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*In Cooperation with the Global Business and Technology Association*



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*Abstract: Given the political risk in the Middle East North African (MENA) region, this research aimed to unveil the importance of the different components of political risk on the change in foreign direct investment (FDI), controlling for other types of risks and macroeconomic factors. Furthermore, we look at whether there are differences in the factors that affect FDI between rich and poor countries in the region. Fixed effect and random effect dynamic models are applied on a sample of 16 MENA countries over the period 1984 - 2011. Taking all countries together, we find, as hypothesized, that agglomeration, market size, and political risk are significant and positively related to FDI. Additionally, among the 12 political risk components, the level of corruption and the level of external conflict have close association with FDI flows. FDI motives, however, vary greatly between rich countries and the non-rich countries in the MENA region.*

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# EDITORIAL

Economic growth relies on both the fostering of entrepreneurship and the production of innovation. In fact the above two concepts are interlinked. Innovation can take many forms; however, a large part of it involves patents. The first study by Maria Markatou and Yannis Stournaras aims at relating the concepts of innovation and entrepreneurship, investigating whether a patent is a driving mechanism for the creation of a firm for the case of Greece. Generally, research on the creation of new firms and its determinants and origins has typically focused either on industry-level factors or on individual-level factors. A patent might be related to both kinds of factors. In this context, Markatou and Stournaras' study balances between the above factors, while expanding them. The underlying concept and, therefore, the whole analysis are based on the basic methodological assumption that the date of application-grant of a patent by a patent holder and the date of firm establishment by the same patent holder could be related, while being indicative and informative on whether new technology is a driving mechanism for new firm formation.

The analysis, therefore, shows that more than 10% of Greek firms with one or more patents during the period 1988-2012 see this new technology as a motive and an opportunity for the rise of their entrepreneurial activity and the establishment of a new firm. The above share is even higher for that sample of firms that full data has been found and collected (14.44%) and even higher for those Greek firms, which reacted positively in being interviewed for this issue. The analysis showed that these Greek firms are involved in different economic activities, but with a small concentration in metal products and machinery, have been established after 1997, employ up to 50 employees, are characterized by different shares of exports, half of them are persistent innovators and are located in large urban centres, a large part of them found in Athens. Based on these results the Greek share is the highest among all studied European countries. Further research and analysis on this area could be important for Greece. Both these results, as a starting point, and the future ones could be integrated into a wider policy context, a policy context that integrates entrepreneurship, technological development and planning in Greece.

The 1990s, following the trade liberalization adopted by some developing countries, witnessed a sharp increase in investments in the software industry. In Brazil's case the sector achieved revenues of US\$7.7 billion in 2001, having recorded double-digit growth in revenues during the previous decade, albeit still heavily concentrated in the domestic market. However, although Brazil as a whole is still a relatively insignificant software exporter, some of the sector's companies stand out due to their rapid growth and internationalization process. The second paper by T. Diana L. van de Macedo-Soares and Sylvia T. de A. Moraes presents the main results of research that sought to identify the opportunities created by alliances for the internationalization of Totvs, Brazil's dominant software firm in the domestic market.

Totvs' main business is the development and commercialization of the right to use applications, mainly corporate management systems or ERP (Enterprise Resource Planning). The company has roughly 5,500 direct employees, distributed in six subsidiaries, as well as more than 52 franchisees and over 40 alternative distribution channels in Brazil. In 2011, Totvs had nearly 26 thousand clients, added an average of 280 new customers per month and had recorded double-digit growth for 21 consecutive quarters, achieving sales of R\$1.3 billion. It had a 53.1% share of the ERP market in Brazil and 34.5% in Latin America, making it the sixth company in the world in terms of revenues (US\$ 409 million) and the first as regards growth (34.9%).

In its quest to become a leading player in the Brazilian market, Totvs, since 1993, has been investing in strategic alliances and merger and acquisition processes with domestic firms, which enabled it to become the leading company in the Brazilian software market in 1999. In international terms Totvs is present in 15 countries in Latin America with more than 400 customers and 300 employees in the region. It also has a franchise in Portugal and Angola, with more than 50 clients outside Latin America distributed in eight countries.

Due to the strong presence of networks of relationships in business nowadays, notably in the IT industry, it was considered fundamental to adopt a relational perspective and network theory constructs to

identify and analyze the strategic implications of Totvs's main alliances, in terms of opportunities and threats for its internationalization process.

The findings of Macedo-Soares and Moraes' research revealed that alliances with complementary partners were restricted and peripheral in relation to scope and centrality. Since the main ones were firms that made their databases available and provided consulting, Totvs needed to establish alliances with the main players in its industry to ensure that its software had solutions that were compatible with the technological platforms of the greatest number of clients. However, these firms, such as Oracle and Microsoft were typically large global companies whose ERP software competed with Totvs's products. Totvs was thus in a fairly vulnerable position where these specific alliances were concerned. Especially in the Latin American region, which has been the main focus of Totvs's strategy, Microsoft has already conquered most of the market. This raised the question as to whether Totvs's alliances with small resellers would be able to mitigate the threat from such a powerful competitor. On the other hand, alliances with suppliers were found to be much more favorable to Totvs, given that despite being global players they did not compete with the company, thus facilitating its geographical expansion.

The research also identified some opportunities for promoting the firm's internationalization from the recently established alliances with Silicon Valley universities that could leverage its productivity and potential innovation capacity. The analysis of Totvs's alliances from a network perspective thus made evident that there were a few significant relational opportunities for the firm's strategic decision-making regarding internationalization. It confirmed that Totvs has been trying to find the right path towards success in the international market and that its quest for alliances has formed one of the pillars of this undertaking, visible both in its use of collaborative partnerships with small local businessmen and the more sensitive alliances with global actors such as Oracle, Microsoft and IBM.

Project management has taken to the present day practice after several iterations of research, formulation and exchange of ideas from both academic and industry leaders. With that experience the Project Management Institute, PMI has evaluated, devised and standardized a framework that provides a general framework for any project.

There is a continuous influx of research from both academic and organizational level enthusiasts who both follow and challenge the current PMI framework. As a consequence there are several practicing standards depending on project size, scope and complexity. Today there are other project management practices such as SCRUM, Agile, and others in practice for information technology projects. Although these are not meant for replacing the PMI framework, these has been a pioneer in supplementing value to the framework which allowed the PMI framework to evolve by adding these new findings. On similar lines the research by Ramesh Paramkushan and Jean Gordon on inhibiting factors of information technology (IT) projects was done using commercial IT projects' data from a knowledge and learning management perspective. The research data that was collected as part of doctoral study was used to deliver the findings in this research paper. The research findings are both useful from academic and organizational perspectives, in that it aggregated the findings into managerial imperatives which can be drafted into a managerial and policy document.

The findings of Paramkushan and Gordon's research suggests the following managerial implications.

- The project teams should be allowed 20% of the buffer time to allow for knowledge transfer and this buffer time should be managed to yield good results. This would include that the use of this buffer time should be measured.
- Enable knowledge flow among multiple teams by monitoring the flow and by accelerating it while managing the inhibitors.
- Identify experts and knowledge consumers and understanding that these roles may change depending on the subject matter.
- Measure knowledge produced or created from time to time and quantify the value in relation of the business value.
- Reward the contributors and encourage the consumers – allow the knowledge flow!

