked instability of the region should be resolved. These problems are specific to the region due to long standing conflicts which resulted in SEE lagging behind competing countries in economic development. In order to overcome these negative effects, the stability of the region should be rehabilitated and further conflicts prevented.

The transport position of the region is favourable, but the infrastructure is inadequate. Therefore, international funds could be used to solve this problem. Although they offer adequate help, the participation of international institutions should be greater. EU funding can be used (among other allocations) for the development of infrastructure as well.

The importance of the region's services sector is growing (especially in B&H, Montenegro and Serbia, with the exception of Albania), so it is important to emphasize

the significance of the further development of tourism in order to compete on the international market.

Reforms also should be implemented in order to remove basic obstacles for future development and increase competitiveness. So far the regional economic growth rate has not been sufficient to insure a better living standard among the population or to implement effectively necessary structural reforms (although SEE have enjoyed significant growth in the last few years). It is necessary to stimulate reforms and accelerate internal growth, and promote regional cooperation and integration in each country.

The aforementioned strategy will overcome separations between the countries as well as emphasize their advantages. Each country has to implement a strategy according to its national interests, always aiming at establishing cooperation and integration. The integration of SEE will lead to greater development.

Promoting the development of small and medium enterprises is especially significant for smaller countries like those of SEE. In this way, small and medium enterprises can compete with other companies of the region, thus exerting greater pressure on domestic companies. Entrepreneurship is a significant factor for achieving sustainable development and a higher level of competitiveness. Fostering entrepreneurship is essential for the creation of wealth and economic progress. There are some restrictions for small and medium enterprises in SEE that have to be lifted. The bureaucracies are inefficient and slow, the implementation of laws and regulations is inadequate, companies lack business cultures, corruption is widespread as well as crime, investment in research and development is insufficient, and there are a scarcity of highly qualified experts. It is important for companies to invest in research and development (which is increasingly present in SEE SMEs) in order to increase their competitiveness as well as to prevent a drain of educated experts. A significant problem in the higher education system is so-called "brain drain" from SEE, and the people who migrate from the countries are young (most of them 25-40 years old), which creates additional problems. This is especially symptomatic of Croatia, Bosnia and Herzegovina and Serbia. In the higher education system huge benefits have been obtained by implementation of the Bologna process. But it should be pointed out that in the period of adapting to this process it is important to decrease the negative effects and solve the problems of the abovementioned implementation process. A more highly

educated labour force and a knowledge-based economy are imperative if these countries want to stay globally competitive and increase their standards of living. The free circulation of the labour force and capital in the whole region will contribute to SEE becoming an interesting destination for foreign investment.

4.2. The Determinants of SEE Competitiveness-Regression Analysis

Different determinants are taken into consideration when measuring competitiveness. Single measures are not able to capture all the elements of the concept (Buckley et al. 1988). The determinants include levels of technology (Rosenthal 1993), capital (Ray 1995), skill differences of labour (Strange 1998), entrepreneurship (Lee and Peterson 2000), factor conditions and industry competition (Porter 1990), globalization and the influence of multinationals (Krugman 1994), ideas and skills people can offer to the world economy (Reich 1997), and cultural factors (Harrison and Huntington 2000). Quantitative or qualitative competitiveness can be measured by using the IMD and WEF reports (Kovačić 2007).

Kovačić (2007) evaluates Slovenian competitiveness by quantitative and qualitative methods. He emphasises that the combination of statistical data and indicators from questionnaires is the best way to measure national competitiveness and points out that investments in technology and education represent the most important aspects for improving competitiveness.

The nine-factor model (Cho 1994; Cho and Moon 2000) comprises human variables (workers, politicians and bureaucrats, entrepreneurs, professionals) which drive the national economy forward and play an important role in explaining national competitiveness.

Ying-Chyi Chou, Ying-Ying Hsu, Hsin-Yi Yen (2008) present a model in which they measure the impact of science and technology and human resources on the national competitiveness of 42 countries, based on competitiveness indexes given in the 2006 World Competitiveness Yearbook.

Constantin and Banica (2007) propose an insight into the competitiveness of the Romanian region from a human resources perspective and identify the competitive advantages of Romania's human resources in the new context generated by its accession to the EU. They take into consideration the activity rate (active population/total population), the share of non-

agricultural employment in total employment, the share of employment of high school, post high school and tertiary education in total employment, and the number of students enrolled in higher-education per 10,000 inhabitants.

Barro and Lee (2000), Sach and Warner (1997) show a strong positive interrelation between sustained economic competitiveness and investment in human capital.

Vukotić and Bačović (2007) emphasize the important impact of economic freedom on economic development. They present an analysis of correlation coefficients that show a strong positive interrelation between the level of economic freedom and foreign investment and conclude that the level of economic freedom is significantly correlated with all macroeconomic indicators of development. Di Rienzo, Das and Burbridge (2007) indicate that the economic freedom index is statistically significant and negatively related to countries' competitiveness and confirm that economically free countries with less institutional rigidities experience higher levels of competitiveness.

The negative impact of corruption on competitiveness is seen in different areas. Olaya (The Global Competitiveness Report 2006-2007, 2007) describes the negative impact of corruption on many of the factors enabling socio-economic development and emphasizes the significantly slow growth of corrupt countries. Institutional environments must be focused on decreasing corruption, which will have positive impacts on competitiveness.

A model representing what effects SEE competitiveness is shown below. The data were collected for the 8 countries from SEE (2006). Kosovo was treated as still a part of Serbia and Montenegro, as the analysis was conducted in 2006, before Kosovo declared its independence. Until May 2006 Serbia and Montenegro were a single country; therefore this model includes data for the two together.

A cross-section analysis was carried out. The dependent variable in the model is the GCI score for 2006. (GCI^{vi}), the independent variables being the following:

Dependent Variable: **GCI**

Method: Least Squares

Sample: 1 8

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	321.5055	49.77874	6.458691	0.0978
EDUC	2.069844	0.782652	2.644654	0.2301
FDI	0.000131	3.66E-05	3.592223	0.1728
IEF	0.005879	0.005978	0.983504	0.5053
CPI	-0.204523	0.154651	-1.322479	0.4122
EU	-0.244168	0.352620	-0.692440	0.6144
R-squared	0.977713	Mean dependent var		394.0000
Adjusted R-squared	0.866276	S.D. dependent var		30.56687
S.E. of regression	11.17780	Akaike info criterion		7.434111
Sum squared resid	124.9431	Schwarz criterion		7.387749
Log likelihood	-20.01939	F-statistic		8.773683
Durbin-Watson stat	2.155224	Prob(F-statistic)		0.250627

Table 6: Regression analysis results (the dependent variable is GCI)

Source: authors' calculation

gross enrolment ratio in tertiary education (EDUC^{vi}), FDI per capita (FDI), index of economic freedom (IEF^{vii}), corruption perception index (CPI^{viii}), with EU membership (EU) as a dummy variable.

The model tests the impact of the abovementioned variables on competitiveness in SEE.

After the proposed multiple linear regression the results showed a positive correlation between the GCI score and EDUC, FDI, IEF, while negative correlation was seen between the GCI, CPI and EU. These results were expected for all variables aside from EU membership (dummy variable).

The model was then tested for heteroscedasticity (Park and Breusch Pagan tests) which was confirmed to be present (the highest t-value was observed for the variable EDUC). The WLS method (with variable EDUC serving as the weight) was used to resolve the problem of heteroscedasticity. Afterwards a high R² (0.9988) was noted and non-significant p values (>0,05) that refer to multicollinearity. Because of this, the model was tested for multicollinearity by the coefficient of correlation and the VIF test. The results showed that multicollinearity exists (given absolute values r (EDUC, IEF), r (EDUC, CPI), r (CPI, IEF), r (EDUC, EU) >|0,8|; VIF test >5 (n=8)). The less significant collinear variables were dropped allowing for the final model to be arrived at (again testing for multicollinearity, with the results showing that there was none in the new model). The new model is presented in table 7.

In the model presented in table 7, the t-values are significant (|t|>2), and the p values indicate that the variables are statistically significant (p<0,05). R² shows

Dependent Variable: **GCI**

Method: Least Squares

Sample: 1 8

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	317.8222	10.49126	30.29399	0.0000
EDUC	1.287372	0.339660	3.790174	0.0193
FDI	0.000128	3.62E-05	3.525355	0.0243
R-squared	0.995801	Mean dependent var		10.54708
Adjusted R-squared	0.993701	S.D. dependent var		4.162219
S.E. of regression	0.330333	Akaike info criterion		0.920097
Sum squared resid	0.436480	Schwarz criterion		0.896915
Log likelihood	-0.220338	F-statistic		474.2850
Durbin-Watson stat	2.884375	Prob(F-statistic)		0.000018

Table 7: Regression analysis results (model without heteroscedasticity and multicollinearity)

Source: authors' calculation

that the model interprets 99.58 % of the variance, which means that the model is representative according to the abovementioned indicator.

The gross enrolment ratio in tertiary education is positively correlated with the countries' competitiveness, especially due to increasing awareness of the importance of education and a knowledge-based society. Foreign direct investment also has a positive impact on a country's competitiveness, but the impact is less significant.

If the gross enrolment ratio in tertiary education increases by 1, the GCI score will increase by 1.29; if FDI per capita increases by 1 000, the GCI score will increase by 0.13.

If the variables that were not included in the final model are regarded, the following can be concluded: the economic freedom index is correlated with foreign direct investment. Namely, if a country needs more foreign investments it is necessary to eliminate barriers for foreign capital inflow, that is, to increase the level of economic freedom and stimulate the development of institutions. The corruption perception index is also related to foreign direct investment. Corruption decreases investment in the realization of new projects, and slows growth, while large direct investments maximize opportunities for corruption. The fight against corruption can have an indirect impact on stimulating direct investments. It is also worth mentioning that the impact of EU membership changed in 2007, when two countries from SEE (Bulgaria and Romania) became EU members, which can be used as an implication for future research, keeping in mind the new countries that have appeared in the region (Kosovo and Montenegro). The dummy variable for a future study would be considerably different.

Although these countries are still developing, it should be pointed out that education is the key determinant for achieving competitiveness in developing countries as well as a very important precondition of their growth. In addition, it is necessary for these countries to further open to foreign direct investment, which can solve the problem of insufficient domestic resources for savings and investments in the economy. The aforementioned countries have problems with

attracting investment because of their specific characteristics. Creating a quality education system, research centres etc. would contribute to attracting foreign direct investment which, in turn, if well managed, could increase competitiveness.


5. Conclusion

The processes of regional cooperation and integration have stimulated the region's countries to achieve peace and stability, as well as to create closer economic cooperation. Among their numerous common positive features, the countries' deficient competitiveness is a significant negative feature. The analyses established that Greece and Croatia are the most competitive countries according to the Global Competitiveness Index, while Greece achieved better results than Croatia in implementing the goals of the Lisbon strategy. This was expected, as Greece is an EU member country and as such has the obligation to implement a national reform program according to common directives.

Based on the individual matrix for each Southeast European country, the TOWS matrix was made for the whole SEE region and the maxi-maxi ("expansionary") strategy was proposed as the best way to utilize strengths and opportunities and overcome weaknesses. This would be the best way for the countries to successfully defend themselves from different threats or to avoid them.

If Southeast Europe is considered a part of Central and Eastern Europe, it can be established that it is a large economic market that will be attractive in the coming years. However, in order to ensure that the SEE market functions as a large market, it is necessary to reduce market segmentation. Regional cooperation is one of the

important elements in creating new relations in SEE, which will bring political stability and economic development, which are important preconditions for the countries of this region in their EU accession processes. The most important factors for economic development will be solving the problems of corruption, increasing the efficiency of public administration and promoting entrepreneurship. The strengths and threats of the region were analysed within the TOWS matrix and, based on the results, a cross-section analysis was used in order to establish the most important determinants of competitiveness. At first the model included the following independent variables: index of economic freedom, corruption perception index, FDI per capita, gross enrolment ratio in tertiary education and a dummy variable (EU membership). The final model indicated the strong positive impact of gross enrolment ratio in tertiary education on competitiveness, while the impact of FDI, although positive as well, was considerably lower.

The region's countries, which are rich in various resources, have a favourable transport position and are initiating reforms, have only just recently begun their transitions into market economies. In the development of their economies they have to confront numerous obstacles which they need to overcome to be able to become desirable for foreign capital as well as to improve their competitiveness. The research confirmed that knowledge (education) is the key determinant of a country's competitiveness, not only in developed countries but also in less developed ones. Therefore, the only way to increase competitiveness is to increase investments in education, modernize the programmes of higher education institutions, connect educational institutions to the economy, and increase the exchange (mobility) of teachers and students between universities, thus generating the exchange of ideas. This process will not be isolated. In the future, it will have a wide range of implications for economic development, as well as for the society as a whole. 

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- i This region includes Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Montenegro, Romania, Serbia (plus Kosovo now) and Greece.
- ii The original Agreement was signed in 1992 by the following countries: Hungary, Poland and Czechoslovakia.
- iii Greece isn't a member of CEFTA, and Romania and Bulgaria ended their membership when they entered the EU.
- iv Competitiveness is also monitored by The Institute for Management Development which publishes the World Competitiveness Yearbook. However most Southeast European countries aren't included in that report, so the analyses will be focused on the GCR, which produces the World Economic Forum.
- v According to the The Global Competitiveness Report 2006-2007.
- vi Gross enrolment ratio- total enrolment in a specific level of education, expressed as a percentage of the population.
- vii Distribution of Global Economic Freedom- 0-49.9 % repressed; 50-59.9 % mostly not free; 60-69.9 % moderately free; 70-79.9 % mostly free; 80-100 % free.
- viii CPI score- perception of the degree of corruption, ranging between 10 (highly clean) and 0 (highly corrupt).

Is Public Debt Management in Slovenia Efficient: An Empirical Analysis

Primož Dolenc*

Abstract:

Public debt management is one of basic fiscal functions the government performs. Public debt usually comprises a large share of nation's gross domestic product and is therefore an important instrument of fiscal policy. The purpose of this paper is to shed light on public debt management in Slovenia. Our goal was to estimate and present effects of debt management transactions performed by Slovenian Debt management office from year 2002 onwards. We found that these transactions had significant and positive effects on costs of public debt and also on its dynamics: they caused the turn in interest payments' trend and lowered the dynamics of upward-sloping trend of public debt.

Keywords: public debt, debt management, Slovenia

DOI:

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1. Introduction

Public debt management is one of basic fiscal functions the government performs. In fact, this issue has been pointed out numerous times in recent years as economies (and Slovenia as the last one) adopted Euro. Data shows that EU15 member states have a large debt-to-GDP ratio – there are only few exemptions, but in all other countries this ratio exceeds 50% (see ECB (2004) and OECD (2003)). With public debt the government undoubtedly affects strongly financial markets, the market that has become so important in recent decades. And interest payments on public debt have risen to a significant share of public expenditures.

Governments have different goals in conducting public debt management policies which are often linked to public borrowing as such. Some are purely theoretical, but most debt management offices have their own very practical views on what the goal of public debt management is/should be. Wolswijk and de Haan (2005) see the most appropriate goals of public debt management in stabilization of the economy, development of financial market, support to monetary policy, and minimization of costs and risks caused or by connected with public debt. This is similar to what Tobin

argued in early 60s (see Tobin, 1963), when he saw public debt as dramatically different to private one, naturally because of it's broader impacts. Barro (1999), Missale (1999) and other academics defend broader, macroeconomic, public etc. value of public debt, which therefore leads to a specific public debt management proposed practices.

The practical view on public debt and public debt management nowadays is less linked to theoretical discourse and more or less practically linked to concrete fiscal goals of public debt management. Kalderen (1997) as a primary goal of public debt management points out an efficient borrowing of the government; the primary goal therefore seems to be cost minimization of budget financing. In fact, the analysis of Carracedo and Dattels (1997) clearly shows that vast majority (86%) of countries claim cost minimization as a primary goal of government debt management. Cassard and Folkerts-Landau (1997)

* Primož Dolenc

Faculty of management Koper
Cankarjeva 5, SI-6000 Koper
email: primoz.dolenc@fm-kp.si

believe that in the past governments were more or less focused on short-term costs, while nowadays a longer-term perspective is relevant – long-term cost minimization, not only current cost minimization. Therefore the usual primary goal of public debt management today in many developed countries is purely the cost and risk minimization in correlation to public debt/past fiscal deficits.

Some secondary goals of public debt management do exist, of course. For developed economies Kladeren (1997) underlines two such goals. First, public debt management can help monetary policy to carry out monetary transactions more efficiently – monetary transmission mechanism is more efficient if the central bank carries out monetary policy operations via so-called “open-market-operations”; however, such operations are possible and efficient only on developed financial market, especially on developed market for government securities. Even though this goal widely is used in practice Townend (1997) finds that it is usually not exposed separately in majority of OECD countries. And secondly, public debt management can help develop broader financial market in the economy.

Public debt management is not a static term. On the contrary, the policy and practice of public debt management has been developing since first public debt and goes hand in hand with development of financial markets. Wolswijk and de Haan (2005) argue that a vast development of public debt management practices has been made when euro introduction and Maastricht criteria first became a serious issue. Then, after the introduction of euro after *big-bang* in 1999, when majority of exchange rate risk has been abolished, when market conventions have been introduced and when clearing systems have been interconnected, most public debt managers have boosted its “active debt management” role.

There are – however – countries where these “practical goals” are not (yet) primary goals of public debt management and where other broader goals (especially economic stabilization, financial market development etc.) are more emphasized. Transition countries, such as Slovenia, are such examples.

The main goal of this paper is to analyze the effect of debt management operations performed by Slovenian Ministry of finance (Debt management office) in 2002 and onwards. The year 2002 is taken as a base year because in 2002 some major debt management transactions were performed, while in preceding years more or less only

standard primary market transactions were used. We can only speculate, whether or not these operations were strictly connected with the goal of early euro adoption; nevertheless, results were far beyond expected.

We test the following main hypothesis:

The introduction of active debt management in Slovenia in 2004 enhanced the efficiency of debt management and lowered the cost of government borrowing.

The paper is organized as follows. After introduction, a general overview on Slovenian debt and debt management is given in chapter 2. Chapter 3 discusses data and methodology used in our analysis. The last chapter before conclusion presents and discusses the empirical case.

2. Public debt and debt management in Slovenia

Slovenia went through several stages of public debt management since its transition to market economy in early 1990s. It started with extensive public debt originated in past Yugoslavia, which part it was until 1991. It has no public finances’ deficit until 1997, but moved later on to moderate public finances’ deficit. Since its inclusion in EU zone it coped with Maastricht criteria and in 2007 as a first transition country adopted euro.

Its independence has not started with “zero-balance”, but with relatively large implicit and explicit inherited (public) debt. As implicit debt we mean the cost of urgent reform/sanitization/transition costs of banking sector and some major industries¹. Until 1997 these “inherited costs” were the main drive of public debt in Slovenia. Later on, the majority of the increase of public debt was caused by budget deficit. Figure 1 shows the dynamics of public debt in Slovenia in recent years – absolute figures are divided regarding the background of the debt origin (sanitization vs. budget deficit).

¹ Two biggest Slovenian banks had to be capitalized, reconstructed and »pumped« with liquidity. It was done with public funds. These banks received a large amounts sovereign bonds that helped solve liquidity problems and enabled banks to get regular income from their prime »investments«.

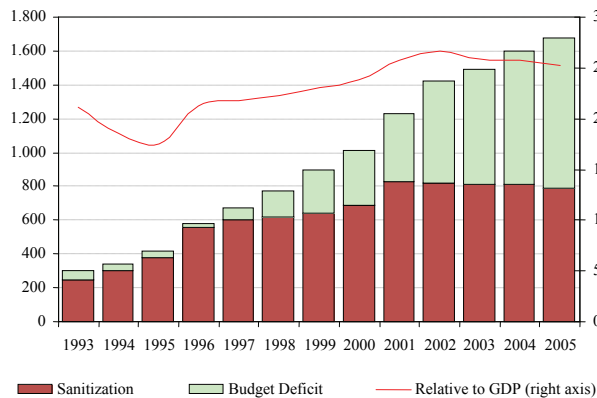


Figure 1: Public debt in Slovenia in the period from 1993 to 2005 in absolute terms (in bn SIT) and relative to GDP (in %)

Source: Ministry of finance and own calculations

From public debt perspective, Maastricht criteria in Slovenia were never in question. However, since the independence, public debt has been growing in absolute and relative terms and so have costs of such debt. But until 2002 there were practically no real public debt management in place, while the only goal of Debt management office in Slovenia (which is a part of the Ministry of finance) was to ensure normal budget execution.

In 2002 some major shifts occurred: the goals and principles of debt management changed from passive to active, and some major debt management transactions were executed. Until 2001 the major goals of debt “management” were more or less theoretically focused on financial market development and budget financing, while in 2002 lowering public debt costs as one of the primary goals was stated explicitly. In 2002 Slovenian government sold a large share in largest Slovenian bank (Nova Ljubljanska banka), which enabled first debt management transactions – in the period from 2002 until 2005 the income from “privatization” was used to payback some old and expensive government securities in the total amount of SIT 110bn (i.e. €460 mn). Besides cash operations also an innovative actions took place. With cash operations we mean operations where the government used the proceeds of the privatization for pay-off with cash the existing sovereign debt to debt holders. On the other hand, due to relatively low liquidity of Slovenian financial market at that period, that could be affected intensively by liquidity shock/over-liquidity in the still relatively closed financial market with some particularities in monetary policy, the decision of the government (harmonized with the central bank) was to try to avoid this over-liquidity. One solution was found:

holders of old sovereign debt (with call option, but no call premium) were offered an exchange of debt – old-for-new at some premium. Several goals were achieved, e.g.: i) the effect on financial market was negligible, ii) the government lowered significantly the cost of borrowing, iii) even though some premium had to be paid, the macroeconomic effect due to avoidance of liquidity shock and as a result of lower cost of new debt of the transaction was estimated as significantly positive on the basis of net present value (for more details see Dolenc 2006).

These debt management operations changed dramatically the structure of existing debt, while all major transition issues of government bonds were replaced with representative issues, issued at lower costs. These actions were followed also by secondary market development, which was lacking until 2002. Dolenc (2006) offers a more detailed insight in these transactions, while the purpose of this paper is merely to estimate longer term effects of such actions.

3. Data and methodology

The analysis is based on yearly data for the period from 1993 to 2005. We took three groups of data into consideration (as dependent variables):

- interest payments on public debt,
- interest payments on public debt with indexation cost² and
- amount of public debt at the end of the year.

With regards to the time horizon it has to be highlighted that one drawback of the analysis is without doubt the period after changes in debt management. Thus any conclusions have to be explained with caution. However, due to this drawback the methodology has been simplified to the level that still allows making relative firm conclusions.

To prove the hypothesis we considered to use linear trend analysis and test the significance of breaks in trend line. Therefore we formed time component t ($=1, \dots, 13$) for each year and two dummy variables (D_1 and D_2) – one for each break³:

² Public debt in Slovenia was also linked to inflation or (prior to euro adoption) denominated in DEM, EUR or USD. According to methodology interest payments include only pure interest payments even though the real cost of debt include also payments of so-called indexation costs.

³ Regarding the fact that budget deficit first occurred in 1997, the first expected break in trend line is in this year, whereas the second break tends to be after debt management operations were finished.

$$D_1 = \begin{cases} 0 & ; \quad t < t_1 \\ 1 & ; \quad t \geq t_1 \end{cases} \quad [1]$$

and

$$D_2 = \begin{cases} 0 & ; \quad t < t_2 \\ 1 & ; \quad t \geq t_2 \end{cases}. \quad [2]$$

For estimation the parameters of linear trend simple regression analysis was used. To test the significance of the break, the following trend line was estimated:

$$T = \beta_1 + \beta_2 t + \beta_3 V_1 + \beta_4 V_2, \quad [3]$$

where:

$$V_1 = \begin{cases} 0 & ; \quad t \leq t_1 \\ (t - t_1); & t > t_1 \end{cases} \quad [4]$$

and

$$V_2 = \begin{cases} 0 & ; \quad t \leq t_2 \\ (t - t_2); & t > t_2 \end{cases}. \quad [5]$$

Parameter t_1 always denotes year 1997, and t_2 tests the second brake if present.

Three analysis were performed, one for each dependent variable.

It is possible to speculate that some other factors affected 1) the level of interest rates in Slovenia, and 2) therefore also the level of public debt. The fact is, that interest rates have been constantly falling in Slovenia since the independence due to different reasons. Two are the most obvious. One is of course falling trend of inflation in Slovenia. Second is constantly improved credit rating of Slovenia⁴. However, these changes have been happening constantly without any major fall in any of the subsequent years, especially not from 2001 to 2002. Thus we speculate that any major shift in 2002 or 2003 might be attributable to the only major shift in one of many determinants of public debt – debt management policy.

4. Results and discussion

Figure 2 shows that interest payments on public debt in fact followed the trend we assumed. The trend of interest payments broke first in 1997, the first year of budget deficit in Slovenia. As shown in Table 1, until 1997 interest payments had been rising for SIT 3,3bn yearly, but later

on (until 2003) the slope became steeper and amounted SIT 9.5bn⁵ (in real prices as of 2002).

The analysis shows that after major debt management transactions in 2002, the upward-sloping trend for interest payments became downward-sloping. Results were not shown immediately, but after two years the interest payments became falling, even though public debt has still been rising.

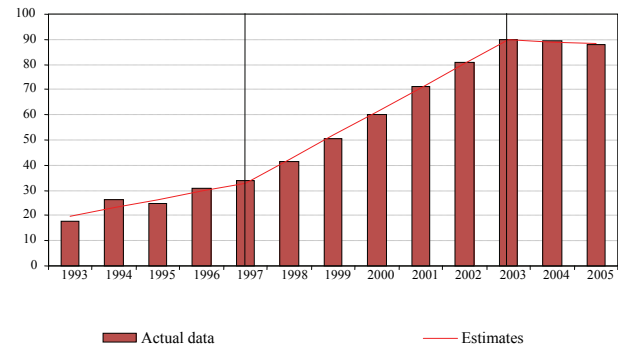


Figure 2: Actual and estimated interest payments on public debt in Slovenia in the period from 1993 to 2005 (in bn SIT)

Source: Ministry of finance and own calculations.

Variable	Regression coefficient	t statistics	p value	F statistics	DW statistics	R ²
constant	16,46	9,92	0,00	1051,62	2,20	0,99
t	3,28	7,30	0,00			
V ₁	6,21	9,50	0,00			
V ₂	-10,23	-8,82	0,00			

Table 1: Linear trend and trend's breaks estimation for interest payments

Source: own calculations.

Similar are the results for interest payments if we include also indexation costs: these costs began to fall. In fact, these costs of public debt became to fall already in 2002 and not in 2003 (as pure interest payment) – Figure 3 and Table 2. This “earlier effect” is in a way logical, because the debt management office repaid first debt with highest costs – and such debt was the inflation or foreign-exchange linked debt.

⁴ The credit risk for Slovenia, for example increased to AA- (S&P) in June 2004 and then again to AA (S&P) in May 2006).

⁵ Note that € 1 amounted SIT 239.64 according to official exchange rate used for euro adoption in Slovenia.

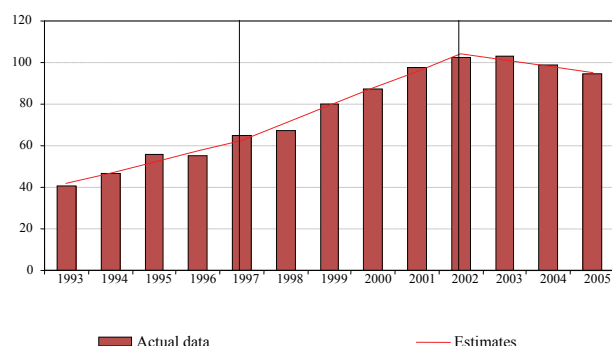


Figure 3: Actual and estimated interest payments on public debt (with indexation costs) in Slovenia in the period from 1993 to 2005 (in bn SIT)

Source: Ministry of finance and own calculations.

Variable	Regression coefficient	t statistics	p value	F statistics	DW statistics	R ²
constant	36,40	15,63	0,00	369,86	2,00	0,99
t	5,22	8,16	0,00			
V ₁	3,14	3,16	0,01			
V ₂	-11,45	-9,30	0,00			

Table 2: Linear trend and trend's breaks estimation for interest payments (with indexation costs)

Source: own calculations.

The results for public debt itself are also interesting. Even though on first sight there is no significant effect, statistical test proves a significant brake in year 2002 (Figure 4 and Table 3). The amount of public debt has not fallen due to debt management operation, though, but the dynamics of public debt became slower. Until 2002 the amount of public debt had been rising for almost SIT 150bn yearly, but after 2002 the yearly increase amounted on average only slightly more than SIT 100bn.

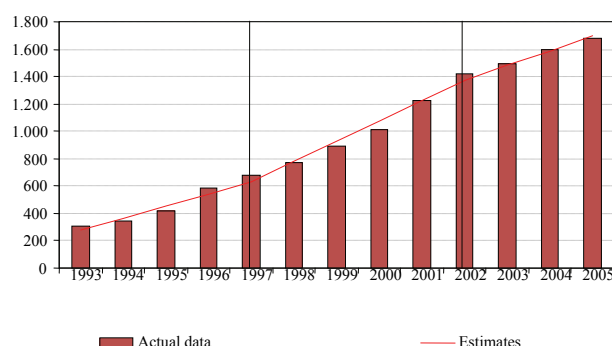


Figure 4: Actual and estimated amount of public debt in Slovenia in the period from 1993 to 2005 (in bn SIT)

Source: Ministry of finance and own calculations.

Variable	Regression coefficient	t statistics	p value	F statistics	DW statistics	R ²
constant	190.72	4.92	0.00	637.02	2.46	0.99
t	87.54	8.23	0.00			
V ₁	62.14	3.75	0.00			
V ₂	-43.96	-2.15	0.06			

Table 3: Linear trend and trend's breaks estimation for the amount of public debt

Source: own calculations


According to above analysis we can conclude that debt management operations, performed by Slovenian ministry of finance in year 2002 were successful as the cost of servicing public debt significantly decreased (in fact not only they decreased, but the trend curve shifted as well) and the dynamics of public debt decreased as well.

Further analysis can be focused on the effects of public debt management operations performed after Slovenia adopted euro in 2007. Some similar operations as in 2002 were accompanied with some drastic changes in primary and secondary market for government securities. But due to lack of "degrees of freedom" the analysis of recent developments were not yet possible, thus they remain for future research.

5. Conclusion

This paper tried to shed light on public debt management in the first transition EU member state that adopted euro in 2007. The goal was not to discuss theoretically possible debt management practices or go into details in debt management operations performed by Slovenian Debt management office; the goal to estimate and present effects of these transactions.

In the paper it is argued that debt management transactions, performed by Slovenian Debt management office from year 2002 onwards had significant and positive effects on costs of public debt and also on its dynamics. It was documented that debt management transactions broke the upward-sloping linear trend in interest payments on public debt (the turn was significantly proven in 2003 for pure interest payments and in 2002 for interest payments including indexation costs) and lowered the upward-sloping trend in the dynamics of public debt as such.

For future research some additional analysis is left to be performed. Some major debt management operations and changes in microstructure of government securities market were performed as soon as Slovenia adopted euro. These changes were not taken into consideration in this analysis. Besides that after a while the analysis could include a longer time period that would enable to make even firmer conclusions. 

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The Impact of Foreign Direct Investment from Major Source Countries on Turkish Trade with the European Union

Rahmi CETİN, Sami TABAN*

Abstract:

The available literature on the relationship between foreign direct investment (FDI) and trade has so far shown mixed results. Although traditional trade theory showed that factor movements and trade are a perfect substitute, new trade and FDI theories argue that factor movements and trade can be either a substitute or complementary to each other, depending on the types of investment made by multinational enterprises (MNEs) and macroeconomic policies used by the host countries. This paper attempts to test empirically the existence of a long-run relationship between inward FDI and the trade performance of Turkey over the period 1976-2006 by applying the multivariate cointegration technique of Johansen and Juselius (1990). In particular, the effects of FDI from major source countries (i.e., the US, Japan, and the EU) are examined to see whether they have different impacts on Turkish trade with the EU. The results of the long-run export supply model indicate that both Japanese and EU FDI play a significant role in the level of Turkish exports to the EU market, while US FDI causes a reduction in the level of Turkish exports to the EU. Similarly, the results of the long-run import demand model show that EU FDI contributes the level of Turkish imports from the EU by raising demands for intermediate and capital goods from the home market, while Japanese FDI led to a decrease in the level of Turkish imports from the EU market.

JEL: C22, F21, F19.

DOI:

1. Introduction

The extent of multinational activity in the world economy and the share of world trade accounted for by multinational enterprises have risen steadily over time with the removal of national barriers to capital movements and integration of regional markets. For instance, the gross product associated with international production accounted for 10% of world GDP and one-third of world exports in 2006 (UNCTAD, 2007). Voluminous theoretical literature has been written on the relationship between FDI and trade flows (see for example, Mundell, 1957; Purvis, 1972; Kojima, 1973 and 1982, Helpman, 1984, Markusen, 1984 and 1995). Kojima's hypothesis is of particular interest to this study, as his theory points out the different trade impacts of FDI inflows from different source countries.

Parallel to these developments, Turkey adopted liberal economic policies in 1980 and created a favourable environment for foreign investors to increase Turkey's international competitiveness and allow Turkey to

Rahmi CETİN*

Faculty of Economics and Administrative Sciences,
Department of Economics, K.Maraş Sütçü İmam
University, K.Maraş, Turkey.
e-mail: crahmi@hotmail.com

Sami TABAN

Faculty of Economics and Administrative Sciences,
Department of Economics, Eskişehir Osmangazi
University, Eskişehir, Turkey.
e-mail: staban1@hotmail.com

achieve high levels of economic growth. Since the beginning of the 1980 program, actual FDI flows to the country increased steadily from \$823 million in 1999 to \$4.2 billion in 2004 and then to \$19.1 billion in 2006. Turkey attracted 82% of its total FDI from the EU in 2006. As a result, the importance of FDI in Turkey's total investment increased rapidly from 5% in 2004 to 20% in 2006 (IMF, 2007). Similarly, Turkey also achieved a tremendous level of growth in its exports and imports during the last three decades. The volume of bilateral trade with the EU has considerably increased over the last decade, especially after the completion of the customs union (Ulgen and Zahariadis, 2004). Turkey became the seventh largest trade partner of the EU, following the USA, China, Russia, Switzerland, Japan and Norway (Trade-EC-Europa, 2007:3). Is this a coincidence, or is there a special relationship between FDI and trade level? In light of these developments in the Turkish economy, this paper is designed to investigate the impact of FDI on the trade performance of Turkey.

The rest of the paper is organized as follows. Section 2 consists of a brief review of the theories explaining the relationship between FDI and trade. Section 3 sets out export and import models. Section 4 contains the methodology and the interpretations of the estimation results from econometric models. Section 5 summarizes the main conclusions.

2. Theoretical Background

The earliest theoretical explanation of the relationship between trade and FDI was given by Mundell (1957), who argued that commodity trade is at least to some extent a substitute for factor movements or *vice versa*, since trade is assumed to be explained by differences in factor endowments. This implies that an increase in trade impediments stimulates factor movements, while an increase in restrictions to factor movements stimulates trade. Mundell also explored the special case where trade and factor movements are perfect substitutes. Under restrictive assumptions of zero transport costs, no market distortions, no economies of scale, and identical production technology, Mundell argued that free trade tends to equalise factor prices through the equalisation of commodity prices, even when factors are immobile between the two countries. It is equally true that perfect capital mobility tends to equalise commodity prices through the equalisation of factor prices, even when commodity movements are not allowed. However, the

substitution model of Mundell was challenged by Purvis (1972), Kojima (1973), Markusen (1984), and Markusen and Venables (1998) on the basis of imperfect competition. The real world is characterised by market distortions, such as trade barriers, transport costs, differences in production technologies and factor endowments, etc.

In contrast to Mundell's substitution model, Purvis (1972) proposed a model where capital movements and trade complement each other. He argued that foreign investment is complementary to commodity trade, if it creates and/or expands the opportunity to import one product and to export the other. Purvis obtains such complementarity by relaxing the assumption of identical production technology between two countries. Consider a model of two countries, A and B, which produce two goods, X and Y, respectively, with two factors of production, capital and labour. Assume that country A is capital-abundant relative to country B and good Y is capital-intensive relative to good X. Also assume that country B has comparatively higher capital productivity in good Y than country A. If there are no barriers to capital movements, capital flows from country A to country B until the marginal productivity of capital is equalised between the two countries. After capital movements, the increased output of good Y in country B is expected to be more than the decreased output of good Y in country A.

Kojima (1973, 1975, 1982, and 1995) further developed the Mundell and Purvis models and specified the conditions for FDI to be a substitute or complementary to commodity trade. He played a pioneering role in developing a systematic macroeconomic approach to FDI and in integrating FDI with conventional trade theory. In order to explain the link between FDI and trade, Kojima (1975) distinguished FDI from international money transfer and argued that FDI involves not only the transfer of money, but also the transplantation of production technology through training labour, engineers, and managers. Kojima argued that if FDI takes place in labour-intensive industries where the host country (developing) has comparative advantages, it improves the productivity of the host country and therefore creates more trade with the investing country. This is because the smaller the technological gap between the investing and host countries, the easier it is to transplant production technology and improve the productivity of the host country. However, FDI which takes place in the capital-intensive sectors are trade-substitute or import-

substituting. Although the theory can be applied to FDI flows between industrialised countries and developing countries, it does not explain “two-way” investments between industrialised countries. This gap in the trade literature was noticed by Arndt (1974), Geroski (1979), Mason (1980), Buckley (1983), and Lee (1984) and filled by the “new” trade theory.

In light of this hypothesis, Kojima made a distinction between Japanese and US FDI. The former was originated in labour-intensive and resource-based industries in which Japan was losing comparative advantage, while the latter was originated in R&D intensive industries in which the US was gaining comparative advantage. As a result, Japanese FDI was trade-oriented, since such investment fits the host country’s comparative advantage. On the other hand, US FDI was anti-trade-oriented, since such investment does not fit the host country’s comparative advantage, and eventually reduces the total output of the two countries and their trade volume. In other words, Japanese-type FDI expands exports from the host developing countries, while the US-type FDI results in import-substitution for the host developing countries. The hypothesis that Japanese FDI is more trade-oriented than US FDI was tested empirically for a group of Asian and Latin American countries. This paper will conduct such a test for the Turkish economy by incorporating EU FDI into the system.

Since the early 1980s, a small number of international economists have constructed new models to integrate FDI into trade theories. Markusen (1984), Brainard (1993), Horstmann and Markusen (1992), Markusen (1995), and Markusen and Venables (1998) produced models to integrate horizontal FDI into trade theory. Horizontal FDI consists of the duplication of the entire production process in several countries. The three key elements of these models are firm-level activities, such as research and development, which are joint inputs across plants, plant-level scale economies, and tariffs or transport costs between countries. According to Brainard (1993) and Horstmann and Markusen (1992), when countries are identical in technologies, preferences, and factor endowments, the higher the value of firm-level fixed costs and tariffs and transport costs relative to plant-level fixed costs, the more likely the presence of horizontal FDI. Contrary to conventional trade theory, trade cannot be explained by comparative advantages, since the countries have similar market size, technologies, and factor endowments. Here, horizontal FDI is likely to

replace trade, since the countries invest in each other to produce same products with little variation.

Markusen and Venables (1998) further elaborated the theory to introduce asymmetries between countries in terms of market size, technologies, and factor endowments. According to this model, horizontal direct investments will dominate international economic activities when countries become more similar in market size, technology, and relative factor endowments, provided that transport costs are not too small. Here horizontal FDI is a substitute for international trade. However, when the countries are moderately different in any of these characteristics, demands from the disadvantaged country will be met through both direct investments of MNEs and exports of national firms in the advantaged country. When the degree of difference is very large, MNEs will leave the disadvantaged country completely and exports will dominate international trade between the countries.

The literature on foreign direct investment also fails to give a clear-cut relationship between FDI and trade. There are two well-known perspectives in this field: the product cycle theory of Vernon (1966) and the eclectic paradigm of Dunning (1993). According to the product cycle theory, the relationship between FDI and trade is dynamic and changes depending on the stage of the life cycle of a new product. In the first stage of the product cycle, demand from another developed country is satisfied through the exports of an innovating firm. In the second stage, competitors in another developed country acquire firm-specific knowledge of the innovating firm and cost considerations become important. In order to remain competitive and keep its market share, the innovating firm moves its production unit to that country. Therefore, for a single product firm, FDI is viewed as a substitute for the exports of this good from the investing country. In the final stage, production costs become very important for both the innovating firm and its competitors. Therefore, they shift their production units to low-cost locations (i.e., developing countries) and export goods from these countries back to their home countries. Here FDI is viewed as a complement to trade when both countries have different factor endowments.

On the other hand, the eclectic paradigm classifies four types of FDI to explain the relationship between FDI and trade flows. First, resource-seeking FDI relates to the exploitation of natural resources in the host countries. This type of FDI takes place between a resource-rich country and a developed country and therefore is trade-

oriented; the former exports resource-intensive products, while the latter may export agricultural and mining equipments. Second, market-seeking FDI aims to supply final goods to a host country. Market-seeking FDI is often called "import-substituting FDI" since it replaces the exports of final products from the home country. Third, efficiency-seeking FDI occurs when MNEs shift part of their value-added chain to lower cost locations to increase the profitability of their overall operations. For instance, to improve their efficiencies, MNEs move labour-intensive segments of their production process to developing countries. This type of FDI generally creates trade, since it gives rise to the exports of labour-intensive products and promotes the exports of raw materials and intermediate goods from the home countries. Finally, strategic asset-seeking FDI usually arises at an advanced stage of the globalisation of a firm when the firm invests in a developed country in order to acquire R&D capabilities. This type of FDI is also predominantly export-oriented and usually promotes the exports of high-skilled labour services from developing countries and gives rise to the export of services and equipments from the home countries.

3. The Model

To analyse the relationship between FDI from three source countries and Turkish trade with the EU, two types of models were constructed: export supply and import demand. Following the models of Ramstetter (1986), Naya and Ramstetter (1992), Goldberg and Klein (1997) and Mankovska (2001) and given foreign and national income levels, export supply and import demand were estimated as the functions of domestic investment (DI), FDI from the US (AI), Japan (JI), and the EU (EI), and the real exchange rates (ER). Annual domestic investment data was obtained by subtracting FDI data from gross fixed capital formation (GCF). Real exchange rate was used as a proxy for the export and import price indices.

FDI inflows from the US, Japan, and the EU to host countries show different characteristics because of differences in the industrial development of these source countries and differences in the economic structure of recipient countries (Kojima, 1973 and 1982). Kojima argued that Japanese FDI is more trade-oriented than the US FDI, since most Japanese FDI takes place in the labour-intensive and/or resource-oriented industries, where the host developing countries have comparative advantages. This theory has been tested by a number of empirical

works. The main contribution of this paper to the empirical literature is to add the EU FDI into the trade models. Following the above empirical studies and assuming "infinite" export demand and import supply elasticities, the export supply and import demand equations for Turkey can be written as follows:

$$XE_t = \alpha_0 + \alpha_1 DI_t + \alpha_2 AI_t + \alpha_3 JI_t + \alpha_4 EI_t + \alpha_5 ER_t + u_t \quad (1)$$

$$ME_t = \beta_0 + \beta_1 DI_t + \beta_2 AI_t + \beta_3 JI_t + \beta_4 EI_t + \beta_5 ER_t + v_t \quad (2)$$

where u and v denote serially uncorrelated error terms with zero mean and constant variances and t is time period.

The reasons why these variables were selected and their likely impacts on trade are several. The relationship between inward FDI and exports for developing countries has been investigated in a number of empirical studies (e.g., Abe, 1983; Kojima, 1985; Ramstetter, 1986; Gullett, 1990; Naya and Ramstetter, 1992; Goldberg and Klein, 1997). According to the existing theories, the overall impact of inward FDI on the exports of host developing countries are not predictable. For instance, if the host country has a large and protected domestic market, FDI is more likely to produce for the domestic market. Alternatively, if FDI takes place in a host country because of cheap labour and natural resources, then FDI is more likely to improve the export competitiveness of the host country through exploiting the abundant factors of production. Therefore, either a positive or negative relationship is expected between inward FDI and exports.

As for the relationship between inward FDI and imports from the host developing countries, again either a positive or negative relationship can arise. It is argued in the literature that while the essence of FDI leads to an increase in the level of imports of intermediate and capital goods, there is also substitution of imports with the local production of consumer goods in the host countries. For instance, if multinational firms start producing goods in the host country as a reaction to high tariffs or any other reason, then imports of those goods would decrease or stop completely.

Domestic investment has been included as another explanatory variable and was found to have a positive and significant impact on the country's export performance. Examples of these empirical studies include Ramstetter, 1986; Gullett, 1990; Orr, 1991; Naya and Ramstetter, 1992; Leichenko and Erickson, 1997; and Sun, 2001. Therefore, a positive sign on the coefficient of domestic investment is expected in our export models.

However, the relationship between domestic investment and import level is not predictable. They can be either positively or negatively related to each other, depending on the type of economic policies adopted by the country concerned. If the country follows import substitution policies, domestic investment is likely to reduce the level of imports. On balance, the value of import creation (the need for foreign intermediate and capital goods) is outweighed by the value of import substitution. On the other hand, if the country adopts export promotion policies, then domestic investment is more likely to increase the level of imports. In this case, the value of import substitution is outweighed by the value of import creation.

Finally, the real exchange rate variable, which was included in the trade models, has also been studied by a number of empirical works, and these works have established significant relationships between the real exchange rates and trade (e.g., Frankel and Wei, 1993; Gagnon, 1993; Bayoumi et al., 1996; and Goldberg and Klein, 1997). An appreciation of the exchange rate (a decrease in the mean level of the exchange rate) increases (decreases) the expected profits of importers (exporters), thus resulting in an increase (decrease) in import (export) volume. The opposite effect occurs in the case of an increase in the mean level of the exchange rate (currency depreciation). Therefore, based on the Turkish currency value of a foreign currency, imports are expected to be negatively associated with changes in real exchange rates, while exports are expected to be positively associated with changes in real exchange rates.

4. Methodology and Test Results

Before testing for cointegration, the order of integration of the individual time series must be determined. This study performed both Augmented Dickey-Fuller (ADF) (1979) and Phillips-Perron (PP) (1988) tests to examine the order of integration of the series included in the analysis by the following equations:

$$\Delta y_t = \alpha + \delta y_{t-1} + \varepsilon_t \quad (3)$$

$$\Delta y_t = \alpha + \delta y_{t-1} + \sum_{i=1}^k \gamma_i \Delta y_{t-i} + \varepsilon_t \quad (4)$$

where Δy is the first difference of y series, α is a constant term, ε_t is the residual term and k is the lagged

values of Δy_t , which is included to avoid serial correlation in the residuals. In the context of the ADF test, a test for non-stationary of the series, y , amounts to a t -test of $\delta = 0$. The alternative hypothesis of stationary test requires that δ be significantly negative. If the absolute value of the computed t -statistics for δ exceeds the absolute critical value, then the null hypothesis that the log level of y series is not stationary must be rejected. If, on the other hand, it is less than the critical value, it can be concluded that the log level of y is non-stationary. In this case, the same regression must be repeated for the first difference of the logarithmic value of the series. The appropriate lag order of k in equation (3) was chosen on the basis of the Akaike Information Criteria (AIC).

Variables used in the trade models include real exports to the EU (XE); real imports from the EU (ME); FDI from the USA (AI), the EU (EI), and Japan (JI); real domestic investment (DI); and real effective exchange rate (ER).

The results of the ADF and PP unit root tests of the seven variables applied to both levels and the first differences of the variables are reported in Table 1.

Variable	Level		First Difference	
	ADF	PP	ADF	PP
XE	-0.92 (7)	0.29	-3.35* (7)	-7.52**
ME	-0.32 (2)	0.12	-5.45** (1)	-6.70**
DI	-0.92 (0)	-0.92	-3.33* (7)	-6.55**
AI	-1.93 (0)	-1.68	-6.37** (0)	-8.31**
JI	-1.62 (0)	-1.61	-5.45** (0)	-5.45**
EI	-0.76 (0)	-0.29	-6.58** (0)	-7.40**
ER	-1.63 (0)	-1.60	-6.00** (0)	-6.00**

Note: For the ADF test, numbers inside brackets are the numbers of lags selected by the AIC method. Superscripts ** and * denote rejection of the null hypothesis at the 1% and 5% significance levels. The critical values for ADF and PP are based on MacKinnon (1996).

Table 1: Unit Root Test Results

The results of unit root tests for the level of time series indicate that the null hypothesis that the time series has a unit root cannot be rejected for any variable. However, when the ADF and PP tests are applied to the first differences of each variable, all first differenced variables are seen as stationary. Based on these results, it is assumed that they are all integrated in the same order of one, that is $I(1)$. The fourth column of Table 1 reports the ADF test results on the first differences of the variables.

Since Turkey signed a customs union with the EU at the end of 1995, a structural break on XEU data is

expected. In order to examine whether any structural break occurred in the series due to this agreement we utilised Perron's (1989) structural break test. The author proposed three alternative models to test unit root with structural break; crash model (i.e., a shift in the intercept), changing growth model (i.e., a change in the slope) and change both in the intercept and in the slope. Because of the nature of this event this study preferred the second model (Model 2). To check whether a structural break happened in the relevant series the following equation was estimated by OLS and tested the negativity of η .

$$\Delta y_t = \alpha + \beta t + \delta DL + \gamma DT + \eta y_{t-1} + \sum_{i=1}^k \beta_i \Delta y_{t-i} + \varepsilon_t \quad (5)$$

where t is time trend; $DL = 1$ for $t = T_b + 1$ and 0 otherwise, where T_b is the break year; $DT = t - T_b$ if $t > T_b$ and 0 otherwise; and Δ is the first difference operator.

Structural break test results for XEU data are presented in Table 2. Since the computed values of t -statistics for y_{t-1} is smaller than the critical values there is no spurious root generated by the customs union on the XEU data. Therefore, we do not need to incorporate a slope dummy variable in the export function, which will be estimated in the following section.

T_b	k	β	δ	γ	η
1995	3	3.42	-1.29	-0.45	-3.71

Note: The critical values for 70 observation were reported by Perron (1997; 362) in Table 1. The critical values of t -statistics for Model 2 is -5.29, -5.59, and -6.32 at the 10%, 5%, and 1% levels. The optimum lag structure (k) is determined by the AIC.

Table 2: Structural Break Test Results for XEU using data from 1976-2006

All time series data required by the given trade models are found to be stationary in first differences. Therefore, the next step is to test whether there is a cointegration (a long-run relationship) among the set of variables or not. Since Engle-Granger's (1987) two-step methodology is criticized for several shortcomings¹, this

¹ These shortcomings include (a) the arbitrary normalization of the cointegration vector, (b) the assumption of one cointegrating vector in systems with more than two variables and (c) biased OLS estimators (biased OLS estimators may be due to the exclusion of short-run dynamics and the presence of endogenous explanatory variables). Furthermore, due to the non-normality of the distribution of the

study employed the Johansen and Juselius (1990) multivariate cointegration approach.

To carry out the Johansen and Juselius test, vector autoregression model (VAR) can be formulated as follows:

$$y_t = \Gamma_1(L)y_{t-1} + \Gamma_2(L)y_{t-1} + \dots + \Gamma_p(L)y_{t-1} + \varepsilon_{t-p} \quad (6)$$

where $y_t = (XE \text{ or } ME, DI, AI, JI, EI, ER)$ is a column vector and $\Gamma_i(L)$ with $i = 1, \dots, p$ is a lag operator. ε is the white noise residual of zero mean and constant variance.

The number of cointegration vectors [the cointegration rank], r , can be formally tested with the trace and maximum-eigenvalue statistics. The trace statistic tests the null hypothesis that the number of distinct cointegration vectors is less than or equal to r against the general alternative of n cointegrating vectors. The maximum-eigenvalue test evaluates the null hypothesis of r cointegration vectors against the alternative of $r+1$ cointegration vectors.

Series: XE, DI, AI, JI, EI, ER				
Lag-length: 1				
Trace statistics		Max-Eigen statistics		Hypothesized No. of Cointegrating vectors
Statistics	Critical Value 0.05%	Statistics	Critical Value 0.05%	
117.66	103.84	35.19	40.95	None*
82.47	76.97	30.39	34.80	At most 1*
52.07	54.07	27.59	28.58	At most 2
24.48	35.19	12.23	22.29	At most 3
12.24	20.26	8.57	15.89	At most 4
3.66	9.16	3.66	9.16	At most 5
Series: ME, DI, AI, JI, EI, ER				
Lag-length: 1				
123.86	103.84	48.84	40.95	None*
75.01	76.97	31.78	34.80	At most 1
43.22	54.07	19.69	28.58	At most 2
23.53	35.19	11.35	22.29	At most 3
12.17	20.26	6.74	15.89	At most 4
5.43	9.16	5.43	9.16	At most 5

* Denotes rejection of the hypothesis at the 5% level. The optimum lag-lengths are determined by the AIC.

Table 3: Johansen's Cointegration Test Results

Table 3 reports the trace and the maximum-eigenvalue statistics from the cointegration tests based

estimators, no final judgment can be passed on the significance of the estimated coefficient (Herzer, Lehmann and Siliverstovs, 2004).

on the VAR. In these tests, we examine the null hypotheses stating that the variables under consideration are not cointegrated against the alternatives and that there are at most 1 to 5 cointegrating equations.

While the trace test indicates two cointegrating vectors among the variables in equation (1), the max-eigen value test indicates no cointegration at the 5% level. On the other hand, both the trace and max-eigen test statistics indicate that there exists a unique cointegrating vector among the variables in equation (2).

The normalized cointegrating coefficients for equations (1) and (2) respectively are as follows:

$$\begin{aligned} \mathbf{XE} = & 5.682 + 0.117\mathbf{DI} - 1.960\mathbf{AI} + 0.403\mathbf{JI} + \\ & (0.434) \quad (0.103) \quad (-4.933)^{***} \quad (2.766)^{**} \\ & + 1.460\mathbf{EI} + 0.372\mathbf{ER} \\ & (3.567)^{***} \quad (0.262) \end{aligned} \quad (7)$$

$$\begin{aligned} \mathbf{ME} = & -3.754 + 1.198\mathbf{DI} + 0.126\mathbf{AI} - 0.358\mathbf{JI} + \\ & (-0.946) \quad (3.550)^{***} \quad (1.050) \quad (-8.379)^{***} \\ & + 0.680\mathbf{EI} - 0.761\mathbf{ER} \\ & (5.193)^{***} \quad (-1.811)^* \end{aligned} \quad (8)$$

Notes: t-values are given in brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

From equation (7), the following results are obtained. First, EU investment seems to have a positive and significant statistically impact on exports to the EU market. Turkish exports to the EU increase by 1.460 percent in response to a one percent rise in the level of EU FDI. The positive relationship between EU FDI and Turkish exports is well explained by the geographical proximity and cultural similarities between Turkey and Europe. Geographical and cultural distances prevent trade between countries, since extra costs have to be shared by the trading partners (Eaton and Tamura, 1994). A previous empirical study carried out by Cetin (2005) is also consistent with this finding. However, the size of the coefficient of EU FDI is quite large in the current work. This is understandable because of the time period studied and methodology used in both studies. Due to the time period selected in this study, the current study is more likely to capture the impact of the customs union agreement in 1995 on the export performance. Second, the estimated model provides strong evidence for the Kojima's theory since Japanese FDI is export-oriented, while the US FDI is ant-trade oriented. Finally, the coefficients of the real effective exchange rate and

domestic investment, although they have expected signs, are not statistically significant.

The estimation of the import equation (8) provides the following results. First, domestic investment seems to have a positive and statistically significant impact on imports from the EU market. This result implies that domestic investors obtain most of the required capital and intermediate goods from the EU market. Second, FDI inflows from the EU and Japan impart significantly different effects on Turkish imports from the EU countries. EU FDI is shown to have a positive and statistically significant impact on imports from the EU market. The import creation effect of such FDI can be explained in two ways; a) one reason is that the subsidiaries of EU firms, which operate in Turkey, depend on foreign capital and intermediate goods in order to produce final goods for the export market; b) another reason is that the existence of EU subsidiaries, together with the geographical proximity to the EU market, creates additional demand for complementary products, which are produced by the same or competing EU firms. Third, Japanese FDI is shown to impart a negative and statistically significant effect on imports from the EU market. The import substitution effect of Japanese FDI can be related to the concentration of some Japanese firms in the production of capital-intensive goods previously imported from EU countries. Finally, there is a significant relationship between real effective exchange rates and imports from the EU at the 10 percent level. This means that demand for foreign inputs from the EU is price elastic in the long-run. Particularly, the depreciation of the Turkish lira against foreign currencies (an increase in the value of real effective exchange rates between 1988-1990, 1994-2000, and 2001-2005) leads to decreases in the level of Turkish imports from EU countries.

Since the set of variables in the estimated export and import models (equations 7 and 8) are said to be cointegrated, it is possible to construct dynamic short-run error correction models (ECMs). The short-run ECMs used in this paper are obtained from the cointegrating regressions (equations 7 and 8) as follows:

$$\begin{aligned} \Delta \mathbf{XE}_t = & + \sum_{i=1}^n \alpha_{1i} \Delta \mathbf{XE}_{t-i} + \sum_{i=0}^n \alpha_{2i} \Delta \mathbf{DI}_{t-i} + \sum_{i=0}^n \alpha_{3i} \Delta \mathbf{AI}_{t-i} + \\ & + \sum_{i=0}^n \alpha_{4i} \Delta \mathbf{JI}_{t-i} + \sum_{i=0}^n \alpha_{5i} \Delta \mathbf{EI}_{t-i} + \sum_{i=0}^n \alpha_{6i} \Delta \mathbf{ER}_{t-i} + \alpha_7 \mathbf{EC}_{t-1} + u_t \end{aligned} \quad (9)$$

$$\Delta ME_t = + \sum_{i=1}^n \beta_{1i} \Delta ME_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta DI_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta AI_{t-i} + \sum_{i=0}^n \beta_{4i} \Delta JI_{t-i} + \sum_{i=0}^n \beta_{5i} \Delta EI_{t-i} + \sum_{i=0}^n \beta_{6i} \Delta ER_{t-i} + \beta_7 EC_{t-1} + v_t \quad (10)$$

where EC_{t-1} , is the lagged error correction term obtained from the cointegrating regressions; u_t and v_t are serially uncorrelated error terms; α_7 and β_7 depict the speeds of adjustment of the variables XE and ME to the long-run equilibrium respectively. The estimated coefficients of the short-run ECMs for the export supply function (XE) are obtained by the ordinary least squares (OLS) and the results are reported here with diagnostic tests in Table 4.

As Table 4 shows, the estimated short-run export and import models pass through the various diagnostic tests. The residuals seem to have no serial correlation, no autoregressive conditional heteroscedasticity, and no non-normality and specification error.

The error correction terms, EC_{t-1} , are statistically significant and have the expected negative sign. The values of -3.94 and -1.46 imply that the adjustment of the actual values towards the long-run equilibrium takes place faster in the export model than in the import model.² In addition, all the estimated short-run coefficients are consistent with the long-run coefficients except for American, Japanese, and the European FDI in the export function.

5. Conclusion

This paper investigated the relationship between inward FDI and Turkish trade with the EU over the period 1976-2006 by employing a multivariate cointegration approach. Previous empirical studies considered the flexible exchange rate regime, liberalisation of import policy, incentive schemes, and proximity to export markets as the main factors behind the success of Turkey's trade performance. In addition to

these factors, it was also found that FDI plays a significant role in Turkish trade performance. In testing the validity of an extended version of the Kojima's theory, FDI inflows from the USA, Japan, and the EU were incorporated into the bilateral export and import functions. The following results were obtained from the estimations.

The estimation results of the long-run export model

Variable	Dependent Variable: ΔXE		Dependent Variable: ΔME	
	Coefficient	t-Statistic	Coefficient	t-Statistic
EC_{t-1}	-3.943	-5.373***	-1.467	-5.385***
ΔXE_{t-1}	3.429	5.5983***	-----	-----
ΔME_{t-1}	-----	-----	0.847	5.747***
ΔME_{t-2}	-----	-----	0.266	3.034**
ΔME_{t-3}	-----	-----	-0.380	-1.974*
ΔDI	-0.309	-1.589	0.282	2.992**
ΔDI_{t-1}	0.255	1.413	0.544	2.819**
ΔDI_{t-2}	-0.469	-2.313**	0.789	4.602***
ΔAI	0.114	2.684**	-0.058	-3.056***
ΔAI_{t-1}	0.117	2.495**	-0.217	-8.378***
ΔAI_{t-2}	0.085	1.764	0.245	4.354***
ΔJI	-0.061	-2.843**	-0.076	-4.152***
ΔJI_{t-1}	-0.085	-3.383***	-0.075	-4.663***
ΔJI_{t-2}	-0.046	-2.462**	-0.042	-4.565***
ΔJI_{t-3}	-----	-----	0.017	1.640
ΔEI	-0.087	-1.593	0.058	1.702
ΔEI_{t-1}	-0.099	-2.003*	0.278	9.292***
ΔEI_{t-2}	-0.149	-2.307**	-0.097	-2.838**
ΔER	0.850	2.964**	0.712	2.639**
ΔER_{t-1}	-----	-----	-0.249	-1.573
ΔER_{t-2}	-----	-----	-0.506	-3.292**
ΔER_{t-3}	-----	-----	0.460	3.493**
Diagnostic Test Results				
Adjusted R-squared	0.150		0.926	
Normality (Jarque-Bera)	0.912 (0.633)		1.287 (0.525)	
ARCH (1)	0.186 (0.669)		0.889 (0.354)	
Serial Correlation LM(2)	0.878 (0.442)		0.588 (0.596)	
Ramsey RESET	0.094 (0.763)		0.001 (0.968)	


Notes: Lag-lengths of the variables were determined by using the AIC method. *, **, and *** indicate significance at 10%, 5% and 1% levels, respectively. Numbers in parentheses represent p-values.

Table 4: Error Correction Model Test Results

indicated that FDI inflows from the US, Japan, and the EU have significantly different impacts on Turkish export performance. More specifically, it was established that Japanese and EU FDI are export-oriented and thus contribute to the rapid growth of Turkish exports, while US FDI is anti-export-oriented and thus leads to decreases in Turkish exports to the EU market. It can also be suggested from the results that there is strong evidence for Kojima's hypothesis, since Japanese FDI affects Turkish

² The speed of adjustment to the long-run equilibrium level caused by each independent variable in the short-run is presented via the generalised impulse-response analysis results in Appendix II.

export growth positively, while US FDI has a negative impact on Turkish exports to the EU market.

Similarly, the estimation results of the long-run import model showed that both domestic and foreign investments are the major sources of growth for Turkish imports, while the real exchange rate affects Turkish imports negatively. The estimation results also indicated that FDI inflows from the US, Japan, and the EU have different impacts on Turkish imports. In particular, FDI from the US and EU increases the level of Turkish imports by raising demands for foreign intermediate and capital goods, while FDI from Japan replaces Turkish imports on the EU market. This leads to the conclusion that FDI takes place in Turkey for different kinds of motivations; the first concentrated on both foreign and local markets, the second concentrated only on the local market. Overall, the impact of FDI inflows on the trade performance of any developing country cannot be established *a priori* since they depend on various characteristics of both the source and recipient countries. 

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ER = Real exchange rate, measured by the real effective exchange rate index for Turkish lira. Source: the SPO.

AI, JI, EI = the US, Japanese, and the EU FDI annual inflows to Turkey respectively, at constant prices (1987=100). Actual FDI data are available from 2001. The data between 1976 and 2001 collected at a permit level. The permit values of the relevant FDI are transformed to actual FDI data by the realisation ratio for aggregate FDI. Source: Foreign Investment Department (1976-2001) and Republic of Turkey Prime Ministry Undersecretariat of Treasury (2002-2006)

In this study, since foreign currencies are expressed in terms of Turkish lira an increase in the real effective exchange rate index represents a real depreciation of the Turkish lira. Real effective exchange rate was calculated as the weighted average of a basket of foreign currencies according to trade shares of the major trading partner countries. All variables enter the regressions in logarithmic form, so that the estimated regression coefficients are interpreted as elasticities. In estimating our trade models, Eviews 5.1 econometric programme was used.