Many African governments have adopted the use of internet to deliver public services, a concept commonly referred to as e-government. This is mainly due to the many benefits associated with e-services delivery. In general, e-government is associated with great opportunities to improve on efficiency and effectiveness in delivery of public services. It enables governments to cut down costs associated with public service delivery as well as enhance transparency and accountability. While the benefits of e-government cannot be disputed, the ability of government to reap these benefits largely depends on citizens' willingness to make use of the services provided. Research shows that usage of e-government services by citizens in most African countries is very low. Many of them face the challenge of finding effective ways of ensuring that as many people as possible make use of available e-government services. The ability of governments to deal with this challenge demands, among other factors, that government pays attention to current non-users of e-government services. Governments should aim at better understanding of this group of citizens so as to find better ways of targeting them in their e-government promotion efforts. The study by Mercy Mpinganjira and Phineas Mbango aimed at contributing to this understanding by examining the demographic profiles of non-users of e-government services in South Africa as well as examining their level of experience with the internet and their attitude towards e-government in general.

The study involved collection of primary data using a structured questionnaire. The data was collected in Gauteng which is the economic hub of South Africa. Non-probability quota sampling was used in selecting the respondents. This was mainly aimed at ensuring that respondents from different gender and racial groups were represented. At the end of the data collection period a total of 161 usable responses were received. The data was analyzed using Statistical Package for Social Science (SPSS). The results in general showed that the non-users of e-government services did not have negative attitude on the use of internet to provide government services. They however did not show very strongly positive attitude towards e-government. The results also showed that most of the non-users considered themselves to have intermediate to advanced skills when it comes to use of internet. Attitude was found to be not significantly associated with demographic factors including gender, age, education and level of income.

The findings of Mpinganjira and Mbango's study have wide implications on efforts aimed at promoting use of e-government services. To start with, it is important for officials tasked with planning and implementation of e-government projects to take cognizant of the fact that targeted users of the services are widely diverse in their demographic background characteristics as well as experience with the internet, the channel used to deliver e-government services. These differences may have a bearing on use of e-government services. For example, the fact that low levels of income is a common phenomenon in a country means that many citizens cannot afford to buy personal computers or sophisticated cell phones that can allow them to access online services. In order to avoid problems relating to widening of the digital gap as well as bearing in mind that government services are meant to benefit all in society, not only the rich, government needs to find ways of enhancing access to the internet. One way of doing this is through provision of public access points where citizens can access internet services free of charge. Government needs to also pay attention to development of skills needed to access e-government services. The fact is that while use of internet may have become the norm for some people in society, there is still a significant segment of the population that does not have adequate skills needed to use effectively use internet based services. Government can do this by supporting provision of community based training programs as well as ensuring that young people are given opportunities to develop these skills at school.

Another issue that needs attention is the need for government to ensure that their e-government services are as user friendly as possible. Bearing in mind the wide diversities that are there in citizens' level of education and development of cognitive skills that goes with that, designers of e-government services need to ensure that the services are available in a way that most citizens are able to easily comprehend what is required or what is going on. Lastly those interested with promotion of e-government usage need to find ways of enhancing non-users' attitude towards e-government by examining the different factors that may influence citizens' attitude. At the same time, the results show that having positive attitude does not always mean that one will make use of the services. The aim should be to find as many factors as possible that may be contributing to this and find ways of addressing them. Some of these factors may relate to citizens' levels of awareness regarding government services available online as well as matters relating to perceived risk associate with the online access to services.

## EDITORIAL

The fifth paper by Ritab Al-Khoury and A.M. Umaima Abdul Khalik examines the factors affecting the level and change of FDI inflows among 16 economies comprising the MENA region using panel data for the period 1984-2011. Given the constant political risk in the region, this research aimed to unveil the importance of the different components of political risk on the change in FDI. Other types of risks are also considered, including financial risk, economic risks, and trade openness, which are associated with the macroeconomic environment in the MENA region. Finally, the study looks at whether there are differences between the factors that affect rich and poor resource countries in the region in attracting FDI.

Taking all countries together, the results are, as hypothesized, consistent with the results in the literature for the variables lag difference of FDI (agglomeration), market size, and political risk. All these variables are significant and positively related to the change in FDI at a 5 percent significance level. The authors also find that among the 12 political risk components, the level of corruption and the level of external conflict have close association with FDI flows.

FDI motives vary greatly between the GCC and the non-GCC countries. Results for the GCC countries show that market size and growth, agglomeration, and openness are positively and significantly related to FDI. Including the components of political risk, Al-Khoury and Khalik find that the poor quality of bureaucracy and ethnic tension affects FDI negatively. However, surprisingly, the level of corruption, internal conflict and the level of democracy are significant, however, enter with the wrong sign. This implies that countries with high level of corruption, with low democracy and with high internal conflicts, ceteris paribus, are more able to attract FDI in the GCC region over the period 1984-2011.

Nejdet Delener, Ph.D.  
Editor-in-Chief

## NOTE FROM THE EDITORS

As an interdisciplinary journal, *The Journal of Global Business and Technology (JGBAT)* serves academicians and practitioners in the fields of global business and technology and their related areas. The *JGBAT* is also an appropriate outlet for manuscripts designed to be of interest, concern, and applied value to its audience of professionals and scholars.

Readers will note that our attempt to bridge the gap between theory and practice has been successful. We cannot thank our reviewers enough for having been so professional and effective in reiterating to contributors the need to provide managerial applications of their research. As is now obvious, the majority of the articles include a section on managerial implications of research. We wish to reiterate once again our sincere thanks to *JGBAT* reviewers for having induced contributors to answer the “so what?” question that every *Journal of Global Business and Technology* article is required to address.

Thank you for your interest in the journal and we are looking forward to receiving your submissions. For submissions guidelines and requirements, please refer to the Manuscript Guidelines at the end of this publication.

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# INNOVATION FOR ENTREPRENEURSHIP: IS NEW TECHNOLOGY A DRIVING MECHANISM FOR THE CREATION OF A FIRM?

*Maria Markatou and Yannis Stournaras*

## ABSTRACT

*Research on the creation of new firms and its determinants and origins has typically focused either on industry-level factors, such as market structure and technology regime, or on individual-level factors, such as the work experience of entrepreneurs. This study expands these approaches by examining the relationship between new technology and new firm creation in Greece. In this context, this study examines whether and how new technology, as described by the grant of one or more patents, could be a real incentive and a driving mechanism for new firm formation. The analysis shows that more than 10% of Greek firms with one or more patents during the period 1988-2012 use their first patent for the rise of their entrepreneurial activity and the establishment of a new firm. Relating this result to other parameters, this paper could end up to useful results with possible implications to entrepreneurship, technological development and regional planning.*

**Keywords:** Entrepreneurship; Firm creation; Greece; Innovation; Patents;

## INTRODUCTION

Economic growth relies on both the fostering of entrepreneurship and the production of innovation. In fact there is a wide acknowledge of the significant role played by entrepreneurship and innovation in economic growth (Baumol, 1990; 2002; Schumpeter, 1934). Innovation can take many forms; however, a large part of it involves new processes, products and services, which are related to the concept of intellectual property rights. There is a specific rationale and a basic economic principle underling the concept of intellectual property rights: The specific rationale centres on the fact, first, that new ideas and new technologies need to be protected from competitors, second the creator- producer must be awarded for what he has created and, third, the society

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should be satisfied in terms of economic and social prosperity. On the other hand, the basic economic principle argues that the process of developing innovative products and practices is an expensive, time consuming, labour intensive, and risky endeavour process. Once these innovations products and practices are being developed, however, their copy might be easy as well as cheap. This is the main reason for the establishment of intellectual property rights: These rights protect innovators from being copied by free riders and allow them to recoup the investment incurred during the creation, development, and commercialization processes, either directly or indirectly. Directly means that innovators could manufacture and distribute products and services, which embody the above innovation, while indirectly implies processes of licensing to other firms, which will incorporate the innovation in their products and services and for their own interest (Arora et al., 2004). Although the above basic economic principle applies to all firms, for new and early- stage firms this could be even more important for the following reason: New and early- stage firms tend to lack some kinds of complementary assets (such as well- defined marketing channels, manufacturing capabilities, and access to cheap credit), which could make easier their entry into the market. This fact could make them be more sensitive and more positive to intellectual property rights than their more mature counterparts (Shane, 2001).

Based on these arguments, it could be argued that the intellectual property system plays a positive role in economic growth. Empirical research confirms it (Helpman 1993; Gould & Gruben, 1996; Chen & Dahlman, 2004). Expanding the deepening the above argument, it could also be suggested that the intellectual property system plays a positive role in fostering the formation of small, specialised and innovative firms. Such a formation and establishment, after all, is very important for enhancing the economic performance of countries, regions, industries and firms. Empirical evidence on this issue and, more specific, the most recent contributions highlight the role of intellectual property rights to encourage the creation of new firms, and ultimately to increase the rate of employment. In addition, small, specialised and innovative firms are considered to be important agents for enhancing both employment and the economic performances of specific regions (OECD, 2000; UNIDO- OECD, 2004). In this context, the study that follows aims at relating the concepts of innovation and entrepreneurship, investigating whether the grant of one or more patents could serve as a real incentive and a driving mechanism for new firm formation for the case of Greece. Thus, the main research question is the following: Could patents be considered to be a kind of “collateral” for the creation of a firm in Greece?

Generally, research on the creation of new firms and its determinants and origins has typically focused either on industry-level factors, such as market structure and technology regime, or on individual-level factors, such as the work experience of entrepreneurs. This study balances between the above factors, while expanding them: a patent or a number of patents could be related to features of market structure, technology regime and the work experience. A patent or a number of patents could also serve as a technological opportunity and an important incentive for prospective entrepreneurs. This paper is original in the sense that both complements and expands the existing bibliography. At the same time this paper presents the Greek case which hasn't been studied so far. The analysis relies on the theoretical and empirical arguments of the importance of entrepreneurship in economic growth and on the contribution of innovation in this procedure. The analysis is structured as follows: Section two contains two parts. The first discusses the theoretical and empirical evidence of the importance of entrepreneurship in economic growth, highlighting at the same time the importance of innovation in this reciprocal and interdependent procedure. The second part focuses on the existing bibliography, describing and discussing empirical works related to the research aim of this paper. Section three focuses on some methodological issues, while describing the data that has been used for this paper. Section four presents the main results of analysis, which are based on the examination of all patents granted by the Greek patent office during the period 1988-2012, focusing however on the sample of Greek firm patents and describing their main features. The fifth part of this paper contains the main conclusions of the paper.

## **THEORETICAL AND EMPIRICAL EVIDENCE**

Nowadays, it is widely accepted that entrepreneurship contributes significantly to economic growth. Entrepreneurship is responsible for the creation of new organizations, products, services, jobs, and

opportunities for complementary economic activities. Nowadays, it is also widely accepted that a reciprocal and interdependent relationship exists among entrepreneurship, economic growth and innovation. Schumpeter (1934) argued that the creation of new technology firms that displace incumbent firms through a process of creative destruction is a major source of innovation in a capitalist system. In particular, Schumpeter argued that the process by which independent entrepreneurs use exogenously created inventions to produce new goods, services, raw materials, and organizing methods is central to understanding business organization, the process of technical change, and economic growth. Innovation can take many forms. Among its forms are patents, which are also a main category of intellectual property. Patents are protected and granted by a national or international patent system, which is an institutional establishment and an important policy tool that affects not only the opportunities for engaging in entrepreneurship, but also the success or failure of many entrepreneurial efforts. Thus, it can be argued that the patent system encourage investments in relation to knowledge creation and innovation, through the award of exclusive rights on use and sell of new technologies, goods and services. In this context and as theory suggests, investments in technology development would be less than expected and perhaps suboptimal if too little intellectual property protection exists (Arrow, 1962, Nordhaus, 1969) because entrepreneurial activity could be redirected or halted by patents claimed by others. An equally serious impediment to investment for entrepreneurs could arise, however, if patent protection is too strong or uncertain (Graham & Sichelman, 2008).

Therefore, new firm creation and innovation is central to the process of economic growth. Research in this field has provided two categories of explanations for the creation of new firms. The first is that firm formation depends on industry-level factors, such as market structure (Audretsch, 1995) or technology regime (Winter, 1984). Industry-level arguments hold that when industries are young, unconcentrated and composed of small firms. These industries have limited requirements for complementary assets, have access to capital, are not R&D intensive and people tend to form new firms to exploit opportunities (Audretsch, 1995). The second explanation is that firm formation depends on individual-level factors, such as the psychology of entrepreneurs (Roberts, 1991) or their career experience (Carroll & Mosakowski, 1987). Individual-level arguments hold that when the individuals who discover opportunities are more experienced in firm creation (Carroll & Mosakowski, 1987), more creative (Schumpeter, 1934), more risk tolerant (Khilstrom & Laffont, 1979), place higher their need for achievement (Roberts, 1991) or they are more tolerant of ambiguity (Begley & Boyd, 1987) and so they tend to form new firms to exploit opportunities. Taking into consideration the multiple phases in the invention-to-firm creation process, researchers in this field have proposed three categories of factors that influence the decision to exploit an invention through firm creation: the nature of the individual making the decision (Roberts, 1991), the nature of the industry in which the opportunity would be exploited (Audretsch, 1995), and the nature of the opportunity itself (Henderson, 1993). In the decades since Schumpeter's seminal work, economists of technical change have tested the effects of numerous industry characteristics on firm formation (Audretsch, 1995). Similarly, applied entrepreneurship researchers have tested the effects of a variety of individual attributes on firm formation (Roberts 1991). To date, however, researchers have not directly examined the effect of the attributes of new technologies themselves on firm formation.

Therefore, the relationship between patents and economic growth has been studied, but not so much as could be anticipated. Particularly for the case of patents and entrepreneurship, empirical research is even less (Branstetter et al., 2006). Starting from a more general and macroeconomic perspective, most works dealt with the strengthening and the positive- negative role of patent protection in economic growth (Helpman, 1993; Gould & Gruben, 1996; Chen & Dahlman (2004). Studies focusing on industry and/ on sectoral level suggest that many start-ups in sectors like those of biotechnology, semiconductors, instruments and chemicals have used patents for obtaining financing and corporate partners, both of which are critical for the successful commercialisation of new knowledge. Among their results is the fact that that patents may be crucial for such firms to both arise and grow (Levin *et al.*, 1987, Cohen *et al.*, 2000). Meanwhile, there is also consensus that in industries where patents are especially effective, they provide the basis for raising capital and stimulating entry, as it has been recorded in the sector of biotechnology (Henderson *et al.*, 1999). The research of Levin *et al.* (1987) studied how firms used a variety of different appropriability strategies including, but not limited to, patents. They argued that in industries with cumulative innovations, *not to patent* is a less likely scenario and that that patents are only relevant for sectors where appropriability is an issue. The research of Cohen *et al.* (2000) involved a sample of 1,478 US firms employing from 20 to more than 100,000 workers. They found that patents as an effective protection mechanism ranked high in drugs, medical equipment and special purpose

machinery (for product innovations). As expected, patents were deemed not to be very effective in protecting product innovations in low-tech industries such as food, textiles and printing and publishing, or in traditional heavy branches such as steel. However, patents also ranked low in high-tech industries such as electronic components, semi-conductors, precision instruments and communication equipment.