Appendix I: Definitions of Variables and Data Sources

Dependent Variables:

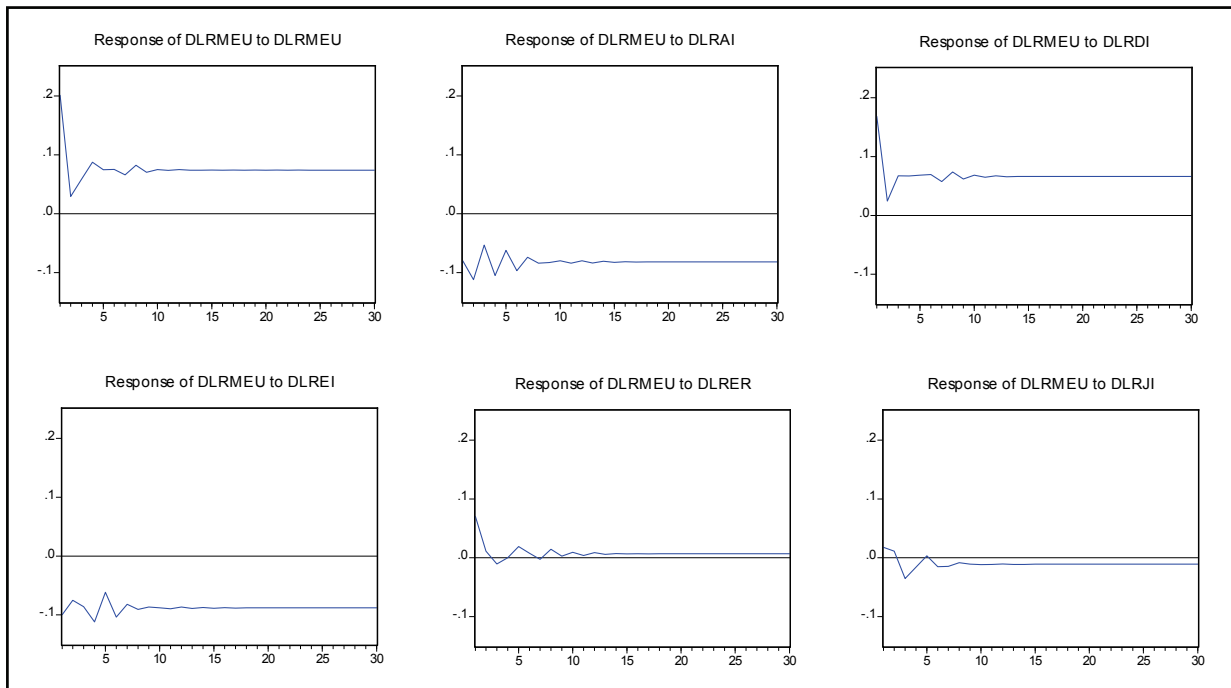
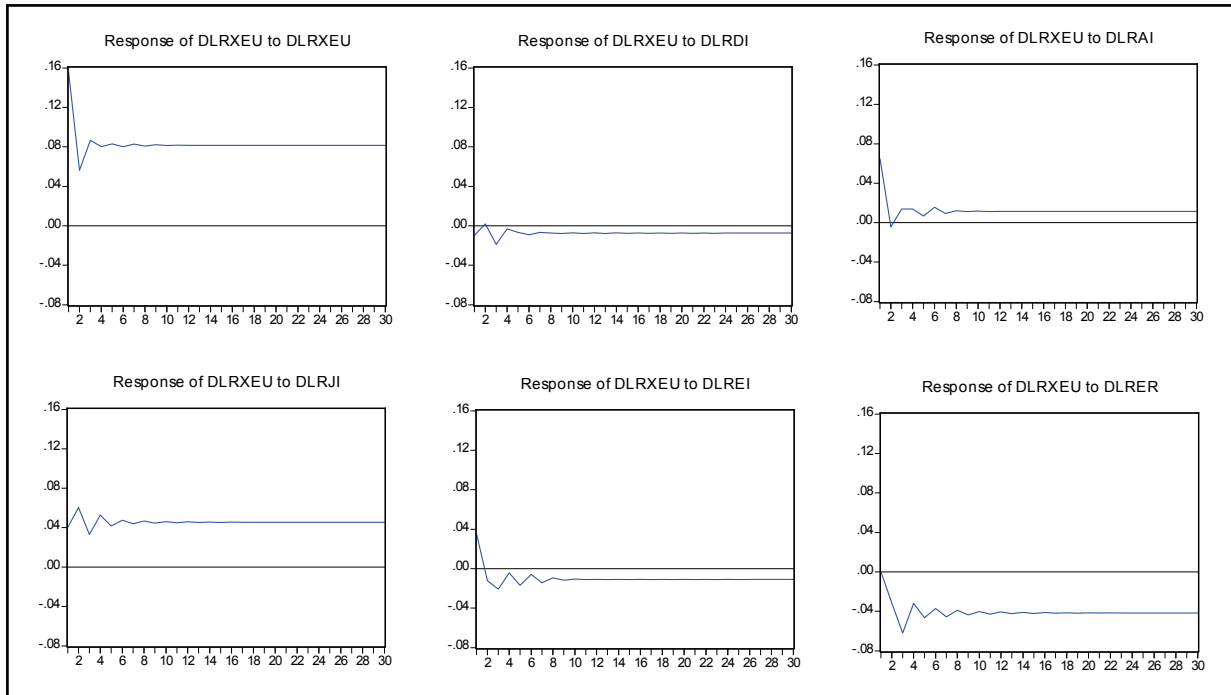
XE = Turkish exports to the EU at FOB prices, expressed in real terms using the export price index (1987=100). Source: International Trade Statistics Yearbook of United Nations and State Planning Organisation (SPO). The relevant export price index was collected from OECD National Accounts

ME = Turkish imports from the EU at CIF prices, expressed in real terms using the import price index (1987=100). Source: International Trade Statistics Yearbook of United Nations and the SPO. The relevant import price index was collected from OECD National Accounts

Explanatory Variables:

DI = Gross fixed capital formation, expressed in real terms using the wholesale price index (1987=100). Source: the SPO and the wholesale price index were obtained from the IMF International Financial Statistics.

Appendix II: Generalized Impulse Responses of Long-Run Relation to One Standard Deviation Shock



Business Process Modelling as a Critical Success Factor in Implementing an ERP System

Mojca Indihar Štemberger, Vesna Bosilj Vukšić, Andrej Kovačič*

Abstract:

Many enterprises are adopting enterprise resource planning (ERP) systems for improving their efficiency and productivity. Although there are tremendous benefits to implementing an ERP system, there are just as many risks. The problem is that many projects of this type are unsuccessful, mostly due to their complexity being underestimated. The purpose of the paper is twofold: (1) to analyse the critical success factors (CSFs) of ERP implementation projects and (2) to propose a framework based on a composite approach to ERP systems implementation. A special emphasis is given to business process modelling, because the key to the successful choice, implementation and usage of an ERP system is the fit of planned processes in an organisation with processes implemented in the solution. The paper also presents some results of empirical investigation in the field of ERP implementation.

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1. Introduction

An Enterprise Resource Planning (ERP) system is a business management system comprising integrated sets of comprehensive software that can be used, when successfully implemented, to manage and integrate all business processes and functions within an organisation (Shehab et al., 2004, Ehie and Madsen, 2005). They usually include a set of mature business applications and tools for financial and cost accounting, sales and distribution, management of materials, human resources, production planning and computer integrated manufacturing, supply chain, and customer information (Boykin, 2001; Chen, 2001, Koh and Saad, 2006, Motwani et al., 2005).

Potential benefits of implementing ERP systems include drastic declines in inventory, breakthrough reductions in working capital, abundant information about customers' wishes and needs, along with the ability to view and manage the extended enterprise of suppliers, alliances and customers as an integrated whole (Chen, 2001; Shehab et al., 2004). Among the most important characteristics of ERP systems that can bring these benefits (Nah et al., 2001; Soh et al., 2000) are their abilities to: automate and integrate business processes across organisational functions and locations; enable the

implementation of all variations of best business practices; share common data and practices across the entire enterprise.

Since ERP is believed to provide an organization with several benefits, organisations increasingly implement their information systems (IS) by purchasing ERP systems. Over 80% of the Fortune 500 companies had adopted ERP systems by 2004 (META Group, 2004). Recently, numerous small and medium sized enterprises (SMEs) have started to adopt ERP systems (Loh and Koh, 2004). The potential benefit of successfully implementing an ERP system is

Mojca Indihar Štemberger

University of Ljubljana, Faculty of Economics
e-mail: mojca.stemberger@ef.uni-lj.si

Vesna Bosilj Vukšić

University of Zagreb, Faculty of Economics and Business – Zagreb
vbosilj@efzg.hr

Andrej Kovačič

University of Ljubljana, Faculty of Economics
andrej.kovacic@ef.uni-lj.si

large, and even critical to organisational performance and survival (Woo, 2007). However, while some companies have achieved great benefits from their ERP systems, others have experienced failures. They underestimated the complexity of such projects in many cases, and as a consequence the rate of unsuccessful projects was high (Al-Mashari, 2003). Therefore, one of the most common reasons for failure, is still a fact that was recognised almost a decade ago, namely that the logic of the system may conflict with the business processes in an organisation (Davenport, 1998). The situation is similar to that in the implementation of CRM, SCM or e-business concepts.

Traditional ERP implementation methodologies provided practitioners with a list of the activities that have to be conducted in a software implementation project. These methodologies evolved into a set of "recommended collection of phases, procedures rules, techniques, tools, documentation, management and training used to develop a system (Avison and Fitzgerald, 2003). However, the typical enterprise implementation environment is highly complex and risky.

The purpose of the paper is to expose and analyse the critical success factors of ERP implementation projects and to propose a framework that would enable the management of their complexity and lead to their successful outcome. The framework is based on a composite approach to ERP systems implementation. A special emphasis is given to business process modelling, because we believe that the key to a successful choice, implementation and usage of an ERP system is the fit of planned processes in an organisation with processes implemented in the solution.

The structure of the paper is as follows: Section 2 presents a review of critical success factors by ERP implementation projects. Section 3 describes several possibilities and some results of an empirical investigation are presented. Section 4 describes the proposed framework that can lead to a successful ERP implementation. The role of business process modelling in each phase is analysed. The last section concludes the paper and gives several directions for further research.

2. Critical success factors of ERP systems implementation

Recently, numerous authors investigated critical success factors (CSFs) for ERP implementation. In the literature, ERP teamwork and composition, change

management program and culture, top management support, project management and BPR with minimum customization are the four most often cited critical factors (Nah et.al, 2003, Al-Mashari, 2003, Garcia-Sanchez and Perez-Bernal, 2007).

The reason for the many failures that have occurred is that companies have concentrated exclusively on the technical aspects while ignoring the changed management elements. The main reason of failure is underestimation of the complexity of such project that requires several organisational changes and involvement of employees (Huang et al, 2003). Mc Adam and Galloway (2005) explore the organisational issues involved in implementing an ERP. Their findings indicate that ERP should be incorporated within a wider organisational change programme. Huang et. al (2004) used a Delphi method to identify potential ERP project risk factors. Among the synthesized 28 risk factors, the authors summarized the top ten risk factors that affect the ERP projects more than others. The risk to fail to redesign business processes was ranked ninth.

The lack of appropriate cultural and organisational readiness was found as the most important factor contributing to the failure of an ERP project (Gargya, Brady, 2005). According to Woo (2007), when an attempt is made to adapt the implementation of ERP to Chinese culture, management and company style, the implementation is successful. The research conducted by Garcia-Sanchez and Perez-Bernal (2007) implies that cultural aspects are a likely cause of the differences in the ordering of CSF priority levels in different world regions. Using a case study methodology, Motwani et.al (2005) suggests that careful change management, network relationships and cultural readiness have a positive impact on ERP implementations.

Massive organisational changes involved in ERP implementation result from the shift in a business design from a fragmented, functional-based organisational structure to a process-based one (Davenport, 1998). The alignment of the standard ERP processes with the company's business processes has for a long time been considered a critical step of the implementation process. Some organisations do not even know which processes they have. Others think that the best practice implemented in these solutions will be applied to their processes automatically. A project could therefore be lengthy, inconsistent, exceed the budget, or may result in incomplete installations of system modules and consequently lower benefits than hoped for (Al-Mashari,

2003). There are usually three major parties involved in an ERP system implementation: the organization implementing the system (the implementer), the organization that developed the ERP system (vendor) and an organization aiding the implementation (the consultant). Each of these parties contributes in different ways to the project. According to Hains and Goodhue (2003), the implementer has the detailed knowledge of its own particular business processes and organizational context, which is essential for successful implementation. Bozarth (2006) points out the importance of involving key users in the specification and selection process, especially when the new system promises radical change to the current processes.

3. How to implement an ERP system successfully?

The implementation of ERP systems has been one of the first problems addressed by the literature on the subject because not all companies have been successful in their implementations. One of the disadvantages is relatively high costs, particularly in the case of a more significant gap between the processes in an organisation and the processes implemented in the ERP system. Another disadvantage is the threat of losing competitive advantage, which can lie in flexibly customised business processes better suited to an organisation as its “best practice”. Potential impediments derive from functional coordination problems related to inadequate support from functional units and coordination among functional units, project management related to business process change, and change management related to resistance of users (Kim et al., 2005). In this section we present a proposal for the framework that can help organisations to avoid the difficulties mentioned above and to implement an ERP system successfully.

3.1. Alternative possibilities for the selection and implementation of an ERP system

It is very important to select an appropriate ERP system. Since there are several ERP systems on the market, it is difficult to select the right one. The decision concerning the purchase of individual modules or their development can be done only on the basis of good knowledge. Process mining is introduced as a preliminary step in ERP implementation (van der Aalst and Weijters, 2004). It is very important to achieve a good alignment between ERP modules and supported business processes.

Very often, ERP solutions should be customized and aligned to customers' requirements. On the other hand, companies that implement ERP systems have the opportunity to redesign their business practices using templates imbedded in the software. Although sometimes seen as large IT projects, ERP projects are in fact business process change projects in which core organizational business processes are changed to align with the best practices, business process rules and procedures defined during ERP implementation activities. Companies seldom implement all of their business processes using a single ERP product. In fact, companies have business processes enabled by many systems, sometimes even by multiple-enterprise systems (Frye and Gullledge, 2007). Figure 1 shows alternative possibilities.

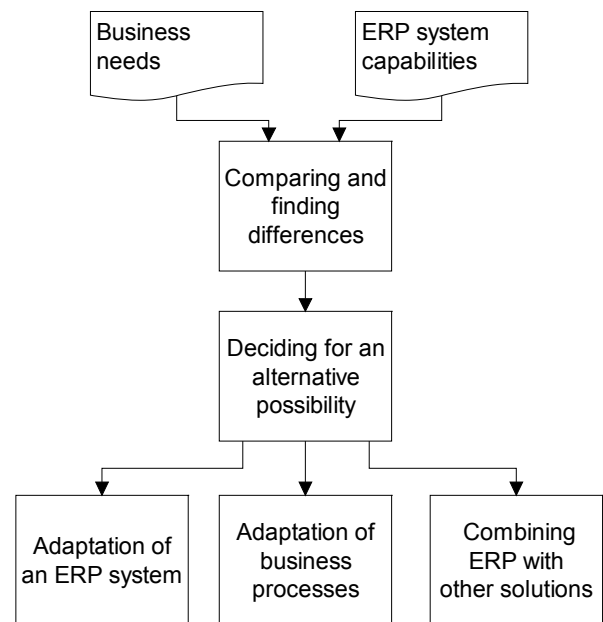


Figure 1: The alternatives for selection and implementation of ERP system

A business first needs to be compared with the capabilities of an ERP system in order to find differences (Kovačič, Bosilj-Vukšić, 2005). Business needs are best described by the organisation's strategy and desired business processes. Processes inside an organisation have to be compared with reference to the models of an ERP system.

The problem is that many organisations fail to make such a comparison at all. In an empirical research study conducted among CIOs of the 150 largest Slovenian companies at the beginning of 2006, we found that almost half had not assessed their information needs by

any kind of business modelling (processes, organisation, data).

After this step an organisation has three alternatives: (1) to adapt an ERP system to their business processes; (2) to adapt their business processes to the processes implemented in an ERP system; (3) to combine the acquired (ERP), integrated (best-of-breed) and engineered (adapted or built) applications. In practice there is also a fourth alternative, namely to do no or no significant adjustment. This alternative surely leads to "living with problems", which means that an organisation uses an ERP system that is not tailored to the way its business is done.

The first alternative is appropriate for those organisations that believe their business processes are better than those implemented in an ERP system and do not want to lose their competitive advantage. Although fine tuning of an ERP system can be done through parameterisation, an additional computer code development is necessary for greater changes. This alternative can cause high additional costs, because customisation of ERP modules can be very expensive. In addition, it presents difficulties in maintenance and upgrading to new versions. As a consequence this alternative can lead to the failure of a project. It would probably be better for such organisations to develop their own solutions in the first place. Nevertheless, ERP vendors do not hesitate adapting their software because they expect high earnings and because such project is easier to manage from their point of view.

The second alternative, also named a technology driven approach (Arif et al., 2005), is the adaptation of business processes to an ERP system. It means that best practices implemented in these software packages have to be applied in an organisation. Although it is theoretically the best way that allows an organisation to reap all possible advantages from an ERP system, such changes are very hard to implement in practice. It means that an ERP implementation project has to include a process redesign project. It makes the situation much more complicated. Many vendors are concerned about the complexity and therefore the high threat of failure. In addition, an organisation might lose advantage of unique and perhaps better business practice.

The best possible alternative in the majority of cases proved to be a composite approach, i.e. a blend of acquired (ERP), integrated (best-of-breed) and engineered (adapted or built) applications. It seems best for standard business processes (e.g. accounting

processes) to adapt to best practices, whereas customised business processes (e.g. order fulfilment) should in many cases adapt to an ERP system. It is also possible to combine an ERP solution with best-of-breed or custom developed modules (Stolovitsky, 2006). Furthermore, this alternative is in accordance with the current trends in the ERP market. While vendors propagated usage of monolithic solutions in the past, currently they have switched their tendency to combining their software with industry-specific solutions (Genovese, 2005).

The abovementioned research study also showed that the situation in this area is a source of concern. Only 10% of companies that had already implemented an ERP system adapted their business processes to the solution, while 9% adapted it to the software. Another 40% of organisations decided for the third alternative, which finding is encouraging. However, 41% of companies have not done anything, which ranks them among those that "live with problems" and make their projects unsuccessful.

Another interesting result of the research study arose from documenting the changes in an ERP system and/or business processes. In 41% of companies, these changes are not documented at all and in 39% they are documented only partly. Again, business process modelling would be a very appropriate way to document changes.

3.2. *The framework for the third alternative*

As discussed above, we advise most organisations to apply the third alternative, the composite approach to ERP implementation. In this case some business processes are adapted to the ERP system and in others custom developed or best-of-breed modules are applied. For this alternative we propose the framework presented in Figure 2. It has seven stages that are dependent from each other and are not necessarily carried out in sequence.

(1) **Assessing the current situation in an organisation.**

In this stage current business processes in an organisation are modelled. Several organisations already have some models; however, in practice they rarely correspond to the actual business processes or include an adequate level of details. Therefore, some modelling has to take place in almost every case. Nevertheless there is no need to develop detailed models because such a project could be very lengthy

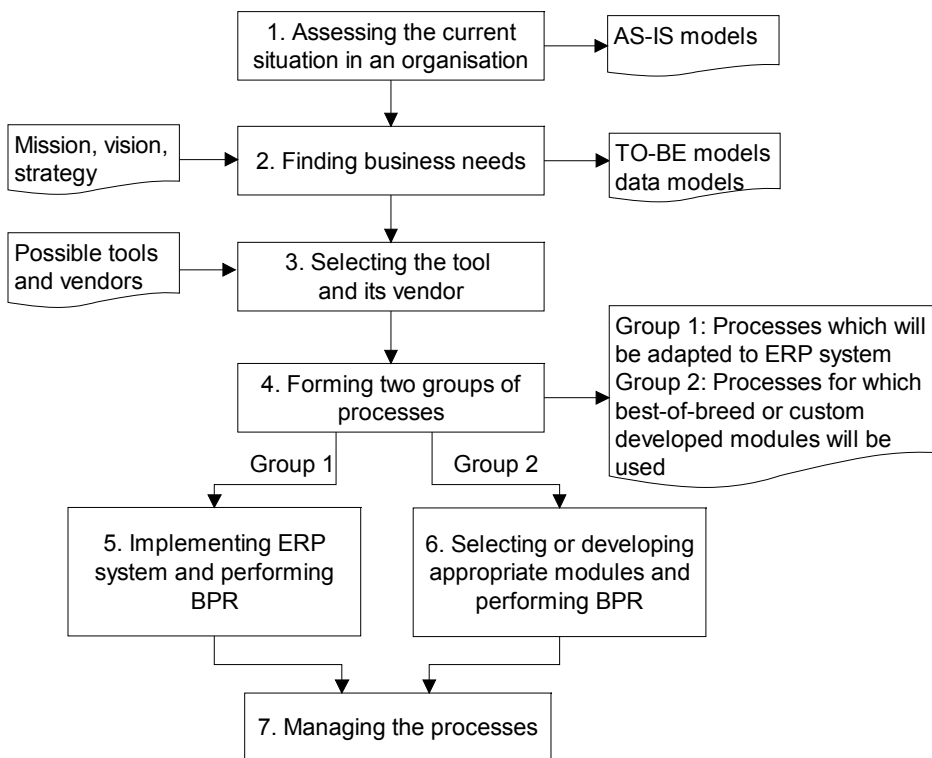


Figure 2: The proposed framework for a composite approach to ERP implementation

and may incur much cost. The results of this stage are high-level AS-IS models of business processes.

- (2) **Finding business needs.** In the second stage business needs are determined in the form of high-level TO-BE models and data models. The mission, vision and strategy of an organisation are used as an input to this stage. There are various levels of changes from AS-IS to TO-BE processes. Some companies need only small changes, but for others major changes in business processes are necessary. In the latter case the probability of project failure is much higher and as a consequence a higher level of top management involvement is required.
- (3) **Selecting the tool and its vendor.** In stage 3 possible ERP systems on the market and their vendors have to be analysed. The tool has to be selected on the basis of several criteria, some of which are discussed in the literature, e.g. (Wei et al., 2005). One of the most important criteria is matching between business needs and system capabilities. A comparison is possible because business needs are expressed in the form of TO-BE models, which are compared with the reference models of an ERP system. Stages 2 and 3 can also be executed simultaneously. If an organisation has already

decided on a particular ERP solution, then it is good if its vendor takes part in phase 2, because best practices of the solution can be applied to designing TO-BE models.

(4) **Forming two groups of processes.** The next stage is extremely important. Processes are divided into two groups: the first group consists of the processes that will be adapted to an ERP system, while the second processes are those for which best-of-breed or custom developed modules will be applied. Standard support processes, like processes in accounting, typically fall into the first group. The situation is much more complicated for core processes. On the one hand,

an organisation might be building competitive advantage of their uniqueness and flexibility. In this case it is better to place them in the second group. On the other hand, a company can acquire a better business process model from an ERP system. Regardless, in making the decision a company has to consider the higher costs of these modules and the fact that vendors are less experienced in their implementation, especially in the servicing sector.

- (5) **Implementing an ERP system and performing BPR.** For the processes in the first group, the selected ERP system is implemented at this stage. The implementation interweaves with a business process change project. In many cases the changes are remarkable. In such cases all the constituent parts of a BPR project, like change management, changes in organisational structures and organisational culture, have to take place. Such project might be extremely complex and difficult to manage. It requires a high level of top management and all other employees' involvement. However, if only standard modules of an ERP system are implemented, then the project is usually not so complex.
- (6) **Selecting or developing appropriate modules and performing BPR.** For the processes in the second

group, best-of-bread or custom developed modules are implemented. If an appropriate solution to a particular process is available, it has to be implemented and integrated with the rest of the system. In case of custom developed modules, additional modelling of business processes and data is required, because in the initial stages of methodology only high-level models are developed. This stage also requires a business process change with the same characteristics as described in the previous paragraph. Stages 5 and 6 are typically executed at the same time and are tightly connected. A business process change is performed simultaneously for both phases.

- (7) **Managing the processes.** The last stage actually never ends. It includes the measurement and continuous improvement of business processes. The changes in processes have to be constantly documented. It is important that processes are flexible enough to enable a company to accommodate them to market expectations fast enough.

3.3. Suggestions for the first and second alternatives

During ERP systems implementation business process modelling is necessary also for the first (adaptation of an ERP system) or the second (adaptation of business processes) alternative described in the previous section.

Stage 1, in which high-level AS-IS models are developed is inevitable, because an ERP system cannot be selected if it is not known precisely how business processes are performed. Nevertheless, the required level of precision is not high, and high level models are an even better form detailed for this purpose.

Stage 2 can rarely be avoided as well, because in practice no company performs their business processes perfectly. In our experience, the unification of processes (e.g. order fulfilment in different business units) is needed. Without this the software cannot be implemented. For the second alternative reference models of an ERP system play the role of TO-BE models.

In case an organisation decides to adapt their business processes to an ERP system, it has to be selected (stage 3) even more carefully. In stage 4 all processes fall into the first group. Stage 5 is performed as described above and stage 6 is not performed at all or only in a limited scope for the processes that are not covered by the selected

solution. In stage 7 making changes to the processes is usually more complicated.

For the first alternative (adaptation of an ERP system), which is not recommendable, yet is, however, quite popular in practice, the situation is somewhat different. In this case the changes of an ERP solution have to be well documented. Again business process modelling can serve as a suitable technique. Business process change takes place for this alternative only in a limited amount, if at all. It reduces the complexity of the project, but as a consequence stage 7 is much more problematic. Of course stage 3 is extremely important as well.

4. Discussion and conclusion

ERP projects are more about changing a company's business processes than information technology. Therefore, any company that is not prepared to change its business processes will achieve no real improvement in performance and competitiveness. The research literature on ERP systems confirms that many ERP implementations have been unsuccessful because companies vastly undervalued the importance of reengineering business processes.

This paper analysed some challenges of ERP implementation projects and described their possible alternatives. The authors share the opinion that the best alternative for a majority of companies is the third alternative, which combines adaptation of some business processes to an ERP system with the application of custom developed or best-of-bread modules. As can be concluded from the results of the empirical investigation presented in section 3, several companies have already recognised the benefits of this approach.

This paper presented the framework for a composite approach to ERP implementation that enables successful implementation. Business process modelling plays an important role, especially in the first two stages of the framework because it gives the answers to a set of questions, such as:

- How to ensure that ERP system is in compliance with company's end-to-end business processes?
- How to close the gap between business requirements and business process design and the implementation of ERP applications?
- How to make sure that blueprint documentation represents the actual implementation?
- How to improve the communication of IT experts and end-users during and after the implementation?


Business process modelling builds a bridge between business and IT. It introduces a process culture and reduces conflicts during an ERP implementation. A rapidly growing number of frameworks and modelling tools have been developed for an integrated modelling of the entire enterprise with a focus on both organisational modelling and information systems modelling (Giaglis et al., 2005). A number of the well known methodologies for ERP systems implementation include some business process modelling, however, in a very limited scope. For example, the ASAP methodology (Accelerated SAP) contains aligns the software (at a high level) with the internal business processes phase, yet in the form of interviews and workshops (Gulledge, Simon, 2005). In practice this phase mostly leads to fulfilling wishes and lacks a strategic view. A successful ERP project is hardly ever possible without a business process change that requires its wider scope.

The results of this investigation showed that less than half of the companies that implement an ERP system perform any kind of business modelling to assess their information needs. This is rather worrying, and shows that the importance of business process modelling in ERP implementation projects is still not acknowledged in practice. Moreover, even the idea of conformation between an ERP system and business processes in the company has been poorly accepted in practice.

Models developed in the initial stages of the proposed framework are valuable for companies for other purposes as well. People start to be aware that their work is part of something that gives value to the customer. Any kind of business process modelling increases coordination among departments and other aspects of business process maturity (McCormack, 2007). The knowledge created during ERP implementation and management is a significant resource for a company. Business process modelling could be considered an important contribution and approach to the process of knowledge management, since business process repositories could be used for knowledge creation, sharing and distribution (Apshavalka and Grundspenkis, 2003).

On the other hand, there are also some threats in business process modelling. First of all, a too detailed process modelling can delay the project. Besides, the selection of the proper modelling technique and tools is also important. As is evident from our previous research (Jaklič et al, 2006), we suggest not to select every tool that

enables modelling with BPMN or similar techniques in this case.

The goal of the research was to build a framework of ERP implementation and the authors have taken steps toward addressing this goal. This paper provided valuable insights towards understanding the role of business process modelling in implementing an ERP system. The framework was established and discussed. Finally, it has been applied to various ongoing projects in Slovenian companies. The results from business practice provide a foundation for further empirical studies. At present, its development is not completed, and in order to verify and validate the proposed framework the authors intend to continue this research. Consequently, the authors plan to explore these issues through further research. 

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Internal and External Supervisory Mechanisms in Corporate Governance

Darko Tipurić, Boris Tušek, Davor Filipović *

Abstract:

Good corporate governance depends on well balanced relations between supervisory mechanisms in the corporate governance process. Relations between the supervisory board, as the internal supervisory mechanism, and external auditing, as the external supervisory mechanism, are crucial for the development of good corporate governance practice. This paper focuses on analyzing the relationship between the supervisory board and external auditing in order to determine the current state of that relationship in the Republic of Croatia and to determine possible guidelines for improving the relationship between the supervisory board and external auditing in practice. In addition, this study analyzes the relationship between the supervisory board and external auditing, which could lead to the maximum efficiency of both the supervisory board and external auditing and tests that relationship in practice using publicly traded companies in Croatia. This study also analyzes the impact of the audit committee on the efficiency of the supervisory board and external auditing.

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1. Introduction

Good corporate governance depends on well balanced relations between the supervisory mechanisms of the corporate governance process. Relations between the supervisory board, as the internal supervisory mechanism, and external auditing, as the external supervisory mechanism, are crucial for the development of good corporate governance practice.

The supervisory board needs credible information in order to perform quality supervision and control over the company's management. Therefore, communication between the supervisory board and external auditing is necessary because of the irreplaceable role of external auditing in validating financial information. A relationship between the supervisory board and external auditing increasingly depends on the audit committee, a subcommittee of the supervisory board in charge of improving the financial reporting process and improving communication with external auditors.

This empirical study focuses on analyzing the relationship between the supervisory board and external

auditing in order to determine the current state of that relationship among businesses in Croatia and to determine possible guidelines for improving the relationship between the supervisory board and external auditing in practice. In addition, this study analyzes the relationship between the supervisory board and external auditing, and attempts to determine which factors could

Darko Tipurić

University of Zagreb, Faculty of Economics and Business
e-mail: dtipuric@efzg.hr

Boris Tušek

University of Zagreb, Faculty of Economics and Business
e-mail: btusek@efzg.hr

Davor Filipović

Proventus strategije d.o.o. Zagreb
e-mail: davor.filipovic@proventus-strategije.hr

lead to maximum efficiency of both the supervisory board and external auditing through a series of tests that relationship in practice. This study also analyses the impact of the audit committee on the work efficiency of the supervisory board and external auditing.

Prior to conducting the empirical segment of this study, which was based on a survey, analytical methods, as well as inductive and deductive speculation, were used to explain the basic characteristics of corporate governance systems, and to examine the role of the supervisory board in corporate governance. Theoretically relevant and methodological aspects of external auditing and relations between the supervisory board and external auditing were also analyzed. This analysis served as the basis of the assumptions that formed the study's defined goals.

2. Corporate governance systems

The long term evolution of companies and business led to the separation of the ownership and management functions. This separation resulted in the emergence of corporations, raising many issues related to corporate governance. There is no unique definition for the word corporation, or for the term corporate governance.

From an etymological point of view, the word "corporation" has its origins in the Latin word "*corpus*," meaning body. The term "*corpus*" represents a group of people empowered to act as one. Monks and Minow define corporation as a "mechanism created in order to allow participation in capital, knowledge and work all directed to achieve maximum benefit for everyone (Monks and Minow 2001, p. 1)." Professor Nickles, from the University of Maryland, defines corporation as a legal entity with authority to act and have liabilities separate from its owners - the corporation's shareholders are its owners (Nickels and McHugh 2002, p. 140).

The major characteristics of the corporation are its legal personality, the limited liability of corporation's owners, ease of ownership change and perpetual life. When all these characteristics are observed it can be said that, in accordance with Croatian law, the term corporation is appropriate for a publicly traded company.

According to the Croatian Law on Companies, a publicly traded company is a commercial company whose members (shareholders) participate with stakes in the company's equity. A publicly traded company can be also owned by one person and the owners of the publicly

traded company are not responsible for the company's liabilities (Gorenc 2004, p. 171).

Corporate governance can be defined as a system of supervisory mechanisms used by all suppliers of crucial inputs in order to ensure returns on their investments in the corporation without jeopardizing the corporation's prosperity (Tipurić 2006, p. 52). Corporate governance should provide answers on questions regarding who supervises the corporation and why (Kaen 2003, p. 1).

Corporate governance systems are usually classified as either Anglo-Saxon corporate governance systems or Continental or European corporate governance systems. Each system has its own characteristics and ways of functioning. Corporate governance systems differ according to the most important stakeholders, who influence the decision making process in corporations, as well as the instruments and mechanisms used by those stakeholders to affect the corporate governance process.

The Anglo-Saxon system is typical of Anglo-Saxon countries and is also known as the shareholder system. Large and liquid stock markets, low concentration of ownership, a one-tier board of directors, a relatively high level of protection for minority shareholders, and the dominant role of institutional investors are the basic characteristics of the Anglo-Saxon corporate governance system (Thomsen 2003, p. 31-34). Management is neither controlled nor supervised by any of the corporation's stakeholder groups. Control over the management is performed by the stock market and investors.

Low ownership concentration is the main problem of the Anglo-Saxon corporate governance system, and also a reason why the management has the main role in this system. In these conditions, managers make all the important business decisions that matter to the corporation. Otherwise it is difficult to supervise or discipline the management. The management often makes decisions in their own interest, which gives rise to over-investment. Managers prefer to enlarge the corporation because this enhances their power. Investments will thus be made even if their profitability is low or there could possibly result in a loss. Over-investment will thus give power to management, but leaves shareholders with lower profitability, because managers will invest even though profit prospects are poor (Ooghe and Vuyst 2001, p. 7).

The most effective way of management control in the Anglo-Saxon corporate governance system is the market for corporate control. If the shareholders are not satisfied with the way management governs the corporation they

will sell their shares. When a large amount of shares are sold, the price of single share drops and the corporation becomes a good target for a hostile takeover. In the case of a hostile takeover, the existing management of the corporation is usually replaced with new management (Blair 1995, p. 63).

The board of directors, as an internal mechanism of corporate governance, represents a link between the owners and the management. In the Anglo-Saxon corporate governance system, the board of directors is organized as a one-tier or unitary board. The board is composed of executive and non-executive directors. Supervision of the corporation's business operations is performed by non-executive directors and business operations are managed by executive directors. Members of the board are selected by shareholders in order to monitor the corporation's management, while the unitary board covers managerial and supervisory responsibilities.

The Continental or European corporate governance system is typical of European countries and is also known as the stakeholder and bank-oriented system (Aguilera and Jackson 2003, p. 447). This corporate governance system is opposed to the Anglo-Saxon corporate governance system. In the European system, shareholder groups hold a large percentage of the total number of shares that are publicly traded, which ensures them the right to decide on many issues concerning the corporation. Corporate ownership is concentrated, and a small number of investors, along with banks and employees, have a significant impact on the corporation's governance (Tipurić 2008, p. 91).

Corporate ownership, as opposed to the Anglo-Saxon system, is typically concentrated among a stable network of strategically oriented banks and other industrial companies. Consequently, the market for corporate control has a lower impact on management than in the Anglo-Saxon system. Banks play the central external governance role through relational financing, providing financial services and monitoring in times of financial distress. Banks and industrial companies hold large blocks of shares in European corporations and actively participate in the supervision and governance of corporations. Block holders use their voting power to directly influence the way corporations are governed and rarely trade their shares (Jackson and Moerke 2005, p. 351). This concentrated ownership structure enables owners to maintain control over the corporation and to make decisions that enhance the profitability of the

corporation instead of enlarging the corporation's size through large investments.

Unlike the Anglo-Saxon system, the European corporate governance system has two governing bodies: the supervisory and management boards. Therefore, it is sometimes called a two-tier system. Members of the supervisory board do not have executive functions. Their role is to trace business operations and to monitor managers. The supervisory board is where the interests of the owners are represented, as well as the interests of other stakeholders. The supervisory board appoints members of the management board and members of the management board carry out management of the corporation. The role of the supervisory board members is similar to that of non-executive directors in the Anglo-Saxon corporate governance system.

The Republic of Croatia, as a European country, has all the characteristics of the European corporate governance system. A two-tier system and concentrated ownership are the key attributes of the Croatian corporate governance system, even though there are few changes regarding the supervisory and management boards. According to the changes in the Croatian Law on Companies, Croatian companies are allowed to establish a unitary board as a new company's body instead of the supervisory and management boards. The unitary board should appoint one or more executive directors for a period not longer than six years. If the unitary board appoints more than one executive director, one has to be appointed chief executive officer. This Law has been valid since April 1st, 2008 (Narodne novine 2007).

The supervisory board, as an internal mechanism of corporate governance, has an important role in monitoring and controlling the management. The role of the supervisory board in Croatia is explained in the following section.

3. The role of the supervisory board in corporate governance

According to Croatian law, the supervisory board is defined as a company's body in charge of controlling, monitoring and tracing business operations. The supervisory board controls the company's business operations and ascertains if the operations are in accordance with the law and the company's statute (Česić 2007, p. 145). This body is empowered to represent the company with respect to the management's board members. In addition, the supervisory board monitors the

whole company's business operations. Monitoring business operations not only concerns detecting and remedying possible problems but also preventing them (Čolaković 2007, p. 23).

Because of its specific position between the shareholders assembly and the management board, the supervisory board undertakes a controlling, strategic and connecting role. The controlling role refers to the selection of the management board's members, their supervision and monitoring, as well as to assessment of the management boards' performance. The strategic role refers to the authorization of proposed strategic decisions, assessment of previous strategic decisions, and an active involvement when formulating and implementing the company's business strategy. The connecting role includes maintaining formal and non-formal relations with all stakeholders. Furthermore, the supervisory board helps the company to connect with all relevant factors and segments of the business environment (Tipurić 2006, p. 112).

In Croatia, the highest and lowest number of supervisory board members is defined with the Croatian Law on Companies. When the Law sets limits on the number of supervisory board members, this applies to the whole supervisory board regardless of whether the members are chosen among candidates or appointed (Barbić 2005, p. 531). According to the Croatian Law on Companies, the lowest number of supervisory board members is three, with the number of members required to be odd.

Members of the supervisory board are appointed for four year terms, and at the end of which they can be appointed again. Members of the supervisory board are appointed by the shareholders assembly, usually by a majority of votes. After the supervisory board is established, members of the supervisory board elect the chairmen of the board and the vice chairmen (Gorenc et. al. 2004, p. 350).

Supervision of the way management runs the company's business operations is the main task of the supervisory board. Supervision can be divided into two categories: ongoing and preventive supervision. Ongoing supervision refers to already completed business operations and current business operations. When performing ongoing supervision, business records along with the documentation and company's assets are examined. Preventive supervision refers to the supervision of the decision making process in the company's business governance. The supervisory board

has to submit written reports to the shareholders' assembly on their supervision of the decision making process (Gorenc et.al. 2004, p. 360-361).

Except for ongoing and preventive supervision of the company's business operations, the supervisory board is responsible for:

- appointing and recalling management board members,
- nominating a new external auditor to the shareholders assembly,
- creating rules for its own procedures and rules for the management board procedures,
- making decisions that restrict the management in running business operations,
- representing the company before the management board members,
- convening the shareholders assemblies when needed,
- approving contracts concluded by the management board members, etc.

The supervisory board is not entitled to run the company's business operations, to interfere with the management board's work or to affect the management board in any manner. It can be determined, by statute or supervisory board decision, that the management board needs approval from the supervisory board when performing certain operations. Approval from the supervisory board is usually needed when it comes to the company's strategic decision making. However, approval for certain management activities does not mean that the supervisory board is entitled to undertake those business activities. The supervisory board members can suggest to the management board what they think is useful for the company; the management board should then consider that suggestion and decide whether it should be accepted or not (Tipurić 2008, p. 394).

The supervisory board is entitled to establish subcommittees in order to perform its activities more easily. Continuous growth of supervisory board subcommittees is a characteristic of current corporate governance throughout Europe. By focusing on certain issues, and by providing solutions for those issues, members of the subcommittee assist the supervisory board in decision making. The supervisory board can establish subcommittees in order to prepare or implement its own decisions (Gorenc et. al. 2004, p. 363). Subcommittees should be composed of at least three members, while companies with a lower number of supervisory board members can have subcommittees consisting of only two members (Croatian Financial

Service Supervisory Agency and Zagreb Stock Exchange d.d. 2007, p. 12).

4. Theoretically relevant and methodological aspects of external auditing

From an etymological point of view, the word "auditing" has its origins in the Latin word "*revidere*", which means review, looking back upon, a retrospective examination of certain facts, etc. Auditing also originates in the Latin word "*audire*", which means listening or hearing, and describes how auditors used to perform their role by listening to a client's oral report. At the start of its development, auditing accounting statements were presented orally and the auditor performed the auditing process by listening to a client's oral report (Meigs 1988, p. 8).

External auditing represents the act of examining and verifying financial statements and consolidated financial statements along with the methods and data used in the creation of the financial statements (Narodne novine 2005). A fundamental goal of the auditing process is the protection of the capital owner's interest, and the creation of a set of information for rational decision making and managing. The auditing process should be seen as one that assembles and compiles useful and reliable information. Consequently, auditing becomes one of the key instruments in corporate governance and a base for mutual communication and trust among all stakeholders. An auditor's opinion on the reality and objectivity of financial statements, in every significant respect, is the main goal of the auditing process. However, it should be pointed out that the auditor's opinion does not guarantee a company's business success in the future, as the management board is responsible for the company's success.

Except in the context of the protection of the capital owner's interest, auditing is usually considered an instrumental variable of managerial economy, which generates the need for insight into the theoretical framework of auditing, a set of knowledge about its basic assumptions, categories and definitions. The most significant part of its theoretical framework are auditing principles and auditing standards. Auditing principles are basic rules for behavior which should be respected in the auditing process. Auditing principles represent a starting point for the shaping of auditing standards, while auditing standards represent the core framework of the auditing process. Auditing standards contain a

methodological framework of the auditing process, along with the global auditing approach, which should be elaborated in detail in the form of a specific auditing methodology.

The auditing process is composed of the following phases (Messier 1998, p. 47-58): preliminary engagement activities, planning activities, performing an internal control evaluation and tests of control, obtaining audit evidence tests, completion of the auditing process and the communication of an auditor's opinion. The auditing process starts with preliminary engagement activities which are performed before planning activities. The preliminary engagement activities include procedures regarding the continuance of the client relationship and acceptance of a new client, as well as procedures regarding the acceptance of the audit letter. Afterwards, procedures regarding the evaluation of the client's internal auditor work and the procedures on the selection of quality auditing staff should also be considered. The auditor has to get to know and understand the client's business procedures in order to successfully plan and perform the auditing process.

While the auditor becomes acquainted with the client's business procedures, planning of the auditing process is completed. Auditing planning encompasses the whole auditing process, which includes planning the timing of the audit along with the scope and type of the audit tests that ought to be performed and the number and competencies of the personnel included in the auditing process. Analytical procedures, which are used in all phases of the auditing process, are of particular significance for the entire auditing process. In countries with developed market economies and professional auditors the implementation of analytical procedures is of growing importance. Analytical procedures include a variety of procedures, the most important of which concerns financial statement analysis. Depending on assessments of significance and risk, the auditor makes a decision on the type, scope and timing schedule of auditing procedures, with particular reference to the quantity and quality of the audit evidence as a basis for expressing an opinion on the validity and objectivity of the financial statements.

Insight into and evaluation of the internal control system are an integral part of the financial statements auditing process. A well organized and efficient internal control system increases the possibility that the information on a company's financial position, business success and changes in its business position are

objectively presented in the financial statements. Consequently, this makes the auditing process shorter and easier to perform. After gaining an understanding of the internal control system, tests of control are performed. Tests of control examine the efficiency of the internal control system in preventing and detecting significant mistakes. There are three types of control tests that are usually performed: tests of account balances, analytical procedures, and independent tests of business transactions.

The modeling and completion of the auditors' working papers, which must contain a sufficient amount of auditing evidence in order to express an opinion on the validity and objectivity of the financial statements, is very important in all phases of the auditing process.

The auditing process reaches completion with the composition of the auditor's report on the financial statements. Just before the composition of the auditor's report, in the final phase, the auditor has to consider certain issues that could be significant and affect the financial statements and the intended users of the financial statements. Those issues are potential liabilities, business events after the balance sheet date (post balance sheet events) and the final procedures of the audit evidence assessment. The auditor's report is the main product of the auditing process and expresses an opinion on the validity and objectivity of the financial statements and their compliance with the defined framework of financial reporting (accounting principles, standards, policies and laws). The auditor can express: an unqualified opinion, a qualified opinion, a disclaimer of opinion and an adverse opinion. An *unqualified opinion* should be expressed if the financial statements present valid and objective information about the company's financial position, while the *qualified opinion* should be expressed if the auditor cannot be sure that the information contained in the financial statements are valid and objective. A *disclaimer of opinion* should be expressed when the financial statements are not valid and objective, and an adverse opinion should usually be expressed if there is a lack of audit evidence. If the expressed opinion is different than the unqualified one, the auditor should point out and explain the reasons which led to that opinion.

Regarding the relationship between the supervisory board and external auditing, it is important to point out that the communication between the supervisory board and external auditing takes place at the audit committee if the company has established one. It could be said that

the audit committee represents a communicational link between the supervisory board and external auditing (Carmichael and Willingham 2000, p. 507). According to the Croatian Law on Auditing, the main roles and responsibilities of the audit committee should be:

- to monitor the integrity of the financial statements of the company and to oversee financial reporting procedures,
- to review the company's internal control system,
- to monitor and review the effectiveness of the company's internal audit function as well as risk assessment systems,
- to monitor and review the external auditor's independence, objectivity and effectiveness as well as other auditing services provided to the company,
- to monitor the auditing process of annual financial statements and consolidated financial statements,
- to make recommendations to the supervisory board in relation to the appointment of the external auditor and to approve the remuneration and terms of engagement of the external auditor following appointment by the shareholders in the general assembly,
- to review and assess the annual internal auditing work plan.

The main roles and responsibilities of the audit committee, according to the Croatian Law on Auditing, are almost identical to the roles and responsibilities of audit committees all over the world.

5. Empirical study of the relationship between the supervisory board and external auditing in Croatia

5.1. Goals and methodology of the empirical study

After considering the basic characteristics of corporate governance systems, the role of the supervisory board in corporate governance, as well as the theoretically relevant and methodological aspects of external auditing, the empirical study of the relationship between the supervisory board and external auditing in Croatia was modeled and conducted using a survey. The impact of the audit committee on the work efficiency of the supervisory board and external auditing was also examined. For the purpose of the empirical study, two surveys were conducted. The first survey was based on the perceptions of the supervisory and management board members, and the second on the perceptions of

Function		External auditing and efficiency of the supervisory board					Total:
		No impact	Very low impact	Moderate impact	High impact	Extremely high impact	
An auditor	Count % within function	1 2.5%	3 7.5%	16 40.0%	12 30.0%	8 20.0%	40 100.0%
A member of the management board	Count % within function	0 0%	4 13.3%	12 40.0%	10 33.4%	4 13.3%	30 100.0%
A member of the supervisory board	Count % within function	0 0%	3 10.7%	9 32.1%	12 42.9%	4 14.3%	28 100.0%
Total:	Count % within function	1 1.0%	10 10.2%	37 37.8%	34 34.7%	16 16.3%	98 100.0%

Table 1: Opinions of the survey participants about the impact of external auditing on the higher efficiency of the supervisory board)

members of the supervisory board. All certified auditors who participated in the survey work in 23 different auditing companies, including the Big 4 auditing companies. Members of the management and supervisory board who participated in the survey come from companies which do business in the following industries: banking (24%), retail – hypermarkets (14%), construction (14%), shipyards (14%), electricity (10%), clothing (10%), hotels (7%), newspapers (7%).

Ascertaining the intensity and nature of the relationship between the supervisory board and external auditing, as well as ascertaining the impact of the audit committee on the work efficiency of the supervisory board and external auditing in the practices of Croatian publicly traded companies were the main goals of the empirical study. The empirical study is based on the application of the following statistical methods: descriptive statistics (arithmetic mean, standard deviation), t-test for independent samples, Kruskal-Wallis test, and Anova (variance analysis).

5.2. Hypothesis regarding an increase in work efficiency for both the supervisory board and external auditing

The empirical study first tested the following hypothesis:

H1 An optimal relationship between the supervisory board and external auditing could result in a mutual increase in work efficiency.

The hypothesis was tested by processing answers on given questions received from the survey participants. The participant's answers represent a base for analyzing

paper.

In order to test the hypothesis, survey participants were asked about the impact of external auditing on the higher efficiency of the supervisory board. Descriptive statistics regarding the opinions of survey participants about the impact of external auditing on the higher efficiency of the supervisory board is shown in table 1.

Out of the 40 certified auditors who answered this question, 2.5% think that external auditing has no impact on increases in the supervisory board's efficiency, 7.5% think that the impact is very low, while 40% think that the impact of external auditing on the higher efficiency of the supervisory board is moderate. Of the remaining auditors, 30% think that there is a high impact and 20% think that the impact of external auditing on the higher efficiency of the supervisory board is extremely high.

Out of the 30 members of the management board, 13.3% think that the external auditing impact on the efficiency of the supervisory board is very low, and 40% think that the impact is moderate, while 33.4% think that the impact is high. The remaining 13.3% think that the impact of external auditing on the higher efficiency of the supervisory board is extremely high.

Out of the 28 members of the supervisory board who answered this question, 10.7% of think that there is a very low impact by external auditing on the efficiency of the supervisory board, 32.1% think that the impact is moderate, while 42.9% think that there is a high impact on supervisory board efficiency. The remaining 14.3% think that there is an extremely high impact.

It could be concluded that, out of the total number of survey participants (98) who answered this question, 1% think that external auditing has no impact on an increase in supervisory board efficiency, while 10.2% think that

there is very little impact and 37.8% think that the impact is moderate. The remaining 34.7% think that there is a high impact and 16.3% think that the external auditing impact on the higher efficiency of the supervisory board is extremely high.

The following table (table 2.) presents the mean scores (scaled form 1 to 5; scale range meaning: 1 – no impact, 2 – low impact, 3 – moderate impact, 4 – high impact, 5 – extremely high impact) of certified auditors, members of the management and supervisory boards on the impact of external auditing on the higher efficiency of the supervisory board.

External auditing and the supervisory board efficiency		N	Mean	Standard deviation
Function	An auditor	40	3.58	.984
	A member of the management board	30	3.47	.900
	A member of the supervisory board	28	3.61	.875

Table 2: Mean scores of the survey participants about the impact of external auditing on the higher efficiency of the supervisory board

The mean score of certified auditors is 3.58 with a standard deviation of 0.984, while the mean score of the management board members is 3.47 with a standard deviation of 0.900. The mean score of the supervisory board members is 3.61 with a standard deviation of 0.875.

An analysis of variance (Anova) is usually used in order to test for significant differences among several means. Consequently, the main objective of the variance analysis is to compare the variation ratio among groups with the variation within the group. If that ratio, the so-called F-ratio, is significant, it can be concluded that the observed groups do not belong to the same population, which implies that the means are significantly different. The analysis of variance is used in order to examine if there is a significant difference between the mean scores given by auditors and the management and supervisory board members. The analysis of the variance is shown in the following table (table 3.).

External auditing and supervisory board efficiency	Sum of squares	Degrees of freedom	Mean square	F	Significance
Between groups	.325	2	.162	.188	.829
Within groups	81.920	95	.862		
Total	82.245	97			

Table 3: The analysis of variance

As can be seen in table 3, the value of the F-ratio (0.188) is not significant, with a level of significance equaling 0.829, and is higher than 5%, which confirms that there is no significant difference among mean scores given by auditors, and members of the management and supervisory boards. Based on the results of the testing, it can be concluded that there are no significant differences between the groups' opinions with regard to the impact of external auditing on supervisory board efficiency, meaning that external auditing has a high impact on supervisory board work efficiency.

In order to analyze the opinions of the three groups of survey participants about the impact of external auditing on supervisory board efficiency with regard to the communication quality between the two, and to determine whether the survey participants who think that there is better communication quality between the supervisory board and external auditing also have a better opinion about the impact of external auditing impact on supervisory board efficiency, the non-parameter Kruskal-Wallis test was used. The Kruskal-Wallis test is an analysis of the variance test, uses ranks instead of numerical data, **and is an** extended test of the rank count. This test is shown in table 4.

External auditing and supervisory board efficiency		N	Mean rank
Communication between external auditing and the supervisory board :	No communication	2	15.50
	Weak communication	6	32.00
	Average communication	26	40.13
	Very well communication	55	53.90
	Excellent communication	9	68.89
TOTAL:		98	-

Table 4: The Kruskal-Wallis test

According to the data presented in table 4, it can be concluded that the survey participants who think that there is no communication between external auditing

and the supervisory board graded the impact of external auditing on the increase of supervisory board efficiency with the lowest grades (mean rank of 15.50). At the same time, the participants who think that there is excellent communication between external auditing and the supervisory board graded the impact of external auditing on the increase of supervisory board efficiency with the highest grades (mean rank of 68.89). The following table (table 5.) presents the results of the Kruskal-Wallis test.

External auditing and supervisory board efficiency	
Chi-square	14.956
Degrees of freedom	4
Asymptotic significance	.005

Table 5: The significance of the Kruskal-Wallis test

According to the data presented in table 5, given a significance level equaling 0.005 (lower than 5%), it can be concluded that there is a significant difference in the opinions given by the survey participants about the impact of external auditing on the increase in supervisory board efficiency related to the communication quality of both external auditing and the supervisory board. Thus, the survey participants who think that there is better communication quality between external auditing and the supervisory board also have a better opinion about the impact of external auditing on the increase of supervisory board efficiency, which indicates that a better relationship between external auditors and members of the supervisory board increases the work efficiency of the supervisory board.

Auditors' opinions about the impact of the

supervisory board on the higher efficiency of external auditing are presented in table 6.

Out of the total number of auditors, 4.7% think that there is no impact by the supervisory board on the increase of external auditing efficiency, while 23.8% think that the impact is low and 40.5% think that the impact is moderate. The remaining 28.6% think that the impact of the supervisory board on the increase of external auditing efficiency is high and 2.4% of the auditors think that the impact is extremely high. Therefore, it can be concluded that the majority of certified auditors who participated in the survey think that there is an impact by the supervisory board on external auditing efficiency.

According to the survey and tests presented, it is possible to conclude that the average opinion of auditors and members of the management and supervisory boards is that there is a moderate impact by external auditing on supervisory board efficiency. It can also be concluded that the participants who think that there is better communication quality between external auditing and the supervisory board have a better opinion about external auditing's impact on the increase of supervisory board efficiency. The opinion of the majority of certified auditors is that the supervisory board has an impact on the increase of external auditing efficiency. Based on application of the secondary research methods and opinions of the survey participants, it can be concluded that the supervisory board has an impact on the increase of external auditing efficiency and that external auditing has an impact on the increase of supervisory board efficiency. These results confirm the hypothesis that an optimal relationship between the supervisory board and external auditing could result in the mutual increase of

The supervisory board and external auditing efficiency			No impact	Low impact	Moderate impact	High impact	Extremely high impact	Total:
Function	An auditor	Count % within function	2 4.7%	10 23.8%	17 40.5%	12 28.6%	1 2.4%	42 100.0%

Table 6: Auditors' opinions about the impact of the supervisory board on the higher efficiency of external auditing

The existence of an audit committee			Yes	No	Total:
Function	An auditor	Count % within function	13 31.0%	29 69.0%	42 100.0%
	A member of the management board	Count % within function	8 26.7%	22 73.3%	30 100.0%
	A member of the supervisory board	Count % within function	9 32.1%	19 67.9%	28 100.0%
Total:			30 30%	70 70%	100 100.0%

Table 7: The existence of an audit committee in publicly traded companies

<i>The audit committee and external auditing efficiency</i>			Moderate impact	High impact	Extremely high impact	Total:
Providing auditing services to companies with an established audit committee	Yes	Count % within companies with an established audit committee	4 30.8%	6 46.2%	3 23.0%	13 100.0%

Table 8: The audit committee impact on the higher efficiency of external auditing

Impact of establishing an audit committee on external auditing efficiency			No impact	Moderate impact	High impact	Extremely high impact	Total:
The audit committee	Yes	Count % within the audit committee	0 0.0%	3 23.0%	5 38.5%	5 38.5%	13 100.0%
	No	Count % within the audit committee	1 3.4%	12 41.4%	11 37.9%	5 17.3%	29 100.0%
Total:		Count % within the audit committee	1 2.4%	15 35.7%	16 38.1%	10 23.8%	42 100.0%

Table 9: Opinions of certified auditors about the impact of establishing an audit committee, in companies that do not have one on the higher efficiency of external auditing

work efficiency.

5.3. Hypothesis regarding the impact of the audit committee on the increase in efficiency of the supervisory board and external auditing

The empirical study next tested the second hypothesis:

H2 The audit committee, as a subcommittee of the supervisory board, has a direct impact on the higher efficiency of the supervisory board and external auditing.

In order to test the second hypothesis, survey participants were asked about the existence of audit committees in publicly traded Croatian companies. Descriptive statistics about the existence of the audit committees in publicly traded companies is shown in table 7.

Of the 42 certified auditors who participated in the survey, 31% provide auditing services to publicly traded companies with an established audit committee. The remaining 69% provide auditing services to publicly traded companies which do not have an audit committee. Out of the 30 members of the management board who participated in the survey, 26.7% work in companies that have an established audit committee. The remaining 73.3% work in companies that do not have an audit committee. Of the 28 members of the supervisory board who participated in the survey, 32.1% are members

of the supervisory board working in companies with an established audit committee. The remaining 67.9% are members of the supervisory board in companies that do not have an audit committee.

The following table (table 8.) presents the opinions of certified auditors about the audit committee's impact on the higher efficiency of external auditing. This question was answered only by auditors who provide auditing services to publicly traded companies with an established audit committee.

Out of the total number of certified auditors, 30.8% think that the audit committee has a moderate impact on the higher efficiency of external auditing, 46.2% think that the audit committee's impact on the higher efficiency of external auditing is high, while 23% of the certified auditors think that the audit committee's impact on the higher efficiency of external auditing is extremely high.

The following table (table 9.) presents the opinions of the certified auditors about the impact of establishing an audit committee on the higher efficiency of external auditing from companies that do not have an audit committee.

Of the 13 certified auditors who provide auditing services in companies with an established audit committee, 23% think that the impact of establishing the audit committee (in the companies which do not have an audit committee) on the higher efficiency of external auditing would be moderate, while 38.5% think that the impact would be very high. The remaining 38.5% think that the impact would be extremely high. Of the 29

Impact of an audit committee on supervisory board and external auditing efficiency			Moderate impact	High impact	Extremely high impact	Total:
Function	A member of management board	Count % within function	3 42.9%	4 57.1%	0 0%	7 100.0%
	A member of supervisory board	Count % within function	0 0%	6 60%	4 40%	10 100.0%
Total:		Count % within function	3 17.7%	10 58.8%	4 23.5%	17 100.0%

Table 10: Opinions of supervisory and management board members regarding the impact of an audit committee on the higher efficiency of both the supervisory board and external auditing

Impact of establishing an audit committee on supervisory board and external auditing efficiency			No impact	Moderate impact	High impact	Extremely high impact	Total:
Function	A member of management board	Count % within function	0 0%	7 33.3%	10 47.6%	4 19.1%	21 100.0%
	A member of supervisory board	Count % within function	1 4.7%	8 38.1%	6 28.6%	6 28.6%	21 100.0%
Total:		Count % within function	1 2.4%	15 35.7%	16 38.1%	10 23.8%	42 100.0%

Table 11: Opinions of supervisory and management board members about the impact of establishing an audit committee in companies that do not have one on the higher efficiency of supervisory board and external auditing

certified auditors who provide auditing services in companies which do not have an audit committee, 3.4% of think that there would be no impact by establishing an audit committee on the higher efficiency of external auditing, while 41.1% think that there would be moderate impact, while 37.9% think that the impact of establishing an audit committee (in companies which do not have an audit committee) on the higher efficiency of external auditing would be high. The remaining 17.3% think that the impact of establishing an audit committee on the higher efficiency of external auditing would be extremely high.

The following table (table 10.) presents the opinions of the supervisory and management board members regarding the audit committee impact on the higher efficiency of both the supervisory board and external auditing.

This question was answered only by members of supervisory and management boards who work in publicly traded companies with an established audit committee. Of the 7 members of the management board, 42.9% think that the audit committee has a moderate impact on the higher efficiency of both external auditing and the supervisory board, while 57.1% think that the audit committee impact on the higher efficiency of the supervisory board and external auditing is high. Of the 10 members on the supervisory board, 60% think that the

audit committee has a high impact on the higher efficiency of the supervisory board and external auditing, while 40% think that the impact of the audit committee on the higher efficiency of both the supervisory board and external auditing is extremely high.

The following table (table 11.) presents the opinions of the supervisory and management board members about the impact of establishing an audit committee in companies without one on the higher efficiency of the supervisory board and external auditing.

Of the 21 members of the management board who answered this question, 33.3% think that the impact of establishing an audit committee (in companies without an audit committee) on the higher efficiency of the supervisory board and external auditing would be moderate, while 47.6% think that the impact would be very high. The remaining 19.1% think that the impact would be extremely high.

Of the 21 members of the supervisory board who answered this question, 4.7% think that there would be no impact from establishing an audit committee on the higher efficiency of the supervisory board and external auditing, while 38.1% think that there would be a moderate impact. Of the remaining 57.2%, 28.6% think that the impact of establishing an audit committee on the higher efficiency of both the supervisory board and

Impact of establishing an audit committee on supervisory board and external auditing efficiency		N	Mean	Standard deviation	Standard error mean
Function:	A member of management board	21	3.95	.590	.129
	A member of supervisory board	19	3.95	.705	.162

Table 12: Mean scores of supervisory and management board members about the impact of establishing an audit committee in companies that do not have one on the higher efficiency of supervisory board and external auditing

Establishment of an audit committee	Levene's test for equality of variances		T-test for equality of means						
	F	Sig.	T	Df.	Sig. (2-tailed)	Mean difference	Standard error difference	95% confidence interval of the difference	
								Lower	Upper
Equal variances assumed	.065	.799	.024	38	.981	.005	.205	-.410	.420
Equal variances not assumed			.024	35.275	.981	.005	.207	-.414	.424

Table 13: T-test of the difference between the mean scores of supervisory and management board members regarding the impact of establishing an audit committee in the companies that do not have one on the higher efficiency of the supervisory board and external auditing

external auditing would be high and 28.6% think it would be extremely high.

The t-test for independent samples is used in order to test the difference between the mean scores of the supervisory and management board members about the impact of establishing an audit committee on the higher efficiency of the supervisory board and external auditing. The following table (table 12.) presents mean scores (scaled from 1 to 5) of the supervisory and management board members about the impact of establishing an audit committee (in companies without an audit committee) on the higher efficiency of the supervisory board and external auditing.

The mean score of the management and supervisory board members is 3.95 (there is no difference between means because there are only two decimal places). The following table (table 13.) presents the t-test results for independent samples in order to test the difference between the mean scores (the difference between means equals 0.005).

When equal variances are assumed, a T value of 0.024 and 38 degrees of freedom, the difference is not significant (significance is higher than 5%). Therefore, it can be concluded that the average opinion of the supervisory and management board members is that the impact of establishing an audit committee, in those

companies without one, on the higher efficiency of external auditing and the supervisory board would be high.

According to the survey and tests presented, it is possible to conclude that certified auditors who provide auditing services in companies with an established audit committee think that the audit committee has an impact on the higher efficiency of the external auditing service. The average opinion of all certified auditors who participated in the survey is that the impact of establishing the audit committee, in companies that do not have one, on the higher efficiency of external auditing would be high. Members of the supervisory and management boards who work in publicly traded companies with an established audit committee think that the audit committee has an impact on the higher efficiency of the supervisory board and external auditing, and that the impact of establishing an audit committee in companies that do not have one would result in an increase in the efficiency of both the supervisory board and external auditing. Based on the application of the secondary research methods and on the opinions of the survey participants, it can be concluded that an audit committee has an impact on the higher efficiency of the supervisory board and external auditing. In addition, the hypothesis, which states that an audit committee as a

subcommittee of the supervisory board has a direct impact on the higher efficiency of the supervisory board and external auditing, is confirmed.