Focusing on the semiconductor industry, Ziedonis (2003) proposes that, since the 1980's there was rapid entry in the semiconductor industry by design firms that relied heavily on patents to protect their intellectual property. According to this study, from their first appearance in 1983, the number of semiconductor design firms grew to over 40 by 1994, which suggests that in the very industry where concerns have been raised over the effect of patent portfolio races and cross-licensing on entry, entry based at least partly on the strength of patent protection can be observed. The most recent research works study on the one hand firm creation by university inventors (spin-offs), investigating the phenomenon in the USA and in other countries (Villanueva, 2005; Van Burg et al. 2008; Devrim, 2008), while on the other hand examine new firm creation but only for specific sectors, such as biotechnology, information and communication technologies and other technologically advanced sectors. At firm level, it is worth mentioning the research by Shane (2001), who used a unique dataset of 1,397 inventions patented by the Massachusetts Institute of Technology for the period of 1980-1996. This study examined the effect of technological opportunities on firm formation and showed that the probability that an invention will be commercialized through firm formation is influenced by parameters, such as the patent importance, its radicalness, and the patent scope.

Last but not least, the study by the European Commission (2005) provided information on the share of patents used to start-up new firms in different countries, technological classes, European regions and applicant organisations. Figures show that the share of patents used to start-up new firms differs among countries, technological classes and regions. At the overall EU-6 level, 5.13% of patents give rise to a new firm. However United Kingdom and Spain present much higher shares (9.69% and 9.27% respectively), Italy and Netherlands move on the European mean, while France and Germany exhibit much lower shares (1.63% and 2.71% respectively). The previous section provided a detailed bibliography review on the theoretical and empirical evidence on some issues related to the research aim of this paper. It particularly discussed the importance of entrepreneurship and innovation in economic growth and the role played by patents and the patent system in both economic growth and new firm creation. The review highlighted the need for further and more systematic research, especially at a more disaggregated level of analysis. This paper could contribute to this need.

## METHODOLOGY AND DATA

This paper investigates the relation-ship between innovation and entrepreneurship in Greece, by examining whether new technology, as described by the grant and protection of one or more patents, is an important incentive and a driving mechanism for the formation of a new firm. In this context, the analysis is based on the elaboration of Greek patent data, which have been considered to be a major category of intellectual property, for a period of 25 years and more specifically from 1988-2012.

A patent is an invention, in which the innovation that this invention 'hides' is novel, involves a non-obvious inventive step, and could be commercially viable (Dernis & Guellec, 2001; Dernis & Kahn, 2004). The advantages and disadvantages of patents in economic analysis and research have been widely discussed in the world bibliography. In an attempt to integrate and summarize among them, patents are considered to be easily accessible, highly reliable and precisely defined (Ernst, 1998; 2001). Patent data are also accurately recorded and easily elaborated, while they can be used to examine and study different levels and kinds of analysis (e.g. technological, sectoral, industrial, regional and national) (Griliches, 1990). Patent data are at the same time rather 'objective' indicators, as patent documents are examined and eventually granted by a single national patent office. Finally, in comparison with or in contrast to other data sources, patents are often the only timely measure and indicator of rapid technological change, particularly in the context of global competition. However, as every tool of analysis, patent data exhibit also limitations. Every patent office treats patents equally, while they are not and nor do all patents exert the same economic impact and the same technological and economic value (Jaffe et al., 1998; Gay et al., 2005; Wang, 2007; Lee, 2009). In addition, the

propensity to patent differs across countries, sectors and firms and this difference overestimates or underestimates the results in terms of performance (Arundel & Kabla, 1998; Makinen, 2007). Meanwhile the above differences are partly due to the level of protection afforded by the patent, but also to the possibility of protecting monopoly rights by other means depending upon market conditions. Last but not least, there are differences in patent regimes across countries and this means that it is difficult to be certain if one is comparing 'like with like'. For instance, some countries would require multiple patents for the same innovation which could be covered by a single patent in other countries.

Taking into consideration both advantages and disadvantages of patent data, this paper uses Greek patent data in order to examine whether new technology is an important incentive and a driving mechanism for new firm formation, relying on the basic methodological assumption that the date of application- grant of a patent by a patent holder and the date of firm establishment by the same patent holder could be related, indicative and informative on that fact. In this context, the analysis is based on the examination of three different dates:

- (1) 'Date of application' of the first patent by a patent holder (A).
- (2) 'Date of grant' of the first patent by a patent holder (A).
- (3) 'Date of firm establishment' by a patent holder (A).

Obviously there may be time lags and for the purpose of analysis two different kinds of time lag have been taken into consideration:

- (a) The first time lag involves the time lag between the 'date of application' and the 'date of grant' of a patent, which usually takes 1-2.5 years on average, based on the examination of the Greek patent procedure.
- (b) The second time lag involves the time lag between the 'date of application for a firm establishment' and the 'officially recorded (real) date of firm establishment', which can also take from some months to 2-3 years on average, depending on the processing of several bureaucratically procedures, licenses and other factors. For instance the above time lag for a new firm establishment in information technology is obviously much smaller than the respective for a firm involved in chemicals, as firm establishment for the latter presupposes an environmental license from the regional or central government, which generally delays the whole procedure.

In this context results are based on the elaboration of two databases. The first database contains all patents (Greek and foreign), which have been first applied and then granted in Greece during the period 1988-2012. The second database is a firm database, which contains all Greek firms with patent activities during the previous time period. The two databases are combined in the sense that patents by Greek firms are extracted by the first database and based on both the firm's and the directors' names of these Greek firms the second database has been constructed.

There is a specific rationale accompanied by a number of methodological choices behind the construction of both databases: First, It has been decided to work only with data from the Greek Patent Office and thus to work only with patents, foreign and Greek, being protected in Greece, as the main aim of the paper is the contribution of new technology in new firm creation for the case of Greece. In addition, it has been decided not to use patent data from an international organization (e.g. US Patent Office, European Patent Office), as it has been empirically found that the external patent activity is low enough and that the majority of Greek inventors, both individuals and small firms, uses the national road of patent protection. For those inventors who choose the international road, they start from the national road, while applying at the same time in an international office (Markatou, 2009). Particularly for the case of Greek firms, it is also empirically found that the majority of Greek firm patents are owned by small and very small Greek firms (Markatou, 2012). Second, it has been decided to collect patent grants instead of simple patent applications, as there has been made a conscious choice of assigning higher value to this study and so to results. Based, therefore, on the fact that a patent is only granted when it contains a potential technological innovation, which exceeds a certain level of novelty, only patent grants can guarantee that.