6. Conclusion

The fact that there has been no significant research on the relationship between the supervisory board and external auditing in Croatia, and the fact that the supervisory board and external auditing represent very important control mechanisms in the corporate governance system, both prompted the scientifically grounded hypotheses that were developed and tested during the empirical study. Supervisory systems, both internal and external, play a crucial role in increasing the quality of a company's business system and organizational parts. Both of these factors reflect the higher quality of financial statements – which are a key source of financial information and data for all participants in the corporate governance process.

A relationship between the supervisory board and external auditing increasingly depends on the audit committee, a subcommittee of the supervisory board in charge of improving the financial reporting process and improving communication with external auditors. Since the results of the survey confirmed that an optimal relationship between the supervisory board and external auditing could result in a mutual increase in work efficiency, it is necessary to create and maintain conditions which will allow that kind of relationship to prosper in the Croatian corporate governance system. These conditions involve the establishment of audit committees in publicly traded companies.

Although the audit committees in Croatia are mainly established in large publicly traded companies, this practice should be adopted in all publicly traded companies since most of the survey participants think that an auditing committee has a direct impact on the higher efficiency of both the supervisory board and external auditing.

Optimal relations between internal and external supervisory mechanisms in the corporate governance process, as well as the increasing importance of the audit committee, which represents a communication link between the supervisory board and external auditing, are crucial for the development of good corporate governance practice in Croatia.

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The Interaction of Profitability with Solvency: A Simple model of a Bank

Srđan Marinković*

Abstract:

This paper develops a simple deterministic model to analyze how the profitability of bank operations influences the solvency of a banking firm. The results imply that the solvency ratio is directly related to the net interest margin (the “bread and butter” of bank profitability) and inversely related to the liquidity ratio. This model has several implications on the design of banking regulations: i) profitability has to be treated as “marginal” solvency, ii) a profitable bank can operate sustainably even with a low level of equity capital; iii) the supervisory framework has to be able to recognize any measure of earnings level, its trends, stability and quality; and finally iv) the frequency of audit trials has to be as high as possible.

Keywords: Profitability, solvency, bank model, net interest margin.

JEL: G21; G18; C51;

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1. Introduction

The main issue to be addressed here is how the profitability of banking operations contributes to bank solvency, i.e. capital adequacy. This issue has some regulatory implications, which shall also be discussed. The nexus of relations between the level of equity (capital, or equity capital, which is the term that will be used in this paper) and the profitability of a financial institution is well above the interest of this paper. It could be a far more complicated issue. For example, having ignored the regulatory pressure on the financial industry to sustain a prudently sufficient level of capital, there is the desire of shareholders to keep capital as low as possible for a given level of return, so as to maximize the return on capital. The more capital banks have to hold, the more difficult it is to generate the return required to shareholders. This paper does not seek to address this manner of influence, i.e. the needed level of capital to create a *target* level of profitability. On the contrary, the issue here is how *deterministic* (or stochastic) profitability influences the economic and regulatory capital of financial institutions.

At this point a reader will gain from some definitions. *Economic* (or risk) capital is taken here as (Merton and Perold, 1993, p. 17) “the smallest amount that can be invested to insure the value of the firm’s net assets against a loss in value relative to the risk-free investment of those net assets.” Here regulatory capital refers to regulatory constraint, i.e. the minimum capital requirements which banks are required to hold. How much risk capital does a financial institution need? It is obvious that it depends on the earnings it creates. Within a simple deterministic approach, if earnings are positive a bank does not need capital at all. But in a more realistic, stochastic (or uncertain) world, it is clear that more volatile earnings come with higher capital needs. To state it in a more formal way (Matten, 1996, p. 104) the relationship between earnings-at-risk and risk capital is as follows: risk or economic capital is earnings-at-risk

Srđan Marinković

Faculty of Economics, University of Niš

e-mail: srdjan@eknfak.ni.ac.yu; srdjan.m@neobee.net;

divided by risk-free rate. Hence, the question is how much capital would be needed to ensure that the probable level of volatility is offset by risk-free earnings, or how much capital, invested at a risk-free rate, generates a return equal to earnings-at-risk. From this relation it becomes clear that the amount of capital needed to protect bank debtholders (i.e. creditors and depositors) is closely related to bank earnings, depending on both its size and variability, or risk.

2. The role of equity capital in a profitable bank

The principle of profitability and principle of solvency are closely related to each other. Assuming that all earnings (net income after tax, or profit; these three notions here shall all be used interchangeably) are retained, profitability becomes the main source of equity growth, and hence the way for a bank to stay solvent at all times. Therefore, profit becomes "marginal" equity. Namely, by making a net income a bank increases its equity capital, the same way that by making loss equity capital decreases for the amount of loss, *ceteris paribus*.

Other than this direct "funding" relation between profitability and solvency, there are also a number of other similarities between the two concepts. The problems that are involved in the calculations of economic (real) profitability are an inherent part of the calculation of economic capital (or solvency) as well, e.g. information issues related to the market (economic) value of assets, asset quality measures, loan loss provisions etc. While normal or anticipated losses are covered by regular revenues, the role of capital in a bank is to act as a buffer against future, unidentified, even relatively improbable losses, whilst still leaving the bank able to operate at the same level of capacity (Matten, 1996, p. 9). Hence, the capital has a "buffer" role, and it is a "margin for error" because the level of capital has to be somewhat larger than simply a cushion against "normal" losses.

Bank capital has at least two roles: a) it gives the right to equity holders to manage the bank, but also b) creates a kind of buffer or guarantee available to bank creditors in case of bankruptcy (extraordinary loss). When a bank operates profitably, the purpose (even the rationale) of *a priori* imposed regulatory capital requirements vanishes concerning the second role of capital. Then equity capital retains only the role of representing "a key for distributing net income among shareholders" (Krstić, 1996, p. 57). "Experience suggests only the observation – simple but sound – that a well-managed and profitable bank can get

along with an extremely low capital ratio, whereas no amount of capital will suffice to guarantee the solvency either of a poorly managed bank that likes to place bets ... that is forced to operate under rules or in an environment that render it unviable..." (cf. Stigum and Branch, 1983, p. 181) and further on "...the answer to the question of bank capital adequacy is to argue that what should really count is not the absolute ratio of a bank's capital to its risk assets, but rather the size and constituency of its earning. If a bank's earnings grow on average, and if it is consistently adding to its capital through retained earnings, then all the functions of capital are fulfilled, and the bank therefore must be judged to have adequate capital." (Ibidem, p. 182-183)

Referencing the quoted passage from Stigum and Branch (1983, p. 181), Ćirović (1995, p. 243) argues that "this conception [is] of course partly correct, in the sense that bank equity represents a stock concept, while as a point of necessity for being solvent at all times the "concept of flows" is most important. This concept is a reminder that a bank has to operate with high enough revenues so as to be able to cover all its expenses. If it is assumed that a bank always makes enough revenue to cover all of its expenses, then equity capital would not be a necessary "buffer" for losses. In that case the only role capital is to play is to be the key for distributing net income amongst shareholders. However, the real rationale for holding equity capital has to be in case of unforeseen and extraordinary losses, in which case it presents *ex ante* allowance aimed to cover losses, and hence to help the bank stay solvent."

Empirical research has also pointed out that profitability is negatively correlated with leverage, i.e. positively correlated with solvency ratios (Rajan and Zingales, 1995, p. 1457). The authors show that "[i]f in the short run, dividends and investments are fixed, and if debt financing is the dominant mode of external financing, then changes in profitability will be negatively correlated with changes in leverage." Banking is rightly an industry where debt financing is the dominant mode of external financing. The assumption about fixed dividends supports the view, presented here, that solvency is "safe" as long as the bank operates profitably. This is not unrealistic. For example, Myers (2003, p. 151.) states that "firms have well-defined, sticky policies that regulate dividends per share." Indeed, in reality a bank's major source of equity capital is its flow of net income after dividends or its long-term profitability. Data collected on US banks show that on average the ratio of retained

earnings to total assets was 0.28 percent for the period from 1995 to 1999. Over a fifteen year long period, it was only on account of this source that banks were able to raise enough equity capital to raise their assets ratio to five percent. Moreover, retained earnings present the most stable source of equity capital (Sinkey, 2002, Table 9-4, p. 285). On average, the equity capital of US banks is up to four fifths financed with retained earnings. This is taken as evidence here in support of the pecking order hypothesis. The pecking order model predicts that firms rank financing sources by their sensitivity to asymmetric information, the order of which is internal financing (i.e. retained earnings), debt, and external equity sources (cf. Myers and Majluf, 1984, or Myers, 1984).

In emerging market banks rely even more on retained earnings as a source of equity capital. In Serbian banking, the figures point to a somewhat different position. The Serbian banking industry is not comparable to developed countries due to several factors. First, a huge proportion of banks are newly established. Their short period of existence has constrained the banks from reporting a significant amount of retained earnings, even those who have operated profitably since their establishment. Second, some of the banks whose origin can be traced back to the former socialist period are burdened with inherited losses, so that new banks to the market that have taken over these older banks have assumed negative retained earnings. On average (weighted), retained earnings take up 16.86 percent of all equity resources. The figure is even smaller for the unweighted average (10.29). The figures are this small because in summing up individual bank data positive accumulated earnings are offset by negative earnings or accumulated losses. But when analyzing profitable and non-profitable banks separately the former group (sample) has 27.15 percent of its total equity capital generated by retained earnings, while for the latter the figure is negative 16.20 percent (2007). Keeping in mind the short existences of the majority of banks in the industry, the figures above are still in line with the theory and other countries' empirical evidence.

3. The formal model

The solvency condition is as follows (Jović, 1990, p. 245):

$$NW = A - L > 0 \Leftrightarrow A > L \quad (1)$$

Where NW , A and L stand for Net Worth, Assets and Liabilities, respectively. The profit equation is:

$$\pi_{T-t} = \Delta A_{T-t} - \Delta L_{T-t} = A_r (e^{r_a T-t} - 1) - L (e^{r_l T-t} - 1) \quad (2)$$

Where e^{r_a} is the continuously compounded (logarithmic) rate of return on earning assets, e^{r_l} the continuously compounded cost rate of debt funds, r_a the annual rate of return on earning assets, and r_l the annual cost rate of debt.

Equation (2) has the following economic rationale. Net profit generated at time interval $T - t$ is the difference between growth of assets and liability values. The value of a bank's assets increases at the rate of return while the value of liabilities (debt) increases at the cost rate.

Assumption 1: *The only source of income is interest income, and the only source of expenses is interest expenses. Other sources of bank revenue, e.g. noninterest income, is ignored, as well as noninterest expenses. Therefore, only the balance sheet items matter.*

To keep the subsequent analysis as simple as possible it will be supposed here that the rate of return and the cost rate are certain. This allows for the development of a simple deterministic framework by assuming the following:

Assumption 2: *Rates of return on assets and cost rate of liabilities are represented by their means, i.e. expected value.*

3.1 Liquidity constraints

Note that the profit equation (2) is expressed in terms of earning assets. The empirical fact is that banks seeking to maximize their profitability are constrained by liquidity requirements. Namely, in order to operate their ongoing concern is to meet their financial obligations on time, for the regular concern is to hold some cash or cash-like holdings. Those holdings are nonearning assets known as liquidity reserves. If for the sake of simplicity it is assumed that those assets produce no income, the total assets could be decomposed into earning assets (A_e) and nonearning assets, or liquidity reserves (A_l). Also, for the sake of simplicity this approach will ignore that liquidity reserves could change over time, and assume that the ratio of liquidity reserves is constant over time.

Assumption 3: *Liquidity ratio is constant over time.*

Hence:

$$A = A_e + A_l \quad (3)$$

If, instead, the above formula (3) is expressed solely in terms of earning assets rather than both earning assets and liquidity reserves, another ratio must be introduced, i.e. the liquidity ratio (l). This ratio is given by dividing

liquidity reserves by total assets. After some simple algebra the following is arrived at:

$$l = \frac{A_l}{A} = \frac{A - A_r}{A} = 1 - \frac{A_r}{A} \quad (4)$$

Therefore:

$$A_r = A(1 - l) \quad (5)$$

By expression (5) the relation between total assets and earning assets is defined using the liquidity ratio. Yet another formulation expresses the bank profit not in the form of earning assets A_r but in the form of total assets A . From (2), this version yields:

$$\pi_{T-t} = A_t(1-l) \left[(e^{r_a T-t} - 1) - L_t(e^{r_l T-t} - 1) \right] \quad (6)$$

The following are expressions for the future value of financial liability or debt (L_{t+1}) and the future value of assets (A_{t+1}), respectively, for a discrete period of time equalling one time interval.

$$L_{t+1} = L_t + \Delta L_{t+1,t} = L_t e^{r_l T-t} \quad (7a)$$

$$A_{t+1} = A_t + \Delta A_{t+1,t} \quad (7b)$$

According to the above (7b) the terminal value of total assets can be decomposed into its components, so that it is calculated now:

$$A_{t+1} = (A_{l,t} + A_{r,t}) + \Delta A_{r,t} = A_{l,t} + A_{r,t} e^{r_a T-t} \quad (8)$$

Provided the liquidity ratio is constant over time it follows that the future value of assets depends solely on changes to earning assets, as shown in equation (8).

3.2 Net worth equation

The question remains whether such a bank will be solvent at a point in the future T . The answer will be given through composing a net worth equation. As net profit (earnings) represents one of the most important sources for growth of equity capital, the relation between profitability and solvency is obvious. In order for the model to be more realistic, it will be assumed that the entire profit of the current year does not go toward general reserves, and a part of the earnings are distributed to shareholders. The ratio between dividends and total net profit is the dividend payout ratio, noted as α , such that it satisfies the following expressions: $\Delta A_{T-t} - \Delta L_{T-t} = \pi_{T-t}(1 - \alpha)$; and $(\alpha \geq 0)$, where $(1 - \alpha)$ is by definition the retention ratio. The higher the retention ratio (i.e. the lower the dividend payout ratio), the higher the net worth and *vice versa*.

In order to translate the profit equation into a net worth equation an additional assumption is needed.

Assumption 4: No external funds are acquired in the period, so that the only way for assets to grow is to invest A_T into profitable opportunities.

This leads to the following definition of term value of bank net worth, subject to the above restriction (assumption 4):

$$\begin{aligned} NW_T &= A_T - L_T = (1 - \alpha) \left[A_t e^{r_a T-t} (1 - l) - L_t e^{r_l T-t} \right] \geq 0 \\ \Leftrightarrow r_a (1 - l) &\geq r_l \end{aligned} \quad (9)$$

where:

i) $e^{r_a T-t} (1 - l)$ is the rate of return on total assets over the period $T - t$;

Proposition 1: If it is supposed that a bank has an equal amount of assets and liabilities at moment t , i.e. a bank operates at zero solvency, $A_t - L_t = 0$, the bank will stay solvent if only the following condition is satisfied:

$$\frac{r_a}{r_l} \geq \frac{1}{(1 - l)} \quad (10)$$

This shows that, provided the assumptions are satisfied, a bank will remain solvent if only the rate of return on assets are above the cost rate of debt funds for an amount higher than $\frac{1}{(1 - l)}$.

It follows from here that liquidity ratio influences adversely the level of profitability, and solvency as well. Also from condition (10) it follows that bank profitability, as well as its solvency, will depend on the difference between the rate of return on assets and the cost rate of debt funds used to finance the assets.

3.3 Net Interest Margin

Note that bank profit is expressed solely through the difference between interest income and interest expenses. This is derived from assumption (2) i.e. that income sources other than interest income are ignored.

The bank interest margin, or net interest margin as it is commonly referred to, is usually defined as the difference between interest revenue and interest expenses expressed as the percentage of average earning assets (cf. Sinkey, 2002, p. 119). Interest spread, on the other hand, is the difference between the yield rate on average interest earning assets and the cost rate on the interest bearing fund, with both elements expressed in percentage terms.

Clearly, the bank interest margin and spread need not be identical unless there are zero non-interest bearing funds. However, abstracting from the abovementioned difference caused by non-interest bearing funds, those two bank efficiency measures could be considered equal.

It is well known that the bank interest margin is an important component of bank profitability. An adequate interest margin should generate sufficient income to increase the capital base as risk exposure increases (cf. Angbazo, 1997, p. 56).

Net interest margin can be written as the following identity:

$$NIM = \frac{1}{A_r} [A_r(e^{r_a} - 1) - L(e^{r_l} - 1)] \quad (11)$$

or:

$$NIM = (e^{r_a} - 1) - \frac{L}{A_r} (e^{r_l} - 1) \quad (12)$$

Combining (5) and (12) implies that:

$$NIM = (e^{r_a} - 1) - \frac{L}{A(1-l)} (e^{r_l} - 1) \quad (13)$$

One can further rearrange (13) introducing an explicit expression for the solvency ratio, whereby the solvency ratio or capital adequacy (not adjusted for risk) is written as:

$$\sigma = \frac{NW}{A} = \frac{A-L}{A} = 1 - \frac{L}{A} \quad (14)$$

Substituting equation (14) into equation (13) leads to the following definition of net interest margin (NIM):

$$NIM = (e^{r_a} - 1) - \frac{1-\sigma}{1-l} (e^{r_l} - 1) \quad (15)$$

From the statement above (15) another proposition can be derived:

Proposition 2: *Solvency is a positive function of net interest margin (NIM).*

Namely, by further rearranging the equation (15) the following is arrived at:

$$\frac{1-\sigma}{1-l} (e^{r_l} - 1) = (e^{r_a} - 1) - NIM \quad (16)$$

It must also be the case that:

$$\frac{1-\sigma}{1-l} = \frac{(e^{r_a} - 1) - NIM}{(e^{r_l} - 1)} \quad (17)$$

or finally:

$$\sigma = 1 - \frac{(1-l)[(e^{r_a} - 1) - NIM]}{(e^{r_l} - 1)} \quad (18)$$

Therefore, the solvency ratio is a positive function of rate of return on earning assets and net interest margin, but inversely related to the cost rate and liquidity ratio. Since net interest margin is already determined the same way by rate of return on earning assets and cost rate, it can be concluded that the solvency ratio is directly related to net interest margin (the “bread and butter” of bank profitability) and inversely related to the liquidity ratio.

Surprisingly, solvency is inversely related to liquidity. This comes from assumption (4), “no external funds are acquired in the period.” Otherwise, a bank with a low liquidity ratio (inadequate cash or cash-like holdings) will be more sensitive to funds withdrawal (or bank run), that in the worst case may compromise even bank solvency. Namely, liquidity problems may often turn into solvency problems. For example, a continuous liquidity shortage could lead a bank to sell its longer-term assets at “fire sale” prices, and decrease asset value and net worth. In that case liquidity goes hand in hand with solvency. However, in this model the link between solvency and liquidity is derived solely from the influence of liquidity ratio on profitability. Since a higher liquidity ratio means a lower proportion of earning assets to total assets, it will cause lower profitability and lower solvency, *ceteris paribus*.

3.4 Stochastic framework

So far a deterministic framework has been assumed with rates of return and cost rates expressed by their means. In order to be more realistic the rates have to be expressed as stochastic variables. If normality is accepted as an attribute of its statistical distribution then the following holds (cf. Briys et al. 1998, p. 34):

$$r_{a,l} \approx f \left[\left(\mu - \frac{1}{2} \sigma^2 \right) (T-t), \sigma \sqrt{T-t} \right] \quad (19)$$

The expression above (19) means that continuously compounded rates have normal distribution with mean μ and an annual standard deviation σ . Since the variable is normally distributed, a range of possible outcomes are the positive function of time span $(T-t)$. Distribution of the stochastic variable depends on its mean, standard deviation and time span. The variability of the rates is at least as equally important for expected profitability and solvency as the mean of the rates. Being, by definition, normally distributed, rate of return and cost rate have variability proportional to time span. This attribute implies that audit trials have to be as frequent as possible so that

at any time the actual level of the variable will not depart too much from its mean.

The importance of variability is accepted by regulatory bodies (e.g. US FRS or FDIC). They regularly collect data and oversee both the mean and standard deviation of rates of return on assets and net interest margins. For instance, over a 15 year period (from 1985 through 2000 for all reporting US banks), the typical US commercial bank had an average return on assets of 0.88 percent with a standard deviation of 0.38 percent compared to an average net interest margin of 3.64 percent with a standard deviation of 0.18 percent (cf. Sinkey, 2002, Table 8-2, p. 223). The data show that the net interest margin is substantially less variable than the rate of return on assets.

4. How the model fits current regulatory practices

The current practices of bank supervision implemented worldwide differ in many aspects but hold some common attributes: they all are based on a system that has to be uniformly implemented. The data are compared to peer group averages and the bank's own trends. All the approaches are concerned with the bank's overall condition or the bank's default probability (i.e. downside risk) and differ mostly in their methods of computation. Some are off-site or on-site rating systems, some are statistical models for predicting failure, or rating downgrade. In recent years the improvement of supervising technology has brought new approaches, e.g. comprehensive risk assessment systems. Data for feeding analytic tools comes from balance sheets, and are in the form of various ratios, growth rates, as well as in the form of market available data and even "soft data," or the subjective assessment of management ability, internal control systems and the organizational capacity of the supervised institution.

How important earnings are in evaluating the various aspects of bank safety can be judged by their presence in various supervisory approaches implemented worldwide (Annex, tables 1-5). In 15 out of the total of 17 systems comprehensively reviewed by Sahajwala and Van den Bergh (2000) at least one indicator, proxy or profitability ratio is included. The importance of expected profitability is even bigger when adding various asset quality variables related to profitability. The list of profitability indicators, proxies or ratios includes:

a) *profitability ratios*: return on assets;

b) *income items*: net income; income before taxes and extraordinary provisions; earnings before interest and taxes/total assets divided by interest on liabilities/total liabilities; operating income; quality of earnings;

c) *Revenue and expenses items*: material components of income and expenses,

d) *Asset quality and expected loss items*: Non-accrual loans; loans past due (different delays); non-recurring items; loan loss reserve; gross charge-offs and provision for loan losses; adequacy of provisions for loan losses;

e) *other*: dividend payout ratio in relation to the adequacy of bank capital;


The issue of the desirable frequency of reporting in the current international practice of bank supervision depends on the system's main focus: whether it is a regular rating, or following the distressed bank to screen its probability of failure or survival, or probability of being downgraded. It is within the range of annual to quarterly reporting, and clearly has become more recently short-term oriented.

5. Conclusions

This simple model has several implications on the design of banking regulations: i) profitability has to be treated as "marginal" solvency, ii) a profitable bank can operate sustainably even with a low level of equity capital; iii) the supervisory framework has to be able to recognize any measure of earnings level, its trends, stability and quality; and finally iv) frequency of audit trials has to be as high as possible.

The model indicates that profitability goes hand in hand with solvency, such that a positive return is *conditio sine qua non* for a bank to stay on track. The above conclusions may look somehow too strong for reality. The latest financial crisis demonstrated that for most banks the years of racket profits eventually resulted in financial distress. However, this was not so much due to rapid changes in the economic environment, but rather because a high return was calculated on the basis of over-optimistic predictions.

Biased reports on assets value can certainly undermine the relevance of indicators related to profitability for regulatory purposes. Various flaws in bank reports and misrepresentations of return could be just the consequence of obliviousness or the reluctance to admit

how likely is that the best scenario can turn into the worst. Information issues related to the market (economic) value of assets, asset quality measures, and loan loss provisions are equally harmful to calculations of both the real value of return and real value of equity. Therefore, in the real world the difference between the book value of return and equity and their real values are likely to come from the same source of inaccuracy. However, the difference itself does not compromise the model. It simply means that the model better fits reality if the variables represent real values than possibly flawed book values. 

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Annex

System/category	Agency	Profitability/earnings variables
CAMELS (Capital, Asset Quality, Management, Earnings, Liquidity and Sensitivity to market risks) – on-site examination rating	Federal Reserve System, Federal Deposit Insurance Corporation and Office of the Comptroller of the Currency (US)	Return on assets compared to peer group averages and bank's own trends, material components and income and expences, comparison to peers and bank's own trends, adequacy of provisions for loan losses, quality of earnings, dividend payout ratio in relation to the adequacy of bank capital.
CAEL ¹⁾ (Capital, Asset Quality, Earnings and Liquidity) – off-site	Federal Deposit Insurance Corporation (US)	Identical to CAMELS
PATROL – off-site	Bank of Italy	One ratio for profitability and one for asset quality, out of a total of 5 indicators.
ORAP (Organization and Reinforcement of Preventive Action) – off-site	Banking Commission (France)	Operating income, non-recurring items and return on assets, plus four for asset quality, out of a total of 6 indicator categories.

Notes: ¹⁾ withdrawn December 1999.

Table 1: Supervisory bank rating systems

Source: Suhajwala and Van den Bergh (2000, Table 1. and Annex 1-5).

System/category	Agency	Profitability/earnings variables
SEER rating (System for Estimating Exam Ratings) – Rating estimation	Federal Reserve System (US)	Net income; Non-accrual loans, loans past due (different delays) plus asset quality variables related to profitability.
SCOR (Statistical CAMELS Off-site Rating) – Rating downgrade estimation	Federal Deposit Insurance Corporation (US)	Income before taxes and extraordinary provisions; Loan loss reserve, gross charge-offs and provision for loan losses plus asset quality variables related to profitability.

Table 2: Statistical models (Early warning rating/rating downgrade estimation)**Source:** Suhajwala and Van den Bergh (2000, Table 1. and Annex 1-5).

System/category	Agency	Profitability/earnings variables
Individual Bank Monitoring Screens	Federal Reserve System (US)	5 profitability ratios plus 21 asset quality ratios out of a total of 74 financial and capital market ratios
BAKIS (BAKred Information System)	German Federal Supervisory Office	10 profitability ratios plus 18 asset quality ratios out of a total of 47 financial and capital market ratios
Observation systems ¹⁾	Netherlands Bank	13 profitability ratios plus 12 asset quality ratios out of a total of 53 financial and capital market ratios

Notes: ²⁾ not in use yet/planned**Table 3:** Financial ratio and peer group analysis systems**Source:** Suhajwala and Van den Bergh (2000, Table 1. and Annex 1-5).

System/category	Agency	Profitability/earnings variables
RAST (Risk Analysis Support Tool)	Netherlands Bank	No; one for asset quality out of a total of 13 risk categories
RATE (Risk Assessment, Tools of Supervision and Evaluation)	Financial Services Authority (UK)	One for profitability plus one for asset quality out of a total of 9 risk categories

Table 4: Comprehensive bank risk assessment systems**Source:** Suhajwala and Van den Bergh (2000, Table 1. and Annex 1-5).

System/category	Agency	Profitability/earnings variables
SAABA (Support System for Banking Analysis) – expected loss	Banking Commission (France)	One for profitability and one for asset quality out of a total of 5 ratios/categories.
SEER risk rank (System for Estimating Exam Ratings) – failure prediction	Federal Reserve System (US)	Return on average assets and 7 for asset quality out of a total of 11 ratios.
GMS (Growth Monitoring System) –tracking high growth banks	Federal Deposit Insurance Corporation (US)	None for profitability and 6 for asset quality out of a total of 9 ratios/rates.
Bank Calculator ³⁾ – failure prediction	Office of the Comptroller of the Currency (US)	Earnings before interest and taxes/total assets divided by interest on liabilities/total liabilities, out of a total of 10 indicators.

Notes: ³⁾ not in use yet/planned.**Table 5:** Statistical models (early warning for failure, survival or fragility)**Source:** Suhajwala and Van den Bergh (2000, Table 1. and Annex 1-5).

Benchmarking of PR Function in Serbian Companies

Milan Nikolić, Zvonko Sajfert, Jelena Vukonjanski *

Abstract:

The purpose of this paper is to present methodologies for carrying out benchmarking of the PR function in Serbian companies and to test the practical application of the research results and proposed methods in real conditions. The paper begins with research on key PR function parameters in Serbian companies. Seventy PR managers were polled for this purpose. The data obtained were processed by applying factor analysis, after which five factors (parameters) which describe the attitudes of PR managers in Serbian companies were defined. Next a study was conducted of the defined parameters, or their situation, in the seven selected Serbian companies. Twenty-one managers were polled in the process providing the data for a mathematical function for comparison of the analyzed companies. The function is based on elements of quantitative and multi-criteria analysis. Among the main output data are: ranking of the analyzed benchmarking partners (aggregate and according to individual parameters), defining similarities between the partners, selection of the competent benchmarking partner, multicriteria selection of the best action and positioning the parameters of the selected action in the field of a particular portfolio matrix. It has been shown by concrete example that the proposed procedures have both theoretical and practical value. The presented procedures are not only limited to the PR process, but can also be applied to benchmarking other business processes.

Key words: PR function, benchmarking, survey, results, analyses, Serbia.

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1. Introduction

One of the most important segments of marketing is marketing communication. The aim of communication is to set the recipient of communication into action, which should be perceived more comprehensively in terms of creating a situation that could result in taking or giving up an action. Modern society has entered a new stage of development defined as the 'information society'. What is essential for doing business in the information society is the production and distribution of information. According to Kotler, Armstrong (1996), the fast development of information technologies and direct marketing has had the most important impact on forming a new pattern of marketing communication, which is defined as integrated marketing communication. This

*Milan Nikolić

Dept. of Management
University of Novi Sad, Serbia
Technical faculty "Mihajlo Pupin", Zrenjanin

Zvonko Sajfert

Dept. of Management
University of Novi Sad, Serbia
Technical faculty "Mihajlo Pupin", Zrenjanin

Jelena Vukonjanski,

Dept. of Management
University of Novi Sad, Serbia
Technical faculty "Mihajlo Pupin", Zrenjanin

model involves careful integration and coordination of many communication channels – from the standard media of mass communication to direct marketing, which is designed to send a clear and consistent message about the company, its products and services.

A modern approach to a company's communicative activities implies integrating all the forms of communication aimed at achieving a synergic effect in the communication process. Along these lines, public relations assume the characteristics of a communicative activity that should permeate the entire process of market communication for a company. PR is a communication activity aimed at establishing and developing understanding with the general public - which is itself divided into segments - and achieving public trust; that is, creating a favourable picture of the company.

According to Baskin, Aronoff and Lattimore (2000), PR can be observed and interpreted as a profession, process, communication with the general public and practice. In addition to this, PR represent a multidimensional and extremely complex business activity requiring knowledge of various fields of human activities (psychology, communication science, journalism, economics, politics, ethics, culture, etc.), and their integration in order to achieve efficient communication. Its objectives are to build good relationships with various segments of the general public on the grounds of publicity, to create a good corporate image and to solve problems generated by unfavourable stories, rumours and events. The importance of relations with the general public stems from the state of contemporary society, which is marked by the strong inter-dependence of all of its segments. A company is linked with other segments of society by multiple ties. Due to that fact, a company has to take care in forming and maintaining a mutual understanding with those segments that are of interest. The general public needs to become acquainted with all the activities of a company and this need grows with the strengthening of public opinion in modern society. In addition, a company has to pay due attention to building positive interpersonal relationships within the company itself (internal PR).

An important part of the communicative efforts of an organization is aimed at creating public opinion. Public opinion can be defined as the dominant attitude of the society, the collective will of the people, and the consensus opinion of the general public in relation to a particular issue. According to Black (2003), PR can be

described with some key words: reputation, perception, credibility, trust, unity, mutual understanding, truthful and comprehensive disclosure. According to Wragg (1996), the main forms of PR include the following: relations with media, communication with employees, relations with investors, relations with politics, corporate identity, sponsorship, relations with the community, and relations with clients.

Brookes and Little, considering the appearance of organizations on the market in the future, define a new model of market activity designated as relationship marketing. This model is based on the following: database management, interactive market communication, and marketing networks (Brookes, Little, 1997). A new model of market management implies that the company has to meet the wider range of interests that dominate its social surroundings.

Relationship marketing is a significant paradigmatic breakthrough in approaches to marketing, from thinking only in categories of competition and conflict to thinking in categories of interdependence and collaboration. It recognizes the importance of different participants – suppliers, employees, distributors, dealers, retail sellers, who collaborate in order to provide the target customer with the best value. The basic features of relationship marketing include (Kotler, 2004):

- orientation more toward partners and consumers than to products,
- greater stress laid on keeping and developing existing customers than on finding new customers,
- greater reliance on multifunctional teams than on work at the sector level,
- greater reliance on listening and learning than on talking.

By establishing an efficient PR function, the company has impact on forming, maintaining and developing the company's image in a positive direction. A favourable climate of public opinion, quality and differentiation of products are the prerequisites for a successful company image that will affect the overall business performance of the company.

2. Public Relations in Serbia and in Other Countries

Development of PR is particularly important in companies operating in countries in transition. Since PR involves communicative activities which have strategic importance for a company's business, it is usually positioned under executive management. In the process

of transition, companies must have highly developed communicative activities with the segments of its surroundings, as well as with the internal public. These activities are even more manifest in companies which have completed the process of ownership transformation, especially in cases of direct foreign investments. With the completion of the process of economic transition, and with the coming of foreign capital on the market, PR plays an increasingly important part in the process of internalization of the process of doing business.

From the aspect of theory, the concept of PR has been present in Serbia since the mid-1980s. A more serious study of this discipline began at the beginning of the 1990s. It was at this time that PR practice in Serbian companies began.

At the beginning of the 1990s, PR appeared as an independent course of postgraduate study (Faculty of Economics in Belgrade, and Faculty of Organizational Sciences in Belgrade). In parallel with the studies of PR in specialist and master programs at the university level, studies within this area were also initiated in the field of informal educational systems where very important results were achieved. In the mid-1990s, several agencies – PR training centres – were founded (for example PRA Educa in Belgrade, etc.). It is interesting that the largest number of individuals who deal with PR in practice have completed instructional seminars with one of the organizations which were dealing with training in the field of PR. The lectures at these seminars were mostly given by practitioners from various fields which partly deal with PR, such as journalists, communication experts, marketing experts, advertising experts, etc.

As a specific form of marketing communication, PR had a minor role in the overall communication process of Serbian companies on the domestic market. Nor was PR well-established when Serbian companies appeared on foreign markets. PR activity was not well-established in a large number of Serbian companies during the 1990s. In the late 1990s, with the establishment of a larger number of foreign marketing agencies, a more significant presence of this activity emerged in the practices of companies which operate on the Serbian market. However, PR, as a business activity, is still only beginning to establish itself on the Serbian market. The development of a market economy and the acceptance of private capital logically contribute to acknowledgment of the fact that this activity is very necessary.

According to Taylor (2004), a similar situation (but somehow more favourable) is present in referent neighbouring countries (Croatia, Bosnia and Herzegovina, Hungary, Romania, Bulgaria). In these countries, PR activity has been developing more intensively over the past 15 years. In Serbia, such trends started later, and more intensively only after 2000. Over the last few years, the public relations practice has made substantial progress because of the increased number of foreign and international companies which have entered the Serbian market. All this created the need to examine and study PR, as well as the very people who deal with this activity.

Gill et al. (2008) compared various companies from North America, Europe and Asia according to three types of indicators linked with communication. North American companies pay most attention to environmental and economic indicators, while companies from Europe give advantage to social indicators.

According to Sterne (2008), there is a relatively negative opinion about PR managers in New Zealand. There is a clear difference between PR consultants from other companies and PR within the company itself. It is better when PR is an integral part of the company, especially during a crisis. This research has showed that marketing “sees” PR as its own service, while top management “sees” PR as a service of the company's strategic objectives.

In Belgium, realization of PR activities and communication is too focused on positive aspects (Gelders, 2007). Quality and quantity of communication in Belgian companies are not on a high level. The use of additional media has been suggested.

According to Leonard and Grobler (2006), in South America more attention is paid to external than to internal communication, because external communication is considered to have greater strategic significance. Many PR managers think that communication presents tactical tools without strategic significance. Therefore, PR managers are not appreciated adequately. It has been found that in South Africa there exists a need for a new type of PR manager who will be able to deal with its complex business atmosphere. Similarly, other research (Niemann-Struweg and Meintjes, 2008) has pointed out problems facing PR managers in South Africa and the need for professionalization of this activity, as well as the need for improving the influence of the PR profession in South Africa.

Koc (2006) studied the ethics of communication in written media in Turkey. This research showed that PR

managers in Turkey mostly had a teleological point of view.

Kirat (2006) studied the development of PR in the United Arab Emirates. In this country the PR profession is under the great influence of social, economic, educational and cultural development. It is obvious that the need for PR managers is increasing and the perspectives of the profession are very good.

Kent et al. (2006) studied the development of PR in Bosnia and Hercegovina. Generally speaking, it was established that PR had the potential to improve business in Bosnia and Hercegovina. PR managers are good at their jobs, but there are limits placed on their work by transitional business conditions.

According to research carried out in Croatia (Žlof, 2007), journalists think that PR in Croatia has been developed and is constantly on the rise. The journalists are critical when issues of the education and professionalism of PR managers are in question. It is interesting that, like in New Zealand, PR managers from within the companies themselves are trusted more than those from specialised consulting agencies.

Based on everything said, it can be concluded that PR in many countries of the world are still in progress. However, there is strong potential in the PR profession, as well as a tendency for the improvement of its importance and reputation. Serbia is not an exception, which has been proven by research (Nikolić, Đorđević, Čočkalović, 2007), and by the results of factor analyses presented in section 5.2 of this paper.

3. Benchmarking and its Application in Serbian Companies

The present-day situation on the world market is characterized by the presence of very strong competition, and numerous and fast changes in its settings. In the new millennium, one fact is crystal clear – only those companies which have accustomed themselves to changing and adapting quickly, which means learning fast, will succeed.

Modern management has developed numerous techniques for achieving better business results in order to live with these changes. This is how techniques such as Canban, Just in Time, Re-Engineering, TQM, and others were originally developed. During the 1980s, managerial techniques were completed with benchmarking, which is now a widely acknowledged and verified tool of modern management. This technique implies that the objectives

and methods of their accomplishment are defined by following the practices of the best companies worldwide. Benchmarking, as a part of strategic management, offers a company guidelines for enhancing its business processes, technical solutions and functions.

The term 'benchmarking' has been reported and defined in widely different ways. For instance, Venetucci (1992) defined benchmarking as a process of gathering standards for improvement and insights which may lead the organization to better performance. McNair and Leibfried (1992) described benchmarking as an external focus on internal activities in order to obtain continuous improvement. According to Camp (1995), benchmarking is a continuous process of evaluation of production process, products, and services with reference to those of the strongest competitors, known as best practice.

There are a significant number of different approaches to the methods of organizing, i.e., carrying out benchmarking research. Most of these researches have in common certain parameters (relevant for the observed process) that are specifically quantified, and then compared with best practice. The data are usually compiled through surveys, and are then statistically processed and compared. A similar approach is present in many references, including, for example Alshawaf et al. (2005); Bouchereau and Rowlands (2000); Garg and Ma, (2005); Koh et al. (2005); Ungan (2004).

Performance measurement and benchmarking are the main techniques that have been used by many leading researchers on improving company performance (Camp, 1989; Gunasekaran et al., 2001; Zairi, 1998). Neely (1998) suggested that measuring the performance of companies would enable areas of improvement to be prioritized and actions to be taken.

However, despite its great potential, the quantitative approach is still insufficiently present in benchmarking. This particularly refers to the application of benchmarking in real-life conditions in Serbia (and the majority of countries in transition). Benchmarking is very rarely practiced in Serbian companies. Among other things, problems arise because of the lack of a concrete, practical, simple, and defined quantitative method which would enable obtaining applicable and useful results. This method is to a considerable extent adapted to the conditions in the Serbian economy, and would represent encouragement and incentive for the wider application of benchmarking.

Nikolić, Nikolić and Vukonjaski (2007) offer some suggestions on how to use the quantitative approach

when comparing a company with its competitors, selecting a competent benchmarking partner and choosing the optimal strategic action. These proposals were inspired by numerous references which elaborate and apply various methods of quantitative and multicriteria analyses (Brans et al., 1984; Hwang and Yoon, 1981; McCrimmon, 1968; Oberstone, 1990; Srinivasan and Shoker, 1973).

Nikolić, Nikolić and Vukonjaski (2007) also present a two-criteria selection of the benchmarking partner, which is based on the partner's quality, and on the possibilities of the company which performs benchmarking. This procedure originated as a reply to the current situation in Serbia. In other words, benchmarking is still not studied and accepted in the Serbian economy. Most companies in Serbia hardly apply this technique at all, or if they do, they do it in some sort of improvised form. The reasons for this situation (together with the above-mentioned) can be found in considerable technological underdevelopment and very poor financial potential. Despite all of this, there is a rising awareness that the application of quality and systematic benchmarking is a necessary prerequisite for the development and survival of Serbian companies on the increasingly demanding international market. There is also a view that Serbian companies ought not to aim at maximizing their performance by following the 'Best in Practice' model. The highest aspirations are still unachievable, which does not mean that benchmarking should be given up. On the contrary, its application should be intensified, but with somewhat more modest objectives. Once these objectives have been achieved, it is possible to aim at achieving a higher level. Such an approach could be characterized as setting targets in steps, which is one of the possibilities set out in Walsh (2000).

4. Research Methodology

The objective of the paper is to correlate the problem area of PR management and the problem area of benchmarking. It was performed by carrying out PR function benchmarking on a concrete example in seven Serbian companies. In order to render this possible, two independent studies were carried out beforehand.

1. Research on the particular aspects of PR functions in Serbian companies (Study 1). The integral results of this study are presented in Nikolić, Djordjević and Čočokalo (2007). Of most relevance to the purpose of this paper is the section dealing with the

identification of the factors which describe (present) the attitudes of PR managers in Serbia. This part is presented in section 5 of this paper.

2. Research on the possibilities of applying the quantitative approach in benchmarking (Study 2). The integral results of this study are presented in Nikolić, Nikolić and Vukonjaski (2007). These results are not specifically presented in this paper, but are applied directly to the example here.

The results of the two above-mentioned studies are integrated into this paper. Benchmarking of the PR function is essentially carried out according to the identified factors (Study 1) by applying a mathematical function (Study 2). In this way, both studies have achieved their practical applications.

This paper deals with seven benchmarking partners (BP). For each BP identification factors are marked by a mark from the interval $[0, 1]$, according to the factor condition in relation to the studied BP. Comparison of BP is performed according to the marks which are given to all factors. The significance difficulties of factors are taken into account. They are also obtained from the results of factor analyses. After evaluation of all BP according to the factors and by application of appropriate mathematical procedures (presented in section 6 of this paper), it is possible to carry out:

- determination of partial and total differences between a determined and other BP
- determination of similarities among BP
- two-criteria selection of competent BP
- selection of optimal strategic activity

The methodology described can be applied to various numbers of BP and identified factors, as well as to different business processes. The selection of factors and determination of their difficulties can be carried out by other procedures and not only by factor analyses.

A similar way of collecting data and processing by factor analyses was used in Eid et al. (2006), for research and identification of critical factors of success in business - to - business international internet marketing. Ribeiro and Cabral (2006) developed a special benchmarking model for evaluation of performances based on critical factors. Finally, Moffet et al. (2008) emphasize the importance of measuring performances in benchmarking.

5. Identification of the Factors which Describe the Attitudes of PR Managers in Serbia

5.1 Characteristics of Study 1

Study 1 was carried out by polling experts (PR managers) who are employed in companies operating in different fields of business activities. The basic characteristics of the process and the results of polling are the following:

- *The number of PR managers.* A total of **N = 70** managers from 70 different companies were polled and gave their answers. It is estimated that this number represents one third of all PR managers in Serbia. The relatively small number of PR managers stems from the fact that many companies do not have an independent PR function and employees who would deal exclusively with PR. In many companies, the PR function is a part of other functions, usually marketing. Also, very frequently, there are no persons specialized for this job since it is considered unnecessary for good business results.
- *Research area in geographical terms.* The research was carried out within the territory of Serbia.
- *Time period of the research.* The research lasted six months, approximately the period between March 1 and September 1, 2006.
- *Types of questions.* The survey consisted of 29 questions which were subdivided into three groups: a) questions on the positions of PR managers and their profession, b) questions on the characteristics and education of PR managers, and c) questions on the most frequent and most important activities and media for the realization of the PR function.
- *Question formulating.* The questions were formulated so as to encompass all the topics of interest for this study. Various studies which cover these topics were used, including: PR manager career development (Wolf, 2006), PR manager satisfaction (Abbott, 2003), and PR manager education and skills (Elliot, Koper, 2003; Lubbers, 2002; Murray, 2003; Rawel, 2003). Studies which examine other countries' experience in the field of PR (Arceo, 2004; Bardhan, Sriramesh 2006; Guth, 2000; Raupp, Ruler, 2006; Taylor, 2004) had an important impact on creating and completing the questionnaire, as well as the references by the authors who deal with PR in the conditions of the study's subject matter (Djordjević, Čočkalo, 2004; Djordjević, Bešić, 2004; Filipović,

Kostić, Prohaska, 2003; Sajfert, Djordjević, Bešić, 2006).

5.2. Key attitude dimensions of PR managers in Serbia

Part of the input data (14 questions) has been processed by factor analysis. Principal Component Analysis (PCA) has also been applied. The selection of the number of factors has been made according to the Kaiser - Guttman criterion. Five factors have been identified which refer to the PR function in Serbian companies (Table 1). These factors cover around 67% of variations in the attitudes of PR managers in Serbia.

Factor	Eigenvalue	Total Variance %	Cumulative Eigenvalue	Cumulative %
1	4.207772	30.05551	4.207772	30.05551
2	1.487835	10.62739	5.695606	40.68290
3	1.341726	9.58376	7.037332	50.26666
4	1.220627	8.71876	8.257959	58.98542
5	1.092717	7.80512	9.350677	66.79055

Table 1: PR function factors in Serbian companies (Eigenvalues and percent of variance explained)

The identified factors have been rotated by applying the varimax method. The results of the rotation are shown in Table 2. (Table 2 shows the questions which have been processed by factor analysis). The identified factors have been interpreted on the basis of the results shown in Table 5. In this way, the factors which describe (represent) the attitudes of PR managers in Serbia have been defined: (Nikolić, Djordjević, Čočkalo, 2007)

- F1 - Satisfaction with PR function, subjective and organizational
- F2 - PR managers' personal prospects
- F3 - PR managers' personal reputation
- F4 - Quality of professional improvement of PR managers
- F5 - PR managers' previous education

Interpretation of the factors points to the fact that PR managers in Serbia are ambitious, proactive people to whom non-material categories are more important than material ones, including: reputation and success of PR function in the company, satisfaction and prospects in the job, personal reputation and professional improvement. These results can be considered encouraging, both in terms of the prospects of PR management in Serbia and

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1. How satisfied are you with the job of PR manager?	0.684372	0.213864	0.257448	0.133309	0.335958
2. How motivated are you for the job of PR manager?	0.558219	0.116729	0.178601	-0.334462	0.392191
3. What are the chances of professional improvement from the position of PR manager?	-0.012954	0.788356	0.072369	0.005396	0.127302
4. What are the chances of career promotion from the position of PR manager?	-0.003215	0.519737	0.646401	-0.154804	-0.017002
5. How important do you think your job is for the company's business success?	0.060712	-0.031999	0.762151	0.146025	0.366193
6. How appreciated is the job of PR manager in your company?	0.735325	0.027169	0.231686	0.094560	-0.260227
7. How much is the work in PR management appreciated by your friends?	0.278456	0.074140	0.724708	0.203316	-0.119266
8. How appropriate is the work in PR management in Serbia?	0.497272	0.624425	-0.116968	0.283397	-0.141129
9. What are the prospects of your profession in Serbia?	0.136814	0.627678	0.143179	0.600315	0.065166
10. How much does your education help you in the job of PR manager?	0.038716	0.112226	0.038823	0.217611	0.834682
11. What is the need for developing specialized educational programmes for acquiring knowledge and skills in the field of PR?	0.112110	0.003993	0.173003	0.814331	0.161748
12. How much do you enjoy working with people?	0.189002	0.492515	0.116433	-0.097955	0.402627
13. How successful do you think you are in your job?	0.594533	-0.002989	0.431403	0.297490	0.073827
14. How successful do you think is PR in your company?	0.652442	0.066648	-0.081882	0.023801	0.100121
Expl. Var.	2.497016	2.001773	1.952991	1.475076	1.423820
Prp. Totl	0.178358	0.142984	0.139499	0.105363	0.101701

Table 2: Factor loadings (varimax normalized rotation); Extraction: Principal components

in terms of creating and developing a positive climate and high system of values in Serbian companies.

6. Benchmarking of PR Function According to the Defined Factors

In this section, the application of the results of Study 1 and Study 2 is given through a concrete example. To render this possible, it was necessary to carry out Study 3 (which was carried out for the needs of this paper).

6.1 Characteristics of Study 3

Study 3 is essentially aimed at gathering the data on the defined factors for each analyzed company (the

companies on which benchmarking is performed – seven companies). After this, benchmarking of the PR function in the analyzed companies is carried out on the basis of these data (the input) by applying a mathematical function (Study 2).

Study 3 was carried out by polling the experts (PR managers) who are employed in the analyzed companies. The basic characteristics of the polling process and the results are the following:

- *The number of PR managers.* Answers by the total of **n = 21** polled PR managers from seven analyzed companies were received (three PR managers from each company).

Parameter of PR function in Serbian companies X_i	Relative parameter weights w_i	Assessments of the all benchmarking partners BP_j						
		BP_1	BP_2	BP_3	BP_4	BP_5	BP_6	BP_7
$X_1 - F1$	0.4500	0.448	0.762	0.838	0.452	0.690	0.533	0.667
$X_2 - F2$	0.1591	0.495	0.876	0.852	0.471	0.767	0.567	0.771
$X_3 - F3$	0.1435	0.657	0.857	0.957	0.381	0.829	0.438	0.633
$X_4 - F4$	0.1305	0.609	0.938	0.948	0.367	0.714	0.724	0.652
$X_5 - F5$	0.1169	0.652	0.776	0.867	0.580	0.724	0.557	0.833
Aggregate assessments SA_j		0.530	0.818	0.875	0.449	0.729	0.552	0.696
Rank		6	2	1	7	3	5	4

Table 3: Initial table with the given assessments

- *Research area in geographical terms.* The research was carried out on the territory of Serbia (all the seven analyzed companies are from Serbia).
- *Research time.* The research lasted approximately two months, from May 1 to July 1, 2008.
- *Type of questions.* The survey consisted of five questions which, in fact, represent the defined factors from Study 1.
- *Assessment method.* PR managers assessed, according to their opinion, the situation of the defined factors by awarding an assessment from the [0, 1] interval. In the process, they used the interval scale divided into five levels: a very low level (assessment in the range between 0-0.2, with the interval median at 0.1), a low level (assessment in the range between 0.2-0.4, with the interval median at 0.3), an average level (assessment in the range between 0.4-0.6, with the interval median at 0.5) a high level (assessment in the range between 0.6-0.8, with the interval median at 0.7), and a very high level (assessment in the range between 0.8-1, with the interval median at 0.9).
- *Assessment procedure.* Each PR manager assessed the situation of each factor in his/her company and in the other six companies. In this way, each factor was assessed 21 times. This type of procedure carries with it the danger of manifesting subjectivity when assessing other companies. However, in this way the possibility of the respondents' using different parts of the [0, 1] interval is avoided. In addition, the PR managers in this way directly correlated all of the analyzed companies.

6.2. Formation of the initial table

The results of Research 3 enabled formation of the initial table (Table 3), which should contain the following data:

- Parameter list - company characteristics (X_i) according to which benchmarking is to be carried out (first column in Table 3). The parameters shown here are, in fact, the factors which were defined in Research 1.
- Parameter relative weights (w_i), with which the importance of individual parameters is taken into account (second column in Table 3). Relative weights can be determined either according to the estimate of the managers in the company carrying out benchmarking or on the basis of surveying the experts on the importance of the analyzed parameters. Determining relative weights (criteria or parameters) is a significant problem which was frequently dealt with in multicriteria analysis literature, for example in (Leskinen, 2000; Noghin, 1997; Podinovski, 2002). In this case, the results of factor analysis from Research 1 were used for determining the parameter relative values. The relative weights were in this way determined as normalized values of the second column in Table 1.
- Characteristics of all of the seven analyzed companies - benchmarking partners (BP_j) are expressed by assessments [0, 1] for each analyzed (i -th) parameter (other columns in Table 3). These are the assessments obtained as average values of the assessments which were given by PR managers within the framework of Study 3. Each assessment was obtained as the average of 21 assessments given by 21 polled PR managers.

Table 3 shows aggregate assessments of each BP_j. Aggregate assessments are calculated through the following formula:

$$SA_j = \sum_{i=1}^n V_{ij} \cdot w_i, \quad (1)$$

in which:

SA_j - is the aggregate assessment for the j -th company, where: $j = 1, 2, \dots, s$, and s - the number of the analyzed companies,
 V_{ij} - assessment of the i -th parameter for the j -th company, where $i = 1, 2, \dots, n$, and n - the number of parameters,
 w_i - relative weight of the i -th parameter.

For example, for BP₁, the aggregate assessment is calculated in the following way:

$$SA_1 = 0.448 \cdot 0.4500 + 0.495 \cdot 0.1591 + 0.657 \cdot 0.1435 + 0.609 \cdot 0.1305 + 0.652 \cdot 0.1169 = 0.530$$

The aggregate assessments calculated in this way are in fact OWA aggregation operators (Yager, 1988).

Table 3 provides the following information:

1. It can be seen which benchmarking partner is the best and which is the weakest for each parameter separately.
2. Aggregate assessments for each benchmarking partner can be seen as well as their position in relation to other BPs.
3. The ranks of all of the analyzed companies can be seen for all of the analyzed companies, according to the aggregate assessments.

6.3. Determining partial and overall differences

The data given in Table 3 enable carrying out the next step, which is determining the partial and overall differences between a definite BP and other BPs. In further analyses, BP₁ is observed as the company ranking 6th in Table 3. This company was selected as the subject of

further research. In this way, the research results are practically tested for the company which has real needs for benchmarking. BP₁ is hereafter called a 'concrete company' – CC. Partial and overall differences between the CC (BP₁) and other BPs are given in Table 4.

The central part of Table 4 consists of the relative distances of the CC for each parameter in relation to each BP. The “-” sign shows that CC is falling behind in relation to the observed BP and, vice versa, the “+” sign shows that the CC is leading the way in relation to the observed BP. The relative distance is determined through the following formula:

$$d_{ij} = (V_{i,CC} - V_{ij}) \cdot w_i, \quad (2)$$

in which:

d_{ij} - is the relative distance between the CC and the j -th BP for the i -th parameter, where: $i = 1, 2, \dots, n$, and n - is the number of parameters $j = 2, \dots, s$,

$V_{i,CC}$ - the assessment of the i -th parameter for the CC,

V_{ij} - the assessment of the i -th parameter for the j -th BP.

The relative distances in Table 4 have been calculated by Formula (2). For example, according to the parameter X_1 - F1, the relative distance between the CC and BP₂ is:

$$d_{12} = (0.448 - 0.762) \cdot 0.4500 = -0.141$$

Table 4 provides the following information:

1. It can be seen in which parameter the CC is falling behind most and which the least in relation to a BP.
2. If one single parameter is observed separately, its position in relation to all of the BP's can be seen. In other words, it can be seen which parameter is falling behind most or least or is leading the way in relation to which BP.
3. In the last column can be seen the aggregate situation of certain parameters in relation to all of the BPs. These values are obtained by adding up the relative distances of all the rows.

X_i	w_i	CC (BP ₁)	Relative distance CC in relation to BP _j						Aggregate position of some parameters
			BP ₂	BP ₃	BP ₄	BP ₅	BP ₆	BP ₇	
X_1 - F1	0.4500	0.448	-0.141	-0.176	-0.002	-0.109	-0.038	-0.098	-0.564
X_2 - F2	0.1591	0.495	-0.061	-0.057	+0.004	-0.043	-0.011	-0.044	-0.212
X_3 - F3	0.1435	0.657	-0.029	-0.043	+0.040	-0.025	+0.031	+0.003	-0.023
X_4 - F4	0.1305	0.609	-0.043	-0.044	+0.032	-0.014	-0.015	-0.006	-0.090
X_5 - F5	0.1169	0.652	-0.014	-0.025	+0.008	-0.008	+0.011	-0.021	-0.049
Position of CC in relation to BP _j			-0.288	-0.345	+0.082	-0.199	-0.022	-0.166	

Table 4: Determining partial and overall differences

	CC (BP ₁)	BP ₂	BP ₃	BP ₄	BP ₅	BP ₆	BP ₇	m _{av,j}	
CC (BP ₁)	-	0.712	0.655	0.914	0.801	0.894	0.828	0.801	
BP ₂	0.712	-	0.936	0.630	0.911	0.734	0.864	0.798	
BP ₃	0.655	0.936	-	0.574	0.854	0.677	0.821	0.753	
BP ₄	0.914	0.630	0.574	-	0.719	0.891	0.753	0.747	
BP ₅	0.801	0.911	0.854	0.719	-	0.821	0.940	0.841	m _{av,max}
BP ₆	0.894	0.734	0.677	0.891	0.821	-	0.838	0.809	
BP ₇	0.828	0.864	0.821	0.753	0.940	0.838	-	0.841	m _{av,max}

Table 5: Similarities of the analyzed companies

4. In the last row can be seen the aggregate position of the CC to all BPs. These values are obtained by adding up the relative distances in each column. They can be also obtained as the difference of the aggregate assessment CC (BP₁) and aggregate assessments of other BPs (Table 3).

6.4. Determining mutual similarities

Previous calculations enable one more type of analysis, which is determining the similarities of the CC to each BP, as well as the similarities between all the BPs. Table 5 is formed on the basis of the data given in Table 3, and it shows all the mutual similarity measures for the seven analyzed companies.

Similarity measures are determined through the corresponding expression - measure. The right selection of the measure poses a particular problem. References which treat the area of multicriteria decision-making and fuzzy sets (Höppner et al., 1999; Farinwata et al., 2000; Klement et al., 2004; Pedrycz, Gomide, 1998; Royo, Verdegay, 2000) were particularly helpful in the process. On the basis of this, as well as on the basis of the needs and specificities of the given problem area, a measure based on Hamming's distance was defined:

$$m_{ab} = 1 - \sum_{i=1}^n |V_{ia} - V_{ib}| \cdot w_i, \quad (3)$$

in which:

m_{ab} - measure of similarity of the a -th company to the b -th company,

V_{ia} - assessment of the i -th parameter for the a -th company,

V_{ib} - assessment of the i -th parameter for the b -th company,

n - the number of parameters.

The subtrahend in the Expression (3) actually represents the relative difference (distance) between the a -th and the b -th companies. The measure of similarity takes the value from the $[0, 1]$ interval. The equivalence $m_{ab} = m_{ba}$, holds true in the process, which can also be

seen in Table 5. Since the companies are not compared to themselves, the diagonal fields in Table 5 are blank.

All the measures of similarity in Table 5 have been calculated through the defined measure - expression (3). For example, the measure of similarity for CC and BP₂ is:

$$m_{CC,2} = 1 - [|0.448 - 0.762| \cdot 0.4500 + |0.495 - 0.876| \cdot 0.1591 + |0.657 - 0.857| \cdot 0.1435 + |0.609 - 0.938| \cdot 0.1305 + |0.652 - 0.776| \cdot 0.1169] = 0.712$$

The last column in Table 5 shows the average similarity measures ($m_{av,j}$) of one company in relation to the others. They are calculated in the following way:

$$m_{av,j} = \frac{\sum_{\substack{i=1 \\ i \neq j}}^s m_{ij}}{s-1}. \quad (4)$$

For example, for the CC, the average similarity measure is: $m_{av,CC} = (0.712 + 0.655 + 0.914 + 0.801 + 0.894 + 0.828) : (7 - 1) = 0.801$.

Table 5 provides the following information:

1. Observation of individual measures of similarity of the CC to each BP, as well as the measures of similarity between all the BPs. In this way, it can be seen which BP the CC is most similar to according to the observed parameter. It can also be seen to which BP the CC has the least similarity. This information should be taken carefully, since great similarity to (or difference from) a BP does not mean that one should aim at its characteristics. This information only has to additionally facilitate a better view of the existing situation and easier comparison with a BP. Table 4 shows that the CC is closest to BP₆ by its aggregate assessment (the situation of CC in relation to BP₆ is expressed with the minimum absolute value 0.022 in the last row of Table 4). Table 5 shows that the CC is most similar to BP₄ (the position of CC in relation to BP₄ is expressed by the maximum similarity measure in the second column of Table 5).

2. Observing the companies with the maximum average similarity measure (in the example given, these are BP₅ and BP₇). These companies are closest to the average, and other companies can also be positioned in relation to them in this way.

6.5. Selection of the competent benchmarking partner

What is here understood as the 'competent benchmarking partner' is the company in relation to which the CC will set its objectives and undertake strategic actions in order to achieve the desired (required) level of PR function. The selection of the competent BP is a very important step in every benchmarking process. Much attention has been dedicated to this problem area in the literature, for example Razmi, et al. (2000) and Lau, et al. (2001). In general, it is aimed at selecting the BP which has the best characteristics and business results. According to the analyses carried out in Tables 3, 4, and 5, it is obvious that in the observed example, BP₃ has the best practice. A general recommendation for the CC would be that it should carry out its business processes by following the example of BP₃.

As was mentioned in the introduction, the conditions of transition in Serbia impose the need for a different approach to the selection of a competent benchmarking partner. In other words, companies in Serbia are in most cases unable to aim at the best practice. For this reason they have to opt for the BP which has somewhat more modest, but still achievable business results. Unachievable business results are those which primarily require the application of cutting edge technologies, and generally larger financial investments. The companies operating in Serbia (and in countries with a similar level of economic development) are suggested to select from the competent BP on the basis of two criteria: C₁ – Quality and Business Results, and C₂ – Reality of Attainment of the Set Objectives (the amount of the required financial investments). Criteria C₁ and C₂ can be divided into subcriteria. For criterion C₁, the subcriteria could be: C₁₁ – BP's Effects and Results, C₁₂ – BP's Status and Reputation, C₁₃ – BP's Perspectives, C₁₄ – BP's Popularity with Consumers, C₁₅ – BP's Presence in the Media, etc. For criterion C₂, the subcriteria could be: C₂₁ – Harmonization with Business Policy; C₂₂ – Possession of Spatial Capacities, C₂₃ – Possession of Technology, C₂₄ – Possession of Machinery and Equipment, C₂₅ – Possibility of Supply of

Raw Materials, C₂₆ – Ability of Human Resources, C₂₇ – Restitution Time of Investments, etc.

CC selects the criteria and the subcriteria for selecting the competent BPs in accordance with their possibilities and experience. The same goes for determining the relative weights of the criteria and subcriteria. A further procedure of applying the selected set of criteria and subcriteria can be realized in more ways. What follows is the applied procedure (simple, without subcriteria).

The two-criteria selection of the competent BP proposed here is to be carried out in the following way: the aggregate, two-criteria assessment of each BP is looked for, and the BP which has the highest assessment is adopted. The aggregate, two-criteria assessment for BP_i is determined with the expression:

$$TCA_j = A_{C1j} \cdot w_{C1} + A_{C2j} \cdot w_{C2}, \quad (5)$$

in which:

TCA_j – the aggregate, two-criteria assessment of the j-th BP,

A_{C1j} – the assessment of the j-th BP according to the criterion C₁,

A_{C2j} – the assessment of the j-th BP according to the criterion C₂,

w_{C1} – the relative weight of the criterion C₁,

w_{C2} – the relative weight of the criterion C₂.