Based on the above methodological choices, the data has been analysed and elaborated according to the following steps:

- (a) First step, patent documents in paper sheets have been collected from the Greek Patent Office for the period of 1988-2012. Based on these patent documents a patent database (database 1) has been constructed, which contains all patents (Greek and foreign) that have been granted by the Greek Patent Office, a total of 7,187 patents.
- (b) Second step, patents have been divided and classified based on five criteria and more specific based on their national origin (e.g. 'foreign', 'Greek' and 'mixed'), institutional status-ownership (e.g. 'academic agent', 'firm', 'individual', 'research institution', 'public sector', 'mixed', 'other'), geographical location (e.g. 'country location' for foreign patents and 'regional location' for Greek patents), technological content (e.g. classification of patents among 8 'sectors', 20 'sub-sectors', 113 'classes', 637 'subclasses' and more than 2500 'main groups' and) and economic direction (e.g. classification of patents among 41 industrial sectors).
- (c) Third step, Greek firms patents have been separated by others. Based on both the firms' and the directors' names of these firms the second database has been constructed. Particularly for this second database economic and other data has been collected. The second database contains the following information fields: Date of establishment, ownership, employment, export shares and destinations, economic activities at three levels of analysis (2-, 3- and 4-digit activities based on the Eurostat methodology) and products and other related information, such as information on the firms' external patent activity at one or more foreign patent offices.
- (d) Forth step, the already mentioned three dates (i.e. 'date of application', 'date of grant', 'official date of firm establishment') are combined, methodologically accepting up to 2 years time lag between the 'date of application' and the 'date of grant' for the same patent and patent holder and up to 3 years time lag between the 'date of application' and the 'official (real) date of firm establishment', as this time period is the mean period required to get a license and, thus, establish a firm. In addition, it has been also taken into consideration that fact that first an entrepreneur may have started producing without an official license, while having already applied for a patent or second an entrepreneur may have also applied for a national subsidy, which will help him starting producing, a fact however, which delays the whole procedure, while also affecting his final official (real) date of firm establishment.

The section that follows presents the main results, starting from the overall pattern and ending up to the main features of the sample of those Greek firms, which have used their patent as a driving mechanism for the creation of their firm.

## RESULTS

Based on the total number of patents granted by the Greek Patent Office during the period 1988-2012, 1286 of those are owned by Greek firms. These patents correspond to 515 Greek firms, namely 2.5 patents per firm. According to the proposed methodology and analysis of the previous section, full data was found for a sample of 277 firms and some data for another 13, totally 290 firms (53.7% and 56.3% respectively of the initial sample of firms). Relying on these facts the number of Greek firms that have used their first patent for the creation of a firm accounts for 10.3% (initial sample of firms- all Greek firms, with and without data) or 14.44% based on the sample of firms with data. The main features of the sample of Greek firms, which have used their patent as a driving mechanism for the creation of their firm, are summarized in Table.

Table shows that these firms are activated in the economic sectors of first 'machinery and equipment' (20%), second 'metal products' (17.50%), third 'electrical machinery and apparatus' and forth 'whole sale trade' (15% totally, or from 7.5% for each sector). A share of 20% is equally distributed among firms of 'food-beverages', 'chemicals', 'other manufacturing' and 'computer and related activities' (20% in total). The

remaining 27.5% is a share of ‘newly established and/or new technology based firms’ of the manufacturing and services sector, namely a share of firms engaged in the activities of biotechnology, consultancy, environmental technologies, nanotechnology, recycling, semiconductors and telecommunications. Comparing the average share of 14.44% with the respective sectoral shares, it can be seen that higher shares than the average are found in the economic sectors of ‘metal products’, ‘machinery and equipment’, ‘electrical machinery and apparatus’, ‘electronic and telecommunications equipment’ and ‘computers and related activities’. On the contrary, ‘food and beverages’, ‘chemicals’, ‘plastic and rubber products’, ‘basic metals’ and ‘whole sale trade ’ present lower shares than the average.

**Table:** New Technology (patent) as a Driving Mechanism for the Creation of a Firm-  
The main features of Greek firms

<b>Main economic sectors</b>	
Chemicals and chemical products	5%
Computer and related activities	5%
Electrical machinery and apparatus	7.50%
Food- beverages	5%
Machinery and equipment	20%
Metal products	17.50%
Other manufacturing	5%
Whole sale trade	7.50%

Rest sample of firms: semiconductors, telecommunications, environmental technologies (2 firms), nanotechnology, recycling, consultancy, biotechnology.

<b>Economic sectors with shares higher than the average</b>		<b>Economic sectors with shares lower than the average</b>	
Computers and related activities	25%	Basic metals	6.66%
Electrical machinery- apparatus	23.08%	Chemicals	7.14%
Electronic- telecommunications equipment	20%	Food and beverages	11.76%
Machinery and equipment	23.53%	Plastic and rubber products	12.50%
Metal products	15.91%	Whole sale	14.28%
Firm age (based on the years of production operation)		Firm size (based on the number of employees)	
1987-1996	27.45%	<20	50%
1997-2006	51%	[20- 50)	31.57%
2006- today	21.56%	[50- 100)	5.26%
		[100- 500)	7.89%
		>500	5.26%
Exports (based on the share of the products abroad)		Geography (based on the regional distribution of firms across the 13 Greek regions)	
<5	8.33%	Attiki	51%
[5-10)	12.50%	Western Greece	16.90%
[10-20)	25%	Crete	3.77%
[20-50)	33.33%	Central Macedonia	20.75%
>50	20.85%	Thessaly	3.77%
		Rest regions	3.77%

**Source:** Own elaboration of Greek firm data.

Table also presents the results of firm data concerning the age of Greek firms, their size, information on exports, their location and some other special features, which emerged as the analysis was proceeding and deepening. According to the table, most firms have been established after 1987, are very small and small in their size (total number of employees classified in the classes of <20 and ‘20-50’), invest in export activities and present large enough export shares and are located in large urban centres and more analytically in the regions of Attiki (the region of the capital of Greece Athens), Macedonia (its capital Thessaloniki and around a number of neighbour cities) and Western Greece (mainly in Patra, which is its capital). Thessaloniki is the

second in population city of Greece, while Patra is the third. Both cities are important commercial and industrial centres of their regions as well as of Greece, ports of entry and exit of the country and also very important academic and research poles with a number of universities and research centres being located and activated in both of them.

The further analysis and the consideration of other parameters also 'lighted' a number of special features, showing four things:

- (a) First, the 50% of firms own more than one patent and the 22.64% of them are persistent innovators, with more than 5 patents during the total period of analysis, most of them being established after 1997.
- (b) Second, many of these firms were persistent individuals before creating a firm and then became persistent firm innovators.
- (c) Third, most firms of the sample are located in industrial districts and scientific- technological parks. More specifically, firms with more traditional activities are located in industrial districts, while firms with more technologically advanced activities in scientific- technological parks, which are obviously more recent and modern legal establishments.
- (d) Forth, the 13.2% of firms are spin-offs established by academics- professors, most of them located in Patra, which is the administrative capital of the region of Achaia and the capital-seat of Western Greece. As already mentioned, Patra is the third in population urban centre in Greece, which a long industrial and commercial tradition, an important university structure- especially in the fields of engineering and basic sciences, and the main entry and exit to the rest of the European Union countries.

Summarizing, the previous analysis showed that new technology, as measured by the grant of one or more patents, are instruments and could serve as collateral for new firm creation in Greece. Comparing the pattern of Greece with the respective of other European countries on the same parameters, it can be shown that the Greek share is the highest among all studied European countries (EC, 2005). Figures show that this share is 5.13% for the EU-6 level, higher in United Kingdom and Spain (9.69% and 9.27% respectively), on the European average for Italy and Netherlands, lower in France and Germany (1.63% and 2.71% respectively). The same report identifies as main economic sectors as those of 'instruments', 'process and mechanical engineering' and 'chemicals & pharmaceuticals', pointing out as main micro technological classes those of 'space technology weapons', 'medical technology' 'machinery & apparatus', 'biotechnology', 'consumer goods & equipment' and highlighting as main type of inventors those of small firms, universities and private research organizations (16.32% and 14.58% respectively). In addition, Greek results confirm other empirical results regarding the importance and the ranking of certain economic sectors instead of others and the type of inventors. Generally, the Greek shares are higher in all commonly compared parameters, with the exception of universities and private research organizations' contribution on this kind of action and interaction between innovation and entrepreneurship.

Thus, results could be integrated into a wider context in relation to the Greek industrial and innovation policy and the 'future' of this kind of entrepreneurship. Empirical research in related fields shows that there are two special Greek features: First, the inventor, the patent owner and the firm manager is the same person in most cases. This is due to the fact that the majority of Greek firms with patents are small, very small or even family owned firms (Markatou, 2009; 2012). Second, a large number of both existing and future entrepreneurs follow the same development path: They have an idea of technological and/ or entrepreneurial nature and they explore it as they have a small Odysseus (Ulysses) inside them. They also combine the development of a patent with their entrepreneurial plans, they proceed to their own start- up, while developing an invention, applying for its grant and, then, taking advantage of different government schemes of grants and financial assistance in order to establish their firm or expand their entrepreneurial activities. (Markatou, 2013).

## CONCLUSIONS

Research on the creation of new firms and its determinants and origins has typically focused either on industry-level factors, such as market structure and technology regime, or on individual-level factors, such as the work experience of entrepreneurs. This study both complements and expands these approaches by examining the relationship between innovation and entrepreneurship and more specifically the relationship between new technology and new firm creation, focusing, however, on the case of Greece. In this context, this study examines whether and how new technology, as described by the grant and protection of one or more patents, is a driving mechanism and an important technological incentive for the establishment of a Greek firm. Both theory and empirical evidence, as discussed and analyzed in the first sections of the paper based on a review of the existing international bibliography, suggest that the patent system plays a positive role in fostering and encouraging firm formation and this role is particularly important for enhancing the economic performance of firms at first level and, then for both regions and countries at second level. In addition, empirical research confirms the importance of patents in new firm formation, especially for specific economic activities, kinds of firms and several countries.

In this context, this study uses Greek patent data, as a measurement of new technology, to examine and then confirm or not the main research aim, taking into consideration the advantages and disadvantages of patent data for this kind of analysis and measurement, as well as the parameter of the firm survival. In addition, this paper tries to deepen the analysis focusing on industrial branches and other kind of firm data, while combining this data with other results taken from related empirical research. The analysis, therefore, shows that more than 10% of Greek firms with one or more patents during the period 1988-2012 see this new technology as a motive and an opportunity for the rise of their entrepreneurial activity and the establishment of a new firm. This result is based on the fact that the time period between the date of application or grant of the first patent and the date of establishment of the firm is very short or non-existent. The above share is even higher for that sample of firms that full data has been found and collected and even higher for those Greek firms, which reacted positively in being interviewed for this issue. The analysis showed that these Greek firms are involved in different economic activities, but with a small concentration in metal products and machinery, have been established after 1997, employ up to 50 employees, are characterized by different shares of exports, half of them are persistent innovators and are located in large urban centres, a large part of them found in Athens. Based on these results the Greek share is the highest among all studied European countries on this topic.

Concluding, the paper ended up to useful results with possible implications for entrepreneurship, technological development and planning in Greece. Thus, further research and analysis on this area could be important for Greece. The above results, as a starting point, and the future ones could be integrated into a wider policy context, combining also data on the innovation profile of the country and the sectors' contribution to the national economy, as measured by sectoral employment, value added, production indexes and growth rates.

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# THE STRATEGIC IMPLICATIONS OF ALLIANCES FOR THE INTERNATIONALIZATION OF FIRMS IN EMERGING COUNTRIES: THE CASE OF TOTVS

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## ABSTRACT

*The aim of this article is to present the results of research which identified opportunities created by the alliances formed by Totvs, a leading Brazilian firm, to further its internationalization. The study adopted a relationship network perspective using relational constructs. The results suggest that alliances generate more opportunities than threats for Totvs's international expansion, with the most important being those entered into franchises with resellers and into agreements with suppliers. This article seeks to contribute to research on the influence of alliances on firms' internationalization using a network theory approach and also provide support for strategic decision-making regarding alliance management in a global context.*

Keywords: Strategic Alliances, Internationalization, Emerging Countries, Software Industry, Network.

## INTRODUCTION

The 1990s, following the trade liberalization adopted by some developing countries, especially in Latin America and Asia, witnessed a sharp increase in investments in the software industry. In Brazil's case the sector achieved revenues of US\$7.7 billion in 2001, having recorded double-digit growth in revenues during the previous decade, albeit still heavily concentrated in the domestic market (Arora & Gambardella, 2005; SOFTEX, 2009). However, although Brazil as a whole is still a relatively insignificant software exporter, (in 2009 exports accounted for only 4.8% of total IT industry revenues), some of the sector's companies stood out due to their rapid growth and internationalization process (SOFTEX, 2009). This is somewhat surprising given that high technology industries are not very common in developing countries (Arora & Gambardella, 2005).

Since the BRICS acronym was formulated by the economist Jim O'Neill, head of global economic research at Goldman Sachs, in a 2001 study, attention has increasingly been drawn to Brazil's growth process,

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with internationalization being one of the most frequently debated topics. The software industry has achieved a preeminent position among other sectors due to the proliferation of internationally competitive firms in emerging countries such as India and China (Velo, Botelho, Tschang, & Amsden, 2003). Indeed, there are many references in the international strategy literature to these two countries, but few mention Brazil, especially in relation to the information technology sector. Few studies have been published on Brazilian IT companies dealing with the strategic implications – in terms of opportunities and threats – of these firms' alliance networks given the latter's characteristics. The research at issue in this article sought to bridge this gap by investigating from a network perspective the opportunities created by alliances for the internationalization of Totvs, Brazil's dominant software firm in the domestic market.

Totvs' main business is the development and commercialization of the right to use applications, mainly corporate management systems or ERP (Enterprise Resource Planning). The company has roughly 5.500 direct employees, distributed in six subsidiaries, as well as more than 52 franchisees and over 40 alternative distribution channels in Brazil. In 2011, Totvs had nearly 26 thousand clients, added an average of 280 new customers per month and had recorded double-digit growth for 21 consecutive quarters, achieving sales of R\$1.3 billion. It had a 53.1% share of the ERP market in Brazil and 34.5% in Latin America, making it the sixth company in the world in terms of revenues (US\$ 409 million) and the first as regards growth (34.9%) (Cosentino, Haberkorn, & Cícero, 2001; Totvs Day, accessed at the [www.totvs.com.br](http://www.totvs.com.br) website 02/01/2013; Exame, 2012).

In its quest to become a leading player in the Brazilian market, Totvs, since 1993, has been investing in strategic alliances and merger and acquisition processes with domestic firms, which enabled it to become the leading company in the Brazilian software market in 1999. In international terms Totvs is present in 15 countries in Latin America with more than 400 customers and 300 employees in the region. It also has a franchise in Portugal and Angola, with more than 50 clients outside Latin America distributed in eight countries (Cosentino, et al., 2001; Totvs Day, accessed at the [www.totvs.com.br](http://www.totvs.com.br) website on 02/01/2013).