The aggregate assessment SA_j of the j-th BP can be taken as the A_{C1j} assessment. The percentage of achievement of the analyzed parameters can be taken as the A_{C2j} assessment, or the percental measure in which the CC already possesses the level of the particular BPs. Therefore, the A_{C2j} assessment is determined as the relation of the aggregate assessment of the CC and the aggregate assessment of the j-th BP:

$$A_{C2j} = SA_{CC} / SA_j. \quad (6)$$

In the given example, the following companies are excluded from the analysis: BP₄ (weaker than CC) and BP₆ (just slightly better, practically equal with CC). This yields the following:

$$A_{C22} = SA_{CC} / SA_2 = 0.530 / 0.818 = 0.648$$

$$A_{C23} = SA_{CC} / SA_3 = 0.530 / 0.875 = 0.606$$

$$A_{C25} = SA_{CC} / SA_5 = 0.530 / 0.729 = 0.727$$

$$A_{C27} = SA_{CC} / SA_7 = 0.530 / 0.696 = 0.761$$

Before calculating the TCA_j value it is necessary to determine w_{C1} and w_{C2}. In the given example, the managers from the CC – due to their modest financial potential – opted for the following distribution of relative weights: w_{C1} = 0.4; w_{C2} = 0.6. This yields the following:

$$TCA_2 = A_{C12} \cdot w_{C1} + A_{C22} \cdot w_{C2} = 0.818 \cdot 0.4 + 0.648 \cdot 0.6 = 0.716$$

CC (BP ₁)	BP ₇	X _i (w _i)	Actions A _k			
			A ₁	A ₂	A ₃	A ₄
0.448	0.667	X ₁ (0.4500)	0.67	0.8	0.75	0.8
0.495	0.771	X ₂ (0.1591)	0.77	0.8	0.75	0.8
0.657	0.633	X ₃ (0.1435)	0.63	0.66	0.75	0.8
0.609	0.652	X ₄ (0.1305)	0.65	0.61	0.75	0.8
0.652	0.833	X ₅ (0.1169)	0.83	0.65	0.75	0.8
Aggregate assessments of actions SAA _k			0.696	0.738	0.75	0.80

Table 6: Possible actions and their aggregate values

$$TCA_3 = A_{C13} \cdot w_{C1} + A_{C23} \cdot w_{C2} = 0.875 \cdot 0.4 + 0.606 \cdot 0.6 = 0.714$$

$$TCA_5 = A_{C15} \cdot w_{C1} + A_{C25} \cdot w_{C2} = 0.729 \cdot 0.4 + 0.727 \cdot 0.6 = 0.728$$

$$TCA_7 = A_{C17} \cdot w_{C1} + A_{C27} \cdot w_{C2} = 0.696 \cdot 0.4 + 0.761 \cdot 0.6 = 0.735$$

In accordance with the obtained results, the decision was made that the CC in its business activities should aim at achieving the level of BP₇. Such a solution may seem very modest. However, if the CC's current aggregate distance in relation to BP₇ (-0.175) is observed in Table 4, it would be clear that the percentage of improvement in relation to the current position would be significant ($0.166 / 0.530 \cdot 100 \approx 31\%$). When the CC reaches the position of BP₇, then it can perform new analyses and set higher objectives. In this way, targets in steps would be gradually formed as one of the possibilities given in the reference (Walsh, 2000).

6.6. Selection of the optimal strategic action

The competent BP has been selected in the above section, along with the level of business for the analyzed parameters. The desired (required and possible) level of business can be achieved in more ways. It is necessary to observe which actions lead to that level. These are all actions which are in their aggregate value close to the competent BP, which is, in this case BP₇. Actions are presented through the possible required parameter values, but in such a way that the aggregate value of each action (SAA_k) is close to the aggregate assessment of the competent BP. In such situations there are usually several typical actions (Table 6):

- Complete copying of the competent BP. In Table 6, it is the action A₁. The A₁ parameter values are identical to the BP₇ parameters.
- Selective improvement of parameters. In Table 6, it is action A₂. With action A₂, the level is improved by applying the parameters which are most important (have the highest relative weight), and other

parameters are kept at the same level. Generally speaking, this type of action offers a wide range for defining various possibilities. The number of possibilities for defining the actions increases with the increase in the number of parameters.

- Aligning parameter levels to a value which is slightly higher than the competent BP's aggregate assessment. In Table 6, it is represented by action A₃. With action A₃, all the parameters are improved to the 0.75 value, which is slightly better than SA(BP₇) = 0.696.
- Aligning parameter levels to a value which is considerably higher than the competent BP's aggregate assessment. It is represented by action A₄ on Table 6. With action A₄, all the parameters are improved to a 0.8 value, which is considerably better than SA(BP₇) = 0.696. This could in some way be a control action.

When defining possible actions, it is not advisable to reduce certain parameters. Keeping certain parameters at the same level can be adopted as the weakest possibility.

After defining the possible actions, it is necessary to choose the one which will be applied in the concrete case. A multi-criteria approach is proposed here for selecting the optimal action from the set of those available. The number of criteria and their content depends on the type, size, ambitions and the current situation in the CC, as well as on the nature of the analyzed parameters themselves. The managers from the CC define the criteria and their relative weights. For that purpose, expert opinion could be asked for in some typical cases. The following four criteria with their corresponding relative weights were set for the analyzed example:

- CR₁ - Effects of the action (0.3),
- CR₂ - Costs (price) of the action (min) (0.3),
- CR₃ - Time required to carry out the action (min) (0.2),
- CR₄ - Human resources (number, training, motivation) for the action (0.2).

Assessment of actions according to all of the criteria was carried out by giving [0, 1] assessments. The assessment was made by the managers from CCs because they are the ones who know the capacities of their respective companies for certain actions. The assessment was made by the group decision-making of the three managers from a CC. In general, giving assessments to actions according to the particular criteria (V_{kp}) is made by quantifying the existing (gathered or accessible) data, or by free estimate if such data do not exist. For the analyzed example, the actions were assessed with the assessments according to all of the criteria (Table 7).

As a matter of fact, Table 7 presents the initial table for the majority of the multi-criteria method analyses which are presented in numerous references, for example in Enea and Piazza (2004); Laininen and Hämäläinen (2003); Larichev et al. (2002); Saaty (1980); Triantaphyllou (2000). This paper considers the simple and often used method of multi-criteria analysis (McCrimmon, 1968; Oberstone, 1990). The aggregate effects of each action are calculated by applying the following formula:

$$EA_k = \sum_{p=1}^m V_{kp} \cdot w_p, \quad (7)$$

in which:

EA_k - the aggregate effect of the k -th action, in which $k = 1, 2, \dots, r$, and r - the number of actions,

V_{kp} - the assessment of the k -th action according to the p -th criterion, in which $p = 1, 2, \dots, m$, and m - the number of the criteria,

w_p - the relative weight of the p -th criterion.

For example, for the action A_1 , the action effect is:

$$EA_1 = 0.6 \cdot 0.3 + 0.7 \cdot 0.3 + 0.8 \cdot 0.2 + 0.6 \cdot 0.2 = 0.67$$

The aggregate effects of every action calculated in this way actually represent the OWA aggregation operators (Yager, 1988). The action having the highest rank is adopted. In the example given, it is the action A_3 .

$CR_p (w_p)$	Actions A_k			
	A_1	A_2	A_3	A_4
$CR_1 (0.3)$	0.6	0.7	0.8	0.9
$CR_2 (0.3)$	0.7	0.7	0.6	0.5
$CR_3 (0.2)$	0.8	0.6	0.7	0.4
$CR_4 (0.2)$	0.6	0.6	0.7	0.7
Action effects EA_k	0.67	0.66	0.70	0.64
Rank	2	3	1	4

Table 7: Evaluation of the actions according to all the criteria

6.7. Formation of the portfolio matrix

A portfolio matrix was formed here modelled on Chen (2005) in order to better perceive the direction of further strategic actions. Portfolio analysis was carried out for each analyzed parameter separately. The relative gap is plotted on the abscissa between the current situation and the desired (required) situation of the parameters observed. The relative weight of the current situation of the observed parameters (Fig. 2) is plotted on the ordinate. The main difference in relation to the reference (Chen, 2005) is that all the values are quantified. Quantification is here performed for the purpose of a more realistic positioning and for the sake of easier reference in the portfolio matrix. The method is presented below.

The abscissa: Quantification of the relative gap between the current situation (CC) and the desired situation (the selected action A_3) of the observed parameters is carried out according to the maximum value of the relative differences of the parameter situation. For the observed example, it is the value of 0.1359, which can be seen on the function graph presented in Fig. 1a. The assessments of all the relative differences (gaps) of the observed parameters $V(RD_i)$ are the following:

- for the parameter X_1 : $|0.448 - 0.75| \cdot 0.4500 = 0.1359 \Rightarrow V(RD_1) = 1$
- for the parameter X_2 : $|0.495 - 0.75| \cdot 0.1591 = 0.0406 \Rightarrow V(RD_2) = 0.3$
- for the parameter X_3 : $|0.657 - 0.75| \cdot 0.1435 = 0.0133 \Rightarrow V(RD_3) = 0.1$
- for the parameter X_4 : $|0.609 - 0.75| \cdot 0.1305 = 0.0184 \Rightarrow V(RD_4) = 0.14$
- for the parameter X_5 : $|0.652 - 0.75| \cdot 0.1169 = 0.0115 \Rightarrow V(RD_5) = 0.08$

The ordinate: Quantification of the present situation relative weights (CC) of the observed parameters is carried out according to the maximum value of the selected action (A_3) relative parameter situations. Therefore, what is required is the maximum value of the products of the selected action parameters with their appropriate relative weight. For the observed example, this is the value of 0.3375 (obtained as the product of $0.45 \cdot 0.75$), which can be seen on the function graph presented in Fig. 1b. The assessments of the relative present situation of all the observed parameters $V(CCR_i)$ are the following:

- for the parameter X_1 : $0.448 \cdot 0.4500 = 0.2016 \Rightarrow V(CCR_1) = 0.6$
- for the parameter X_2 : $0.495 \cdot 0.1591 = 0.0787 \Rightarrow V(CCR_2) = 0.23$
- for the parameter X_3 : $0.657 \cdot 0.1435 = 0.0943 \Rightarrow V(CCR_3) = 0.28$
- for the parameter X_4 : $0.609 \cdot 0.1305 = 0.0795 \Rightarrow V(CCR_4) = 0.24$
- for the parameter X_5 : $0.652 \cdot 0.1169 = 0.0762 \Rightarrow V(CCR_5) = 0.23$

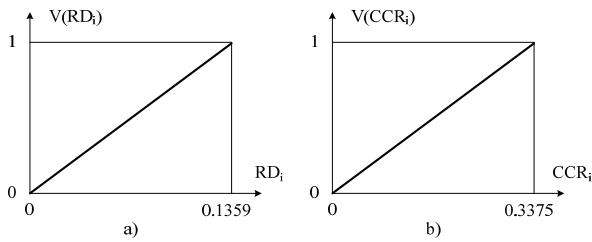


Figure 1: Functions of quantification of the relative gaps and relative values of the present situation

Values quantified in this way are plotted as the coordinates for every parameter in the portfolio matrix (Fig. 2). The coordinates which divide the portfolio matrix into quadrants can be determined as fuzzy assessment average values separately for the abscissa and for the ordinate. In this way, the limit for the abscissa will be:

$$(1 + 0.3 + 0.1 + 0.14 + 0.08) : 5 = 0.324,$$

and for the ordinate:

$$(0.6 + 0.23 + 0.28 + 0.24 + 0.23) : 5 = 0.316.$$

The limit values suggest that the lag behind the desired situation is not considerable, but the relative value of the present situation of the observed parameters is considerably below the average. The positions of all five analyzed parameters in the portfolio matrix are shown in Figure 2. The CC should pay most attention to the parameters X_1 i X_2 , as the weakest and most important at the same time.

A general recommendation for the portfolio matrix set up in this way is that the Catching-up field parameters be directed towards the Narrowing or the Follow-up field, and that the Narrowing and the Follow-up field parameters be directed towards the Anchoring field. Analysis through the portfolio matrix is particularly appropriate in cases where there are a large number of

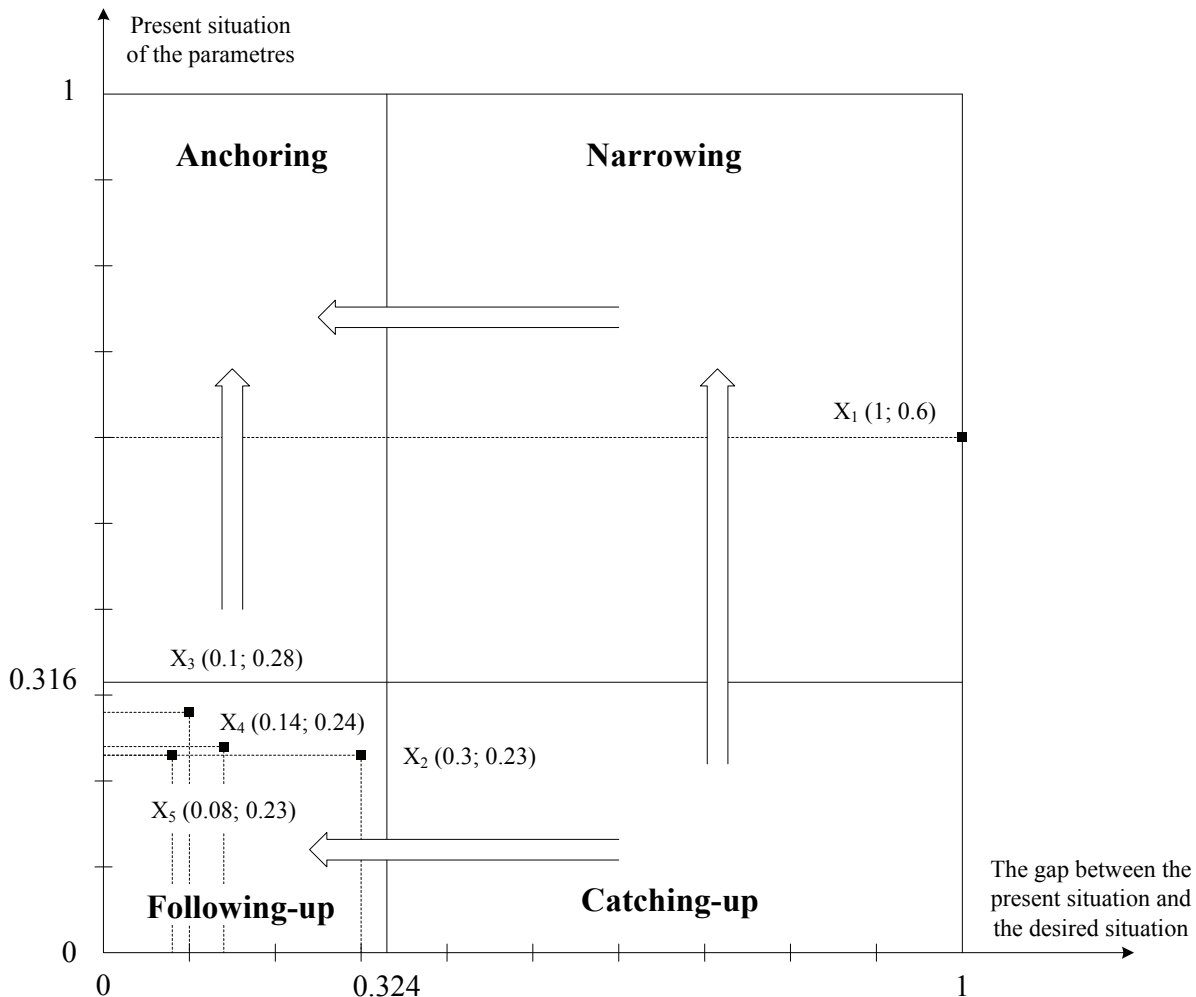


Figure 2: Position of the analysed parameters in the portfolio matrix

parameters. This enables better observation of the current situation for both individual parameters and groups of parameters.

7. Conclusion

The research presented in this paper showed through a concrete example how benchmarking of the PR function can be performed. Seven Serbian companies were ranked according to the five key PR function parameters in Serbian companies. The key parameters were identified by means of factor analysis in research which had been carried out earlier (Study 1). Factor analysis has shown that PR managers can be promoters of creating a high level of organizational culture in Serbian companies. The identified factors show considerable similarities and they correspond to a great extent with the current situation in the sphere of PR management in other developing countries and countries in transition.

Quantitative methods, which had been presented in another earlier study (Study 2), were used for comparing the companies. The presented quantitative methods can also be used as a mathematical function in benchmarking. The advantages of the proposed procedures could be summarized in the following way:

- All the preliminary parameter values are reduced to the [0, 1] interval by quantification. This is very important because of better possibilities for comparison.
- Application of measures for determining the measure of similarity of companies is also made possible. The relative parameter weights are taken into account in the process.
- The potentials of the observed company are also taken into account by the two-criteria selection of the competent benchmarking partner. This is very important for companies which come from weak or underdeveloped economic systems, or, generally speaking, for all those companies whose current position is far from the highest quality business. Such companies would apply benchmarking to the extent to which they are able.
- Defining the possible actions in the form of parameter assessments offers good possibilities for application of different methods of multicriteria analysis in the phase of selecting the optimal action.
- The given procedures are very suitable for quick practical application because of their simplicity. The existence of a database containing the situation and

history of the potential benchmarking partners would be of great help, but is not a must.

The studies presented in this paper (Study 3) have correlated earlier research and confirmed the possibility of their practical application. The company labelled as 'CC' (BP₁), was the subject of deeper analyses. This company was selected because of its considerable lagging behind the leading companies in the field of PR. The obtained results were applied to this company, and the proposed actions carried out. Initial results currently show that the actions which were undertaken have had positive effects on the PR function in the observed company. As a result of this very fact, better overall business results can be expected.

The proposed methods can be analogously applied in other conditions and circumstances (other countries and other companies). The proposed benchmarking methods can also be applied to various other business processes. In other words, the research is not only limited to the PR function. As a matter of fact, similar research in the field of organizational culture are currently being carried out.

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The Transition of Joint Stock Companies in Slovenia: Shareholder-Value Approach versus Stakeholder-Value Approach

Matej Lahovnik*

Abstract:

In the shareholder theory of firms, the company's assets are the property of the shareholders, and managers are viewed as agents of the shareholders with all of the enforcement difficulties associated with agency relationships, but without legal obligations to any other stakeholder. An alternative view is the stakeholder theory of firms. The standard principal-agent paradigm can be expanded to the stakeholder agency problem. In this view, managers can be seen as the agents of all stakeholders. From the perspective of social responsibility, enlightened organizations view the internal and external environment as a variety of stakeholders.

This paper offers some insights into the characteristics of the corporate governance system in Slovenia. Its focus is on the relationship between governance and management. The authors tried to determine in their research the roles of various groups of stakeholders in Slovenian companies. The paper's conclusions are based on a longitudinal research method. The paper is the result of three consecutive research studies on the characteristics of corporate governance in Slovenia over the period from 1998 to 2006. The paper compares the results from studies conducted in 1998 and 2002 with the latest results in 2006. The most important long-term strategic objective of Slovenian companies is growth. The share of Slovenian companies – excluding equity opportunity costs – has decreased significantly in the last six years due to the consolidation of ownership structures. The controlling owners are more active in setting the required rate of return on their equity investments. There is no conflict of interest between internal and external shareholders in most companies. Obviously, Slovenian companies have changed their strategic behaviour to reflect the interests of their stakeholders. It may be argued that some stakeholders, like customers and employees, are even more important for Slovenian managers than the owners.

Keywords: corporate governance, shareholders, stakeholders, transition

JEL: G34, M10, M14

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1. Introduction

From the perspective of social responsibility, enlightened organizations view the internal and external environment as a variety of stakeholders (Daft, Marcis, 2001, p.118). Effective corporate governance ensures that long-term strategic objectives and plans are established, and that the proper management and management structures are in place to achieve those objectives, while at the same time making sure the structure functions to maintain the corporation's integrity, reputation, and

accountability to its relevant constituencies. In recent times, more than half of the states in the US have passed stakeholders laws, which permit or even require directors to consider the impact of their actions on constituencies other than shareholders, including employees, customers,

*** Matej Lahovnik**

Faculty of Economics, University of Ljubljana
e-mail: matej.lahovnik@ef.uni-lj.si

suppliers, and the community. This is in contrast to the traditional model of a publicly held corporation which holds that corporate directors serve only one constituency – their shareholders (Monks, Minow, 2001, p.37).

One of the key questions regarding corporate governance concerns who should run the corporation. There are two basic economic theoretical approaches. The property-based concept of the firm has prevailed in the Anglo-Saxon world. In this theory, the company's assets are the property of the shareholders, and managers are viewed as agents of the shareholders with all of the enforcement difficulties associated with agency relationships, but without legal obligations to any other stakeholder. An alternative view is the stakeholder theory of the firm. The stakeholder theory approach has been applied to performance management theory. Its growing emphasis is on customer relationship management, and the firm's relationships with its employees, suppliers, investors and local community. The shareholder-value approach results from the Anglo-Saxon culture in economics, and therefore defines the economic mainstream. On the other hand, the stakeholder-value approach is a result of the economic culture in continental Europe. Some transition problems regarding joint stock companies in Slovenia may have been an unrecognized consequence of the question of which economic culture in Slovenia exists. Any pure adoption of a new approach to economy from a foreign economic culture causes problems if the new approach adopted is not compatible with the domestic economic culture.

The basic research question that should be examined is whether a process of convergence or divergence exists regarding comparison between corporate governance practices in Slovenia throughout its transition period and the most established theoretical paradigms of corporate governance. This paper intends to determine which of the two concepts of corporate governance theory prevails in Slovenia in practice: the property based concept of the firm, i.e. shareholder theory, or its alternative, i.e. stakeholder theory. Research objectives were defined on the theoretical and pragmatic level. The theoretical research should derive the general similarities and differences between the prevailing theoretical paradigms of corporate governance for the transitional economy and the identified corporate governance practices. The research findings offer new insights into the characteristics of the corporate governance system in Slovenia. Three consecutive research studies were

conducted on the characteristics of corporate governance in Slovenia over the period from 1998 to 2006. This paper compares the results of the studies made in 1998 and 2002 with the latest results in 2006. The paper tries to determine the most important characteristics of the strategic behaviour of managers in Slovenia in the last period of transition and the changing pattern of corporate governance in Slovenia.

2. Theoretical Background

A corporation is a mechanism established to allow different parties to contribute capital, expertise, and labour for the maximum benefit of each. Corporations offer a lasting and resilient social structure (Monks, Minow, 2001, p. 11). In order to qualify as a moral agent, a corporation needs to embody a process of moral decision making. The perennial question is whether business can do well by doing good (Donaldson, 1982, p.30). Some companies have made social responsibility part of their marketing strategy. Consumers can feel less guilty about buying arguably decadent products if they know that by doing so they are supporting good causes. At one end of the scale are the most basic aspects of social responsibility, such as compliance with the law. At the other end of the scale are activities so unrelated to the goods and services sold that pursuing them is considered by the marketplace to be irrelevant to the company's productivity.

Proponents of corporate social responsibility have used four arguments to make their case: moral obligation, sustainability, license to operate, and reputation (Porter, 2004, p. 81). However, studies of the effect of a company's social reputation on consumer purchasing preferences or on stock market performance have been inconclusive at best. Having no way to quantify the benefits of these investments puts corporate social responsibility programs on shaky ground, liable to be dislodged by a change of management or a swing in the business cycle.

In practice, it is possible to distinguish between three levels of company responsibility. The primary level comprises the company's responsibilities to meet its material obligations to shareholders, employees, customers, suppliers and creditors, to pay its taxes and to meet its statutory duties. The sanctions against failure to match up to these relatively easily definable and measurable responsibilities are provided by competition and the law. The next level of responsibility is concerned with the direct results of the actions of companies in

carrying out their primary task and includes making the most of the community's human resources and avoiding damage to the environment. Beyond these two levels, there is a much less well defined area of responsibility regarding the interaction between business and society in a wider sense. On this level it is a question of how far business has a responsibility to maintain the framework of the society in which it operates and to what extent business should reflect society's priorities rather than its commercial interest. Other authors have also tried to develop a model for evaluating the social performance of companies (see Figure 1).

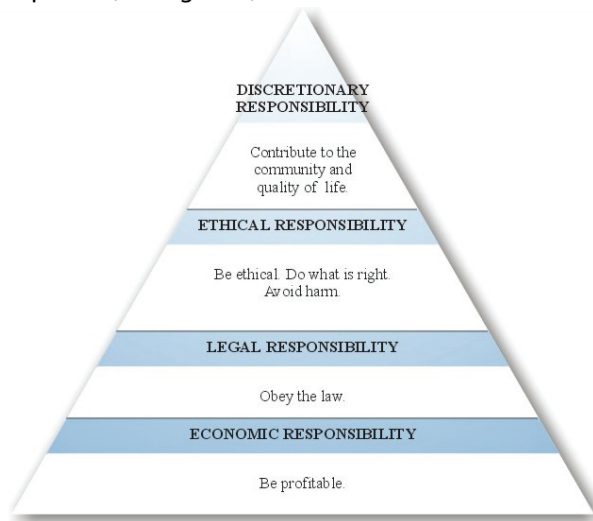


Figure 1: Model for evaluating corporate social performance

Source: Archie B. Carroll: The Pyramid of Corporate Social Responsibility: Toward the Moral Management of Corporate Stakeholders, *Business Horizons*, 34 (July-August) 1991. Daft R., Marcic D.: *Understanding Management*, 2001, p. 122.

The key findings of a SIRAN analysis (SIRAN is the Sustainable Investment Research Analyst Network, a network that supports more than 220 analysts who specialize in integrating environmental, social, and governance research with investing) of the reporting practices companies in the S&P 100 INDEX (www.socialinvest.org) include the following:

- More than half of the S&P 100 Index (58 companies) have special sections of their websites dedicated to sharing information about their social and environmental policies and performance.
- Almost 40 percent of the S&P 100 Index (39 companies) now issue annual corporate social responsibility reports.

- 24% of companies of the S&P 100 Index say they base their corporate social responsibility reports on the widely recognized external standard provided by the Global Reporting Initiative's Sustainability Reporting Guidelines. 20% of companies included an index of Global Reporting Initiative indicators in their reports. 6% of companies met the highest standard of reporting fully in accordance with the Global Reporting Initiative's Guidelines.
- Of those companies issuing annual Corporate Social Responsibility reports, 62% say their reports are based on Global Reporting Initiative standards, and 51% include an index to Global Reporting Initiative indicators.

The basis of a corporation's existence is wealth maximization. There is no such thing as a good corporation that is not completely profitable. Corporations live in a world where the market determines what people will buy and what they will pay. A corporation that does not produce goods that people want at a price they are willing to pay has no reason to exist. On the other hand, the public wants corporations to work with it to keep their workplaces and the environment safe. The public wants a continual sense of progress and growth from its corporations. The public wants its interest in the company, whether as shareholder, employee, customer, supplier, creditor or simply neighbor to be designed for the long-term. Moreover, managers should take care to satisfy the interests of their primary stakeholders. In theory, corporations support the free market, with as little interference from government as possible. In reality, whenever corporations can persuade the government to protect them from the free market, by legislating barriers to competition or limiting their ability, they do so. In practice, corporations have influenced government at least as much as government has influenced business (Monks, Minow, 2001, p. 16). Shareholders expect managers to run their business in a way that will encourage a supportive governmental and societal climate to capitalist enterprise.

The property-based concept of the firm has prevailed in the Anglo-Saxon world. The Chicago School of Law and Economics treats the company as a nexus of contracts through which the stakeholders regulate transactions between each other. In this theory, the company's assets are the property of the shareholders, and managers are viewed as agents of the shareholders with all of the enforcement difficulties associated with agency

relationships, but without legal obligations to any other stakeholder. This view maintains that the rights of creditors, employees and others are strictly limited to statutory, contractual and common law rights (Allen, 1992). Any broadening of a company's social obligations is dangerous, according to this school of thought (Clarke, 1997, p. 185). Milton Friedman once said: "Few trends could so thoroughly undermine the foundations of our free society as the acceptance by corporate officials of a social responsibility other than to make as much money for their shareholders as possible" (1962, p. 113). Hayek added that, once the management of a corporation is regarded as not only being entitled but even obliged to consider in its decisions whatever is regarded as being of a social interest, it gains uncontrollable power. In this case, managers would become subject to the public interest (1979, p. 79). These views expressed by neo-liberal economists strongly influenced the corporate governance system of the Anglo-Saxon world in the 1970s and 1980s. Managers were mostly oriented to short-term financial objectives such as sustaining share price and dividend payments at all costs. A substantial numbers of mergers and acquisitions in this period can be identified that were pursued to discipline managers. Monks and Minow (2001, p. 81) attempted to restate the essential principles of the shareholder theory of the firm. Their approach allows all other interests to be factored in without losing sight of the goal of long-term wealth maximisation. It is difficult enough to determine the performance of a company's strategy based on just one goal, namely shareholder value. It is impossible when other goals are added in. Therefore, the only way to determine a company's performance is to consider its long-term shareholder value (Clarke, 1997, p. 186).

The modern corporation typically has multiple owners who each intend to maximise their investment in the corporation. Owners become principals when they contract with executives to manage their firms on their behalf. Thus, in the modern corporation, agents and principals are motivated by opportunities for their own personal gain. Principals invest their wealth in companies and design the corporate governance mechanism in ways that maximise their utility. The chance that agents do not share the same interests and utility choices as their principals is substantial (Davis *et al.*, 1997, p. 22). According to agency theory, it is difficult for principals to determine *ex-ante* which agents will self-aggrandise and so it is prudent for principals to limit potential losses to their utility (Williamson, 1985).

Some management studies have suggested that managers make different decisions when owners are actively involved in the firm (owner-controlled) versus situations where paid managers are relatively free to set the firm's strategy (Tosi, Katz, Gomez, 1997; McEachern, 1975). Thus, firms become controlled by managers when the firm's shares are so disparately owned that no single shareholder is able to effectively guide the decisions of managers. The objective in agency theory is to reduce the agency costs incurred by principals by imposing internal controls to keep the agent's self-serving behaviour in check. There are various internal and external (acquisitions, divestitures) corporate governance control mechanisms to prevent the agency problem. Two corporate governance mechanisms that have attracted substantial attention in the literature are alternative executive compensation schemes and governance structures.

An alternative view is the stakeholder theory of the firm. The philosophical antecedents of stakeholder theory date back to the 19th century, to the conception of co-operative movement and mutuality. In *The Theory of the Growth of the Firm*, Edith Penrose laid the intellectual foundations for stakeholder theory in her concept of the company as a bundle of human assets and relationships. In his work, Clark thoroughly described the development of the stakeholder theory approach (1997, pp. 186-187). Hill and Jones (1992) expanded the standard principal-agent paradigm to the stakeholder agency problem. In this view, managers can be seen as the agents of all stakeholders. With the onset of knowledge-based competition (Buckley, Carter, 2000, pp. 55-71; Teece, 2000, pp. 35-54), this approach will be even more important in the near future. If knowledge is a predominant productive resource and most knowledge is created by and stored within individuals, then employees are also the primary stakeholders (Grant, 1997). The stakeholder theory approach has been applied to performance management theory. Its growing emphasis is on customer relationship management, and the firm's relationships with its employees, suppliers, investors and the local community. Some well-known approaches such as the European Foundation for Quality Management or the Balanced Scorecard system try to cover performance in all key relationships (Kaplan, Norton, 1996; European Foundations for Quality Management, 1993). The fundamental issue is how to satisfy the interests of more complex constituencies than shareholder theory might suggest.

The traditional theory of the firm argues that the arguments advancing a constituency for corporate functioning are miscast. It is difficult enough to determine the success of a company's strategy based on only one goal – shareholder value. It is impossible when other goals are added in. The only way to evaluate the success of a company's performance is to consult those who have the most direct and wide-reaching interest in the results of that performance – the shareholders. Only owners have the motive to inform themselves and to enforce standards that arguably are a proxy for the public interest (Monks, Minow, 2001, p. 40).

3. The Empirical Analysis Data Collection and Measurement

The empirical research was based on an extensive questionnaire. After careful consideration, it was decided the best approach would be to interview top managers personally as the other techniques available could not really be considered appropriate to the problem at hand. 'Eye to eye' discussion enabled us to get additional insight into performance issues. The responses of the top managers were recorded on a standardised Likert scale. The empirical data was processed with SPSS 13, where emphasis was given to descriptive statistical analysis.

The empirical research was based on a fully-structured interview that was prepared with pre-coded responses. A firm had to have specific characteristics to fall within the research sample:

- it should have had at least 250 employees;
- it should have had at least USD 5 million in annual income; and
- it should have been a joint-stock company.

This study is based on a research sample of 69 companies that met these criteria 2006. The study compares the results of studies made in 1998 and 2002 with the latest results in 2006. The studies in the years 1998 and 2002 were based on 71 companies.

In order to determine the dynamic of the strategic behaviour of managers in the last eight years, the study compared the top managers' values from research done in 2006 with research done by Kalacun in 2000. The results of the three longitudinal studies regarding the investment decisions of managers in the years 1998, 2002 and 2006 have been compared. The study tried to determine the most important characteristics of the strategic behaviour of managers in Slovenia in the last

period of transition and the changing pattern of corporate governance in Slovenia.

4. The Results of the Study

By applying the deductive method, analysis, longitudinal comparison, method of elimination and synthesis, the theoretical basis needed for empirical investigation of corporate governance was developed. Internal owners control the majority-voting share in 34% of the companies (see Figure 2). The share of the state has been decreasing over the last eight years, yet it is still higher than in other EU member states.

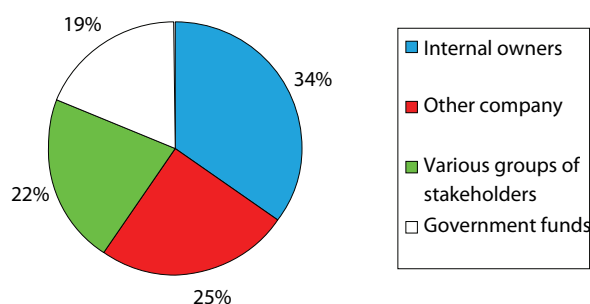


Figure 2: The most influential stakeholder in the process of corporate governance

In the first period of transition, 1991-1998, the consolidation of business activities was the most important strategic priority. On the other hand, growth has been the most important long-term strategic objective of Slovenian companies for the last eight years (see Figure 3). Creating value for shareholders is the most important long-term strategic objective in a relatively small number of companies. This finding could be problematic with regard to the problem of agency if the company is in a mature or even a declining industry. Jensen argued that the likelihood of the agency problem occurring is considerably greater in a declining industry. Instead of developing a consolidation strategy, managers are in many cases still oriented towards growth (1988, page 46). On the other hand, there will be a convergence of interests if an industry is growing. In such a case, the opportunities for growth within that industry usually also result in the maximisation of shareholder value. No company in the research sample would formulate the

maximisation of employees' income as its key strategic objective. As already pointed out, the most important strategic objectives are not necessarily mutually exclusive. However, they somehow do show both strategic priorities and the stakeholder's influence on the corporate governance process.

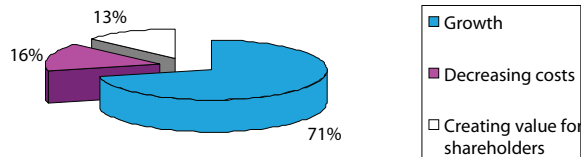
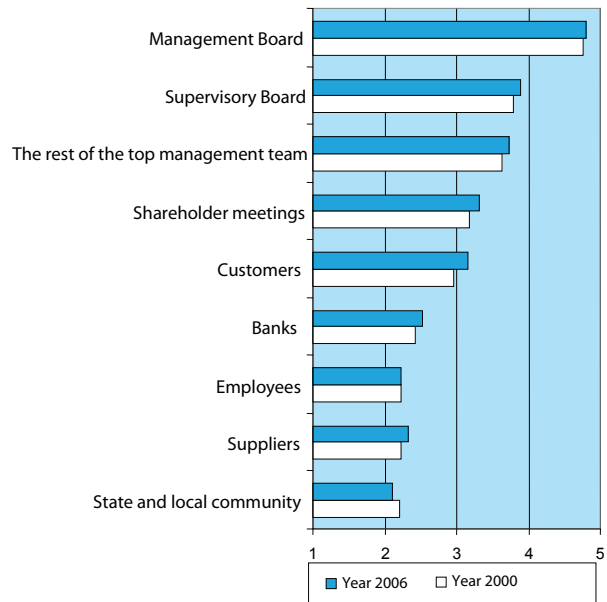


Figure 3: The most important long-term strategic objective

Customers have a significant impact on the strategic decisions of the companies involved in the research. This is very positive and reflects a long-term strategic partnership between companies and their key customers (see Figure 4). The role of the Supervisory Board is relatively less important than the Management Board. This can be explained by the two-tiered corporate governance system applied in Slovenia and may be compared with the European continental corporate governance system. It can be expected that the role of the Supervisory Board will become more important with the continuing consolidation of ownership structures. What is more, in the last months some companies decided to introduce the one-tiered corporate governance system to strengthen the role of owners when formulating strategy.

Profit-sharing and stock options are still not often used to motivate managers in the companies studied (see Table 1). The primary reason is the current tax system in Slovenia, which does not favour this kind of managerial reward. The second reason is that the biggest proportion of Slovenian managers' payments is traditionally fixed. In spite of this fact the increasing importance of variable payment instruments can be observed over the last few years. Where managers had their own set of objectives which did not coincide with those of the shareholders some measures would apply. The most common measure was the replacement of the management by the Supervisory Board. Some other measures against undisciplined management are also used (see Table 2).

Almost one fifth of companies do not have any measures for such a case. These companies are already controlled by their managers.



Scale: 1- not at all important, 5- very important

Figure 4: The influence of stakeholders on the acceptance of key strategic decisions

Motivation	Share of companies (in %) – Year 2000	Share of companies (in %) – Year 2006
Individual contract	100	100
Various benefits	43.5	51.5
Profit-sharing: cash	30.4	34.4
Profit-sharing: stocks	19.6	23.6
Stock options	10.9	16.9

Table 1: Managerial rewards

Sanction	Share of companies (in %) – Year 2000	Share of companies (in %) – Year 2006
Replacement of inefficient management executed by the Supervisory Board	52.3	61.4
Reducing payments	22.7	28.7
No sanction	18.2	12.2
Reducing or cancelling profit-sharing	18.2	19.5
Replacement of inefficient management executed by shareholders at the shareholders' meeting	13.6	21.6
Cancelling various benefits	6.8	11.8

Table 2: Measures for disciplining management in the case of an agency problem

In order to create value for shareholders, managers should consider the concept of "EVA" (the economic value added concept) (Miller, Dess, 1996, page 122). One problem of using traditional financial accounting information to measure profitability is that it does not take into account the opportunity cost of equity capital. Financial returns are crucial because of their importance to owners as a stakeholder group, so overlooking the owners' investment costs leads to serious oversight (McCrory, Gerstberger, 1992, page 33-38). Equity is often a very expensive source of capital and ignoring it misrepresents the amount of economic value the business is creating for its shareholders. Controlling owners are more active in setting the required rate of return on their equity investments. In over one-third of companies, managers assumed that in 2002 the opportunity cost on equity investment was 10%, which was higher than the cost of long-term debt. The shares of such companies decreased in 2006 due to decreasing interest rates (see Figure 5).

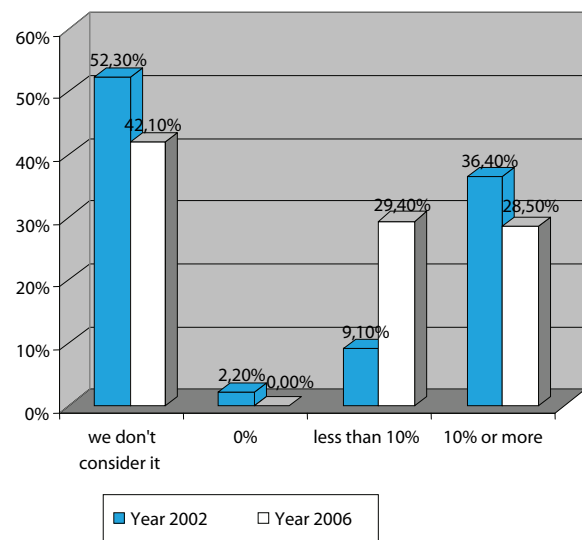
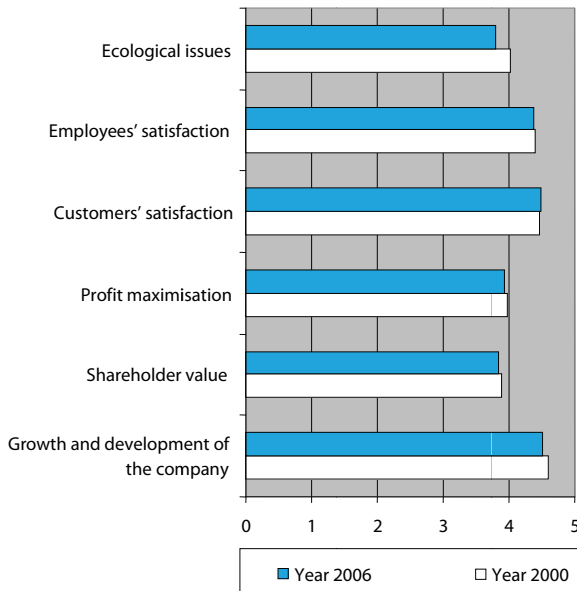


Figure 5: The opportunity cost of equity investment considered by managers when calculating the weighted average costs of capital

Managers and internal owners have managed to forge specific coalitions in many companies that are controlled by insiders. These companies are in fact controlled by managers and behave differently from companies controlled by strategic outside investors. An insider-dominated firm may generate neither the resources needed for restructuring activities, such as investment, nor have the incentive to sell the firm to outsiders who have those resources (Blanchard, Anghion, 1995). Prašnikar and Svejnar (1998, page 19) found some strong arguments in their research to support this thesis regarding the role of insiders in Slovenian companies. For example, in the cases of some takeover bids managers and the internal owners forged a specific coalition because they were afraid of losing their jobs. In such cases, the takeover bid failed even though it would have enhanced the competitive position of the merged company in the market. However, the fear of reorganisation and loss of jobs due to the sharing of activities between companies prevailed and there was no reselling of shares by internal owners to strategic outsiders.

The latest research conducted for this study from the year 2006 found that the most important value of the managers in Slovenia is growth and development of their companies (4.51), followed by customer satisfaction (4.49) and employee satisfaction (4.38). Profit maximisation (3.93) and shareholder value (3.84) are surprisingly less important, as well as ecological issues (3.81). By comparing these results with the earlier research done by

Kalacun in 2000, it was found that managers in Slovenia have stable values (see Figure 6). Kalacun found in her research (2000, page 23) that the most important values of Slovenian managers are the following: growth and development of the company (4.59), customer satisfaction (4.47), employee satisfaction (4.41) and ecological issues (4.03). Therefore, it may be argued that some stakeholders, like customers and employees, are even more important for Slovenian managers than the owners.




Scale: 1- not at all important, 5- very important

Figure 6: The most important values of Slovenian managers

5. Conclusion

The shareholder-value approach is a result of the Anglo-Saxon culture in economics and defines the economic mainstream. On the other hand, the stakeholder-value approach is a result of the economic culture in continental Europe. The important role of different stakeholders, such as employees and the local community, has been characteristic of the Slovenian economy for decades. Therefore, any pure adoption of a shareholder approach in an economy from a foreign economic culture causes problems. The strategic behaviour of Slovenian managers reflects the interests of their stakeholders. Therefore, it was found that customer satisfaction and employee satisfaction are very important values for Slovenian managers. The most important long-term strategic objective of Slovenian companies is

growth and development. On the one hand, the share of Slovenian companies – excluding equity opportunity costs – has decreased significantly in the last eight years due to the consolidation of ownership structures. The controlling owners are more active in setting the required rate of return on their equity investments. On the other hand, customers have a significant impact on the strategic decisions of the companies involved in this study. This is very positive and reflects a long-term strategic partnership between companies and their key customers. According to the results of the research that has been conducted over the last few years for this paper, it can be argued that stakeholder theory is the leading corporate governance approach in Slovenia. Its growing emphasis is on customer relationship management, the firm's relationships with its employees and suppliers, as well as on partnership with the local community. 

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A Value-oriented Framework for Inventory Management

Grzegorz Michalski *

Abstract:

The basic financial purpose of a firm is to maximize its value. An inventory management system should also contribute to the realization of this basic aim. Many current asset management models found in financial management literature were constructed with the assumption of book profit maximization as their basic aim. However these models could lack the means for realizing a different aim, i.e., the maximization of enterprise value. This article presents a modified value-based inventory management model.

Keywords: inventory management, value-based management, free cash flow, working capital management, short-run financial management

JEL: G32, G11, M11, D81, O16, P33, P34

DOI:

1. Introduction

The basic financial aim of an enterprise is the maximization of its value. At the same time, research into the determinants in increasing firm value has considerable theoretical and practical significance. Most financial literature contains information about numerous factors influencing value. Among those factors are net working capital and the elements creating it, such as the level of cash tied in accounts receivable, inventories and operational cash balances. A large majority of classic financial model proposals related to optimum current assets management were constructed with net profit maximization in view. In order to make these models more suitable for firms that want to maximize their value, some of them must be reconstructed. In the sphere of inventory management, the estimation of the influence of changes in a firm's decisions is a compromise between limiting risk by having greater inventory and limiting the costs of inventory. It is the essential problem of corporate financial management.

Current assets, i.e. the sum of inventories, accounts receivable, short-term investment (cash and equivalents) and short term accruals [Mueller 1953; Graber 1948; Khoury 1999; Cote 1999] are for the firm collateral/protection against risk [Merton 1999, p. 506;

Lofthouse 2005; p. 27-28; Parrino 2008, p. 224-233, Potesman 2005, p. 21-60] and at the same time an investment [Levy 1999, p. 6; Reilly 1992, p. 6; Fabozzi 1999, p. 214]. Current assets level is the result of a kind of production organization [Baumol 1952, Beck 2005, Beranek 1963, Emery 1988, Gallinger 1986, Holmstrom 2001, Kim 1998, Kim 1978, Lyn 1996, Tobin 1958, Stone 1972, Miller 1966, Miller 1996, Myers 1998, Opler 1999]. As a result, the firm maintains an adequate level of inventories and is linked with operational management rather than with financial decisions [Peterson 1979, p. 67-69; Orlicky 1975, p.17-19; Plossl 1985, p. 421]. At the same time, current assets are the result of an active policy of gaining and holding the firm's clients. [Bougheas 2009] The firm offer should be suited to the demands and character of the firm clients. Inventory levels are also a result of this policy.

The basic financial purpose of an enterprise is the maximization of its value. Inventory management should

* **Grzegorz Michalski**

Department of Corporate Finance and Value Management, Wroclaw University of Economics
e-mail: Grzegorz.Michalski@ae.wroc.pl

also contribute to the realization of this fundamental aim. Many of the current asset management models that are found in financial management literature assume book profit maximization as their basic financial purpose. These book profit-based models could be lacking with regard to another aim, i.e., the maximization of enterprise value. The enterprise value maximization strategy is executed with a focus on risk and uncertainty. This article presents the consequences for the recipient firm that can result from operating risk related to the delivery risk generated by suppliers. The present article offers a method using portfolio management theory to choose suppliers.

When the entrepreneur chooses the tradesman, the entrepreneur should concentrate his or her attention not only on basic knowledge about the contracting party's individual shape parameters (i.e. the tradesman's financial situation), but also on information from inventory management models.

The basic financial inventory management aim is to hold inventory to a minimally acceptable level in relation to costs. Holding inventory means using capital to finance inventory and links with inventory storage, insurance, transport, obsolescence, waste and spoilage costs. However, maintaining a low inventory level can, in turn, lead to other problems with regard to meeting supply demands.

2. Value based inventory management

If advantages from holding inventory on a level defined by the firm are greater than the negative influence of opportunity costs from its holding, then the firm's value will grow. Change of inventory level affects the firm value. To measure that value, a formula can be used that is based on the assumption that the firm value is a sum of future free cash flows to the firm ($FCFF$) discounted by the cost of the capital financing the firm:

$$\Delta V_p = \sum_{t=1}^n \frac{\Delta FCFF_t}{(1+k)^t}, \quad (1)$$

where ΔV_p = firm value growth; $\Delta FCFF_t$ = future free cash flow growth in period t , and k = discount rate¹.

Future free cash flow is expressed:

$$FCFF_t = (CR_t - CE_t - NCE) \times (1 - T) + NCE - Capex - \Delta NWC_t \quad (2)$$

where CR_t = cash revenues on sales; CE_t = cash expenses resulting from fixed and variable costs in time t ; NCE = non-cash expenses; T = effective tax rate; ΔNWC = net working growth; and $Capex$ = capital expenditure resulting from operational investments growth (money used by a firm to acquire or upgrade physical assets such as property, industrial buildings, or equipment).

Similar conclusions about the results of a change in inventory management policy on firm value can be estimated on the basis of economic value added, which reveals the size of the residual profit (the added value) and enlargement of the firm's value in the period:

$$EVA = NOPAT - k \times (NWC + OI), \quad (3)$$

where EVA = economic value added; NWC = net working capital; OI = long-term operating investments; and $NOPAT$ = net operating profit after taxes, estimated on the basis of the formula:

$$NOPAT = (CR_t - CE_t - NCE) \times (1 - T) \quad (4)$$

The net working capital (NWC) is a part of current assets financed with fixed capital. The net working capital (current assets less current liabilities) results from the lack of synchronization of the formal rising receipts and the real cash receipts from each sale. Net working capital also results from divergence during a time of rising costs and from the real outflow of cash when a firm pays its accounts payable.

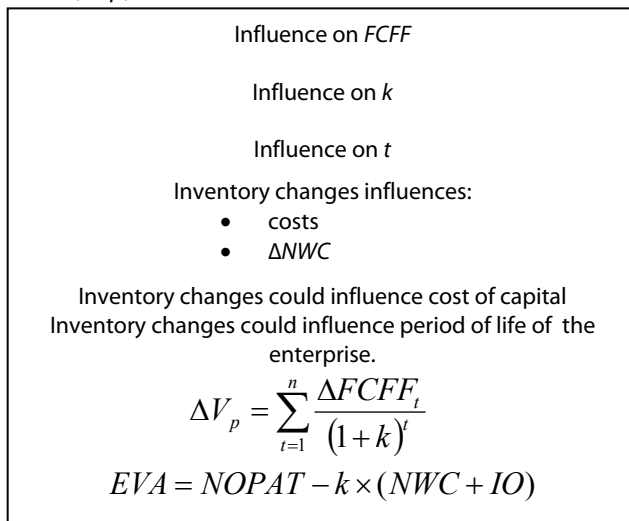
$$NWC = CA - CL = AAR + INV + G - AAP \quad (5)$$

where NWC = net working capital; CA = current assets; CL = current liabilities; AAR = average level of accounts receivable; INV = inventory; G = cash and cash equivalents; and AAP = average level of accounts payable.

During estimation of the free cash flows the holding and increasing of net working capital ties money used for financing it. If net working capital increases, the firm must tie money, thus decreasing free cash flows. Production level growth usually creates a necessity for the enlargement of cash levels, inventories, and accounts receivable. Part of this growth will be covered by current liabilities. Current liabilities also usually automatically increase alongside growth in production. The rest (which is noted as net working capital growth) will require other forms of financing.

¹ To estimate changes in accounts receivable levels, a discount rate equal to the average weighted cost of capital (WACC) is accepted. Such changes and their results are strategic and long term in character, although they refer to accounts receivable and short run area decisions (T.S. Maness 1998, s. 62-63).

Inventory management policy decisions create the new inventory level in a firm. These decisions have influence on firm value. It is the result of opportunity costs of money tied in with inventory and the general costs of inventory management. Both the first and second involve the modification of future free cash flows, leading to changes in firm value. Figure 1 shows the influence of inventory management decisions on firm value. These decisions change the future free cash flows (*FCFF*). These decisions could also have influence on the life of the firm (*t*) (by the operational risk, which is the result of the possibility of a break in production cycles if the inventory level is too low), and the rate of the cost of capital financing of the firm (*k*). Changes to these three components have an influence on the creation of firm value (ΔV_p).



where *FCFF* = free cash flows to firm; ΔNWC = net working capital growth; *k* = cost of the capital financing the firm; and *t* = the lifetime of the firm and the time required to generate single *FCFF*.

Figure 1: Influence of inventory management decisions on firm value

Source: own study.

Inventory changes (resulting from changes in the inventory management policy of the firm) affect the net working capital level and the level of operating costs of inventory management in a firm as well. These operating costs are the result of storage, insurance, transport, obsolescence, waste and spoilage of inventory.

3. EOQ and VBEOQ

The Economic Order Quantity Model is a model which maximizes the firm's income through total inventory cost minimization.

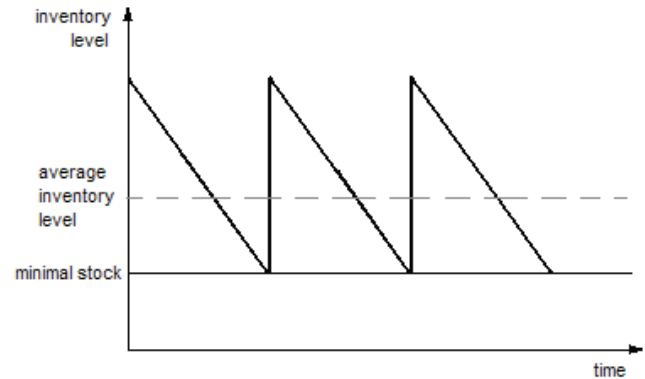


Figure 2: EOQ and VBEOQ model

Source: J. G. Kalberg, K. L. Parkinson, *Corporate liquidity: Management and Measurement*, IRWIN, Homewood 1993, p. 538.

The EOQ model requires two equations:

$$EOQ = \sqrt{\frac{2 \times P \times K_z}{C \times v}} = \sqrt{\frac{2 \times P \times K_z}{K_u}} \quad (6)$$

where *EOQ* = economic order quantity; *P* = demand for the product/inventory in period (year, month); *K_z* = cost per order; *K_u* = holding cost per unit in period (year, month); *C* = holding cost factor; and *v* = purchase cost per unit.

The holding cost factor (*K_u*) is a result of the following costs²:

- Opportunity costs (price of money tied-up in inventory)
- Storage, insurance, transportation, obsolescence, waste and spoilage costs

$$TCI = \frac{P}{Q} \times K_z + \left(\frac{Q}{2} + z_b \right) \times v \times C \quad (7)$$

where *TCI* = total costs of inventory; *Q* = order quantity; and *z_b* = minimal stock.

Example 1. *P* = 220 000 kg; *K_z* = 31\$; *v* = 2\$ / 1kg; *C* = 25%. Effective tax rate, *T* = 19%. Cost of capital financing the firm *WACC* = *k* = 15%; *z_b* = 300 kg.

First *EOQ* is estimated:

² M. Sierpińska, D. Wędzki, *Zarządzanie płynnością finansową w przedsiębiorstwie*, WN PWN, Warszawa 2002, s. 112.

$$EOQ = \sqrt{\frac{2 \times 220\,000 \times 31}{0,25 \times 2}} = 5\,223 \text{ kg.}$$

Next average inventory level is estimated:

$$INV_{EOQ=5223} = \frac{5\,223}{2} + 300 = 2\,912 \text{ kg} \Rightarrow \\ \Rightarrow INV_{EOQ=5223} = 2\,912 \times 2 = 5\,824 \$$$

$$TCI_{EOQ=5223} = \frac{220\,000}{5\,223} \times 31 + \\ + \left(\frac{5\,223}{2} + 300 \right) \times 2 \times 0,25 = 2\,762 \$$$

If 5 000 kg are ordered, the quantity $EOQ = 5\,223$ kg, and the TCI are:

$$TCI_{Q=5000} = \frac{220\,000}{5\,000} \times 31 + \\ + \left(\frac{5\,000}{2} + 300 \right) \times 2 \times 0,25 = 2\,764 \$.$$

TCI will be greater, but if its influence on firm value is checked, it will be seen that if the decision is made to order less than EOQ suggests, this will increase the firm value:

$$\Delta TCI_{Q=5223 \rightarrow Q=5000} = 2\,764 - 2\,762 = 2 \$,$$

$$INV_{Q=5000} = 2 \times \left(\frac{5\,000}{2} + 300 \right) = 5\,600 \$,$$

$$\Delta INV_{Q=5223 \rightarrow Q=5000} = 5\,600 - 5\,824 = -224 \$,$$

$$\Delta NWC = \Delta INV,$$

$$\Delta V_{Q=5223 \rightarrow Q=5000} = 224 - \frac{2 \times (1 - 0,19)}{0,15} = 213,2 \$;$$

$$\Delta EVA_{Q=5223 \rightarrow Q=5000} = \Delta NOPAT - k \times (\Delta NWC + \Delta OI) \\ = (1 - 0,19) \times (-2) - 0,15 \times (-224) = 32 \$.$$

Because both ΔV and ΔEVA are greater than 0, it can be seen that it will be profitable for the firm to order 5000 kg, not 5223 kg as suggested by EOQ . The EOQ model minimizes operational inventory costs, but in firm management there are also the opportunity costs of holding inventories. These costs dictate that the order will be less than that suggested by EOQ so as to maximize the firm value. With this in mind the $VBEOQ$ model can be used:

$$VBEOQ = \sqrt{\frac{2 \times (1 - T) \times K_z \times P}{v \times (k + C \times (1 - T))}} \quad (8)$$

where k = cost of capital financing the firm (WACC); and $VBEOQ$ = value based economic order quantity.

For Alfa data:

$$VBEOQ = \sqrt{\frac{2 \times (1 - 0,19) \times 31 \times 220\,000}{2 \times (0,15 + 0,25 \times (1 - 0,19))}} = 3\,959 \text{ kg};$$

$$TCI_{VBEOQ=3959} = \frac{220\,000}{3\,959} \times 31 + \\ + \left(\frac{3\,959}{2} + 300 \right) \times 2 \times 0,25 = 2\,862 \$;$$

$$\Delta TCI_{Q=5223 \rightarrow Q=3959} = 2\,862 - 2\,762 = 100 \$;$$

$$INV_{VBEOQ=3959} = 2 \times \left(\frac{3\,959}{2} + 300 \right) = 4\,559 \$;$$

$$\Delta INV_{Q=5223 \rightarrow Q=3959} = 4\,559 - 5\,824 = -1\,265 \$;$$

$$\Delta V_{Q=5223 \rightarrow Q=3959} = 1\,265 - \frac{100 \times (1 - 0,19)}{0,15} = 725 \$;$$

$$\Delta EVA_{Q=5223 \rightarrow Q=3959} = \\ (1 - 0,19) \times (-100) - 0,15 \times (-1\,265) = 109 \$.$$

Both ΔV and ΔEVA are greater than before if the firm's order of 3 959 kg is marked by $VBEOQ$. In fact it is the best known possibility.

4. POQ and VBPOQ

A production order quantity model (POQ) is an EOQ modification that can be used when production possibilities exceed the market's capacity.

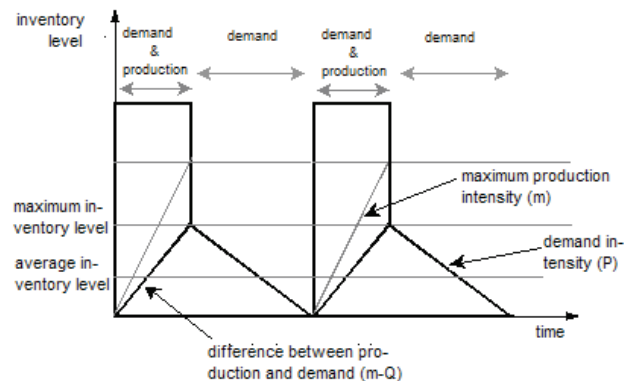


Figure 3: POQ and VBPOQ

Source: Z. Sariusz-Wolski, *Sterowanie zapasami w przedsiębiorstwie*, PWE, Warszawa 2000, p. 162.

POQ could be estimated as³:

$$POQ = \sqrt{\frac{2 \times K_z \times P}{C \times k \times \left(1 - \frac{P}{m}\right)}}, \quad P < m \quad (9)$$

³ Z. Sariusz-Wolski, *Sterowanie zapasami w przedsiębiorstwie*, PWE, Warszawa 2000, s. 162

where POQ = production order quantity; K_z = switch on production cost (setup cost per setup); P = demand intensity (how much can be sold annually); v = cost per unit; m = maximum annual production ability; and C = holding cost factor.

$$TCI = \frac{Q}{2} \times \left(1 - \frac{P}{m}\right) \times v \times C + \frac{P}{Q} \times K_z \quad (10)$$

where Q = production quantity; and TCI = total cost of inventories.

$$INV = \frac{Q}{2} \times \left(1 - \frac{P}{m}\right) \quad (11)$$

Where INV = average inventory level.

Example 2. Maximum demand, $P = 2\,500$ tons, $m = 10\,000$ tons annually. $WACC = k = 15\%$, $C = 25\%$, $T = 19\%$. $K_z = 12\,000$ \$, $v = 0,8$ \$.

First POQ is estimated:

$$POQ = \sqrt{\frac{2 \times 12\,000 \times 2\,500}{800 \times 0,25 \times \left(1 - \frac{2\,500}{10\,000}\right)}} = 633 \text{ tons.}$$

$$TCI_{POQ=633} = \frac{633}{2} \times \left(1 - \frac{2\,500}{10\,000}\right) \times 800 \times 0,25 + \frac{2\,500}{633} \times 12\,000 = 94\,868\$.$$

$$INV_{POQ=633} = \frac{633}{2} \times \left(1 - \frac{2\,500}{10\,000}\right) = 237\, (1000) \text{ kg} \\ \Rightarrow 237 \times 800 = 189\,600\$$$

The following check the influence of firm value on the change of production quantity to 90% POQ , $633 \times 0,9 = 570$ tons:

$$TCI_{POQ=570} = \frac{570}{2} \times \left(1 - \frac{2\,500}{10\,000}\right) \times 800 \times 0,25 + \frac{2\,500}{570} \times 12\,000 = 95\,382\$.$$

$$\frac{-\Delta FCF_{1... \infty}}{0,81} = \Delta TCI_{Q=633 \rightarrow Q=570} \\ = 95\,382 - 94\,868 = 514\$.$$

$$INV_{POQ=570} = 800 \times INV_{570} \\ = 800 \times \frac{570}{2} \times \left(1 - \frac{2\,500}{10\,000}\right) = 171\,000\$.$$

$$\Delta NWC = (-\Delta FCF_0) = \Delta ZAP_{Q=633 \rightarrow Q=570} \\ = 171\,000 - 189\,600 = (-18\,600)\$.$$

$$\Delta V_{Q=633 \rightarrow Q=570} = +18\,600 + \frac{-514 \times (1 - 0,19)}{0,15} \\ = +15\,824\$.$$

$$\Delta EVA_{Q=633 \rightarrow Q=570} \\ = (1 - 0,19) \times (-514) - 0,15 \times (-18\,600) = 2373,66\$.$$

This shows that if production is less than the quantity POQ additional value will be created.

$VBPOQ$ can be determined from the following table:

Q	TCI	Δ TCI	INV	Δ INV	Δ V	Δ EVA
483	98337	3469	144900	-44700	25968	3895
482	98391	3523	144600	-45000	25978	3896
481	98445	3577	144300	-45300	25984	3898
480	98500	3632	144000	-45600	25987	3898
479	98555	3687	143700	-45900	25988	3899
478	98612	3744	143400	-46200	25985	3897
477	98668	3800	143100	-46500	25980	3897

Table 1: $VBPOQ$

Source: own study

From this it was found that $VBPOQ$ gives 479 tons. Table 1 also shows that the costs TCI for $VBPOQ$ will be greater than for POQ , but that $VBPOQ$ ties up less cash in inventories than the POQ , which is the source of benefits in lower opportunity costs.

To estimate $VBPOQ$ the following equation could also be used:

$$Q_{VBPOQ} = \sqrt{\frac{2 \times P \times K_z \times (1 - T)}{v \times \left(1 - \frac{P}{m}\right) \times [k + C \times (1 - T)]}}, P < m \quad (12)$$

$$Q_{VBPOQ} = \sqrt{\frac{2 \times 2\,500 \times 12\,000 \times (1 - 0,19)}{800 \times \left(1 - \frac{2\,500}{10\,000}\right) \times [0,15 + 0,25 \times (1 - 0,19)]}} = 479 \text{ tons.}$$

Knowing $VBPOQ$, the firm can better manage inventories and bring the firm closer to realizing its basic financial aim – firm value maximization.

5. Conclusions

Maximization of the owners' wealth is the basic financial goal in enterprise management. Inventory management techniques must contribute to this goal. Modifications to both the value-based *EOQ* model and value-based *POQ* model may be seen in this article. Inventory management decisions are complex. Excess cash tied up in inventory burdens the enterprise with high costs of inventory service and opportunity costs. By contrast, higher inventory stock helps increase income from sales because customers have greater flexibility in making purchasing decisions and the firm decreases the risk of unplanned breaks in production. Although problems connected with optimal economic order quantity and production order quantity remain, it can be concluded that the value-based modifications implied by these two models will help managers make better value-creating decisions in inventory management.

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