## **RESEARCH METHOD AND THEORETICAL FRAMEWORK**

This article used the case-study method given that it involves research into a contemporary phenomenon which needs to be investigated in its specific context to be fully understood (Yin, 1989).

Case studies should be used to confirm a theory or achieve deeper knowledge of an extremely important case (Yin, 1989; Eisenhardt, 1989). Considering the huge success achieved by the firm in recent decades, which is even more significant given the fiercely competitive nature of a sector that has powerful global players, and together with the fact that it was one of the first in this industry to initiate international activities, this case's value cannot be understated.

In order to ensure information consistency and limit biases, the data presented in this article was collected from various sources, thus permitting triangulation. Two types of interviews were undertaken with Totvs executives, with one using open questions (2 interviews) and the other a structured questionnaire (3 respondents). The documental research involved the collection of information from the specialized media (71 articles), company documents for investors (2 reports on the company website), as well as the book about the company written by its chief executive.

Relationships between firms are valued when there is cooperation and greater profitability is a direct consequence of the strengthening of the commitment to this relationship (Holm, Eriksson, & Johanson, 1996). This conclusion highlights the importance of the relational perspective, i.e., that pertaining to relationships – notably alliances and other ties such as those forged through mergers and acquisitions – for an understanding of the success factors of firms which use relationships to obtain a global presence (Gulati, Nohria, & Zaheer, 2000).

Due to the strong presence of networks in business nowadays, notably in the IT industry, it is fundamental for companies to incorporate this relational view into their strategic management (Gulati et al., 2000), analyzing the context of the focal firm and all its inter-organizational relations from the perspective of the network that they configure at various levels, including global ones (Hoffmann, 2007; Macedo-Soares, 2011).

By considering the resources provided by alliances and other relationships from this perspective it is also possible to obtain a deeper view of the ease with which a firm obtains its resources, technology, markets and information through its relationship network as well as the opportunities that appear within other objectives, which may lead it to share risks or outsource part of its value chain (Gulati et al., 2000).

In line with the previous considerations, the research decided to choose the Global SNA Framework (Macedo-Soares, 2011) as a conceptual framework for analyzing the impact of strategic alliances in Totvs' internationalization process, focusing at the software industry level. This framework helps to analyze and manage the strategies of firms which compete globally in alliances and networks, seeking to assess their dynamic strategic fit from both a global and relational perspective. It comprises three components: (a) a methodology or set of steps to conduct the analysis of the global strategic network; (b) reference lists to help data /information collection; (3) a conceptual model to map the focal firm's ego-net, which encompasses the firm and its main alliances within its wider value network.

Below are presented the main concepts underlying the above-mentioned framework, so that it may be fully understood. Although the theme at issue – firms' alliances and relationship networks and their strategic implications – lends itself to a much deeper analysis, the research opted for a briefer account in order to simplify the text.

### MAIN CONCEPTS

A central concept of the research is strategic fit, i.e., a strategy is said to have fit when it is able to benefit the forces constituted by organizational resources, minimizing weaknesses to such an extent that the firm is able to exploit the opportunities and reduce the threats emanating from the environment (Barney, 1996; Hofer & Schendel, 1978). Macedo-Soares (2002; 2011) argues that strategic fit implies leveraging the forces constituted not only by the firm's internal resources but also those conferred by the firm's alliances and network, thus enabling it to exploit both global macro-environmental opportunities and those offered by the alliances and network, minimizing threats posed by both the global macro-environment and the network.

Another central concept is that of alliances the definition of which was based on Gulati (1998) as voluntary arrangements between two or more firms which may include co-development, sharing or exchange of products, services or technologies. Alliances were considered strategic when they contributed directly to the focal firm's competitive advantage (Macedo-Soares, 2011). Alliances were identified according to Contractor and Lorange's (1988) typology of linkages which is based on their degree of intensity and interdependence. Linkages were thus classified running the following gamut from high to low ends: mergers & acquisitions – M&A, independent joint ventures, cross equity ownership, minority equity investment, joint Research and Development - R & D, production, or marketing, franchise alliances, know-how or patent licensing, agreements (marketing, manufacturing, supply, services, distribution). Apart from M&A, the other linkages were considered to be alliances when they met our definition of alliances based on Gulati (*ibid*).

In accordance with Gulati et al. (2000), a strategic network was defined as a set of relationships with other firms, whether or not in the same industry, whether domestic or international.

Given that the research at issue in this article sought to understand the contribution of alliances to a firm's internationalization process, it was fundamental to map its strategic network and the opportunities and threats it may provide. Thus, alliances were analyzed from a network theory perspective, using two concepts: ego-net and value-net. The definition of ego-net draws on Knoke's (2001) egocentric network concept as the

net represented by the focal firm, its main relationships with partners and main relationships between partners in the context of its value-net. For Brandenburger and Nalebuff's (1996), the value-net includes all actors (partners and non-partners) as well as the interdependencies which influence the distribution of power between strategic actors and the focal firm and consequently its capacity to capture significant value for the firm's competitive advantage.

In the next section we present the results of the research which followed the steps of the Global SNA methodology, beginning with the characterization of firm strategy. To undertake this the research used: (a) Mintzberg's (1995) typology – differentiation by price, brand/image, support, quality/design or non-differentiation; (b) the classification of strategies as Global, Multi-domestic, Transnational or Global Multi-Business based on Harzing (2000) and Koza, Tallman and Attay (2011).

## **RESULTS**

### **CHARACTERIZATION OF STRATEGY**

According to the replies to the structured questionnaires and information obtained in specialized magazines, Totvs uses a strategy of product differentiation by quality and design. The leading characteristic of the Totvs product is its ability to be adapted speedily to customer processes, in contrast to its main competitors who seek rather to alter processes to better adapt their software. This strategy is in line with the firm's decision to concentrate on small and medium firms (SMEs), as reported by the Director for International Market Operations: "We operate in the middle of the pyramid.....we have been doing this for 30 years...in the SMEs, where you have a larger number of firms with considerable software purchasing power".

Most interviewees defined Totvs' strategy as Transnational – i.e. a firm which operates globally but customizes its products to local market needs (Hitt, Ireland & Hoskisson, 2009), and one interviewee defined it as Global – supply of standardized products in key global markets through integrated operations which follow directives determined by head office (Harzing, 2000; Koza, et al., 2011). Although the basic product is entirely developed in the country where headquarters are located, its above-mentioned characteristics of flexibility and customization permit an easy adaptation to local needs.

However, the research, based on company documents (2012 4th Quarterly Report, accessed at the Totvs website [www.totvs.com.br](http://www.totvs.com.br) on 02/01/2013), chose to categorize the company as Multi-domestic. Although it plans to enter key global markets (e.g. U.S.A.) and has a clear strategy to become a global benchmark (Totvs Day, accessed at the website [www.totvs.com.br](http://www.totvs.com.br) on 02/01/2013), its international sphere of operations is still strongly focused on the Latin American market. According to Totvs' International Market Operations Director:

Looking ahead to 2015, it is the region of the planet that is going to grow the most in our segment... We still haven't managed to build the market share in Latin America that we have in Brazil and we want to achieve this before conquering a very distant frontier. We also made a study to examine our growth possibilities in southern Africa (Angola, Mozambique and South Africa) if we were to grow there 30% or 40% a year, in 5, 10 years we would not even achieve the equivalent of 0.5% of the US market. So the United States has become strategic for us because of its strength, and as it is beginning to grow again like a developed country it is once again a target for us. (...).

In fact a choice that in the past would have been quite natural due to regional ties ... nowadays it's logical to bet on Latin America because everyone is coming here. All the continents that have internationalized companies are choosing Latin America or want to choose Latin America as their number one focus because of these growth rate percentages....

According to information given by Totvs' International Market Operations Director, marketing and operational decisions are decentralized, usually defined at hubs: "(...) nowadays we have a really cool marketing structure and a strategy for each country, not just a strategy for overseas operations, but a specific one for each country".

In the following section, in accordance with the steps of the Global SNA methodology, we present the results regarding the strategic implications of macro-environmental factors, verifying whether they constitute real or potential opportunities or threats.

## STRATEGIC IMPLICATIONS OF MACRO-ENVIRONMENTAL FACTORS

The analysis of the strategic implications of macro-environmental factors especially for Totvs' international strategy drew largely on Austin's (1990) constructs, as follows:

- Political factors: an opportunity identified in the research was the possibility of the Brazilian government establishing a partnership with Totvs to take advantage of the leading position attained by the firm in 2011 when it conquered the 6th position in the global ranking of ERP firms. This fact may benefit the exploitation of the Brazil brand in the software industry, an achievement that has been pursued by Apex since 2009 when it created the Brasil IT+ project with the aim of enhancing global recognition of Brazil as a center of excellence in the IT sector. (Available at [www.apexbrasil.com.br/brasilit](http://www.apexbrasil.com.br/brasilit). Accessed on 03/25/2012).
- Economic factors: the global recession represents a threat to the good performance of Totvs' operations throughout the world. In 2012 the company decided to reduce its operations in Portugal and Mexico and cancelled two initiatives that were being planned for Australia and India. (Totvs Day, accessed at the [www.totvs.com.br](http://www.totvs.com.br) website on 02/01/2013, Exame Melhores e Maiores, 2012).
- Socio-cultural factors: Competing with local companies requires an understanding of the specific characteristics of local culture. According to Totvs' Customer Service and Relations Vice -President, the latter could potentially pose a threat for the company:

The great difficulty we had...(is that)..the legal part isn't difficult, the problem is culture. Now the cultural part is not explained, you won't find how it functions exactly anywhere in writing. Example: in Brazil if you produce ERP software one has to take into account pre-dated checks, but pre-dated checks aren't covered by law anywhere, on the contrary this practice is forbidden.

On the other hand, if we consider the fact that the main target of Totvs' internationalization strategy is Latin America, the region's cultural proximity and Brazil's favorable image here obviously constitute opportunities for its expansion in these markets.

Below we share the research's results for the third step of the GLOBAL SNA methodology.

## STRATEGIC IMPLICATIONS OF THE MAIN GLOBAL ACTORS

This section presents the opportunities and threats constituted by the main actors as they perform their strategic roles in the global software industry. We based ourselves in greater part on the constructs of Porter (1980) and Brandenburger and Nalebuff (1996).

In the case of clients, as they belong mainly to the SME segment (Totvs Day, accessed at the [www.totvs.com.br](http://www.totvs.com.br) website on 02/01/2013; a Totvs institutional presentation accessed at the [www.totvs.com/ri](http://www.totvs.com/ri) website on 02/06/2013), and thus have less financial resources, the high cost of change which the customer has to support to modify his ERP software was considered a threat. Although a positive factor in the domestic

market it is a negative one in the international market: “The fact that we are market leaders, and the fact that the guy has made a big investment, helps retention. But the guy considers cost and the cost of substitution is very high”, said Totvs’ International Market Operations Director.

Another, albeit incipient, opportunity identified by the research was constituted by Totvs’ international expansion through new businesses developed in partnership with international customers: “ we can see, for example, a customer who is originally from Mexico, taking us to Colombia, a Portuguese guy taking us to Angola, a Chilean taking us to Peru, along with their expansions”, according to Totvs’ International Market Operations Director.

As regards suppliers, the ones most mentioned by interviewees and in replies to the structured questionnaires were data base suppliers, such as Oracle, Microsoft and IBM, but who, excluding IBM are also Totvs’ competitors as they commercialize ERP software and should therefore be classified as a threat.

Totvs’ main competitors are SAP in Brazil (Revista Exame, Melhores e Maiores, 2012) and Microsoft in Latin America, two large multinational companies who can represent serious threats for Totvs, due both to their financial capacity and strong brands. In small Latin American countries, Microsoft has achieved a high degree of penetration with its products, precisely among SMEs, hampering Totvs’ moves in the region. According to Totvs’ International Market Operations officer:

“They are not able to establish themselves in Brazil, we don’t let them. We don’t compete with them here (...) with the exception of Microsoft. We have strong competitors in each country, who are local competitors and there are the big ones who like to operate at the top of the pyramid. I would say that SAP is our big competitor at the top of the pyramid, Oracle is fragile in Latin America and there are the tiny ones in each country. In the middle of the pyramid I would say that our big international competitor is Microsoft.”

However, the differentiation of Totvs’ product may be considered a real opportunity – mainly in relation to Microsoft’s offering – as it permits greater customization flexibility, a benefit that is highly valued by small firms. Totvs’ International Market Operations Director said:

“Our differential... in relation to product and technology (is) flexibility. Perhaps we are one of the most flexible tools in the market. There is also the great advantage that in the case of SAP you have to go to Germany to customize. This flexibility is very important. If you know how to use it surgically to make a difference in the guy’s business, it’s a killer”.

The research did not identify threats from new entrants, given that small software developers, due to the high cost of developing a complete and integrated solution, are usually only able to serve a specific function of the firm without ensuring a good level of communication with the other applications.

Solutions that can be considered substitutes were not classified in the structured questionnaires as a threat. ERP software replaces manual processes or products developed internally. In both cases, the cost is usually much greater than buying from a company with Totvs’ scale.

With respect to possible complementary actors, it is important to mention that business consultants, which deal very actively with competitors (SAP, Oracle, Microsoft), do not take part in the implementation stage of Totvs customers’ project. However, Totvs uses partnerships with consultants to localize their product in a specific country, thus speeding up the acculturation process: “... in fact we hire a consulting firm for each country so that they can teach us the ropes in terms of localization” as mentioned by the Customer Service and Relations Vice –President.

Another important complementary partnership created recently by Totvs, was between the Research and Development Unit in Silicon Valley – the Totvs Lab (Valor Econômico, 10/04/2012, Exame Melhores e Maiores, 2012), and two local universities – Stanford University and San Jose State University (SJSU) – whose role will be to detect trends and monitor developments in the US management software market and middleware platforms. (Totvs Blog, 10/25/12 at <http://www.suporte.totvs.com/web/guest/blog>; Accessed on 02/07/2013).

Another actor who could be identified as a source of opportunity is constituted by Government Bodies, represented here by the National Brazilian Development Bank (BNDES). A partner of Totvs, it invested 40 million BRLs in the company in 2004, acquiring a 16% stake. In 2007 it made a new investment in Totvs, this time amounting to 400 million BRLs: “Of all investments made by the BNDES, this is one that makes the most sense”, according to Sergio Lazzarini, a professor at Insper whose research focuses on the government’s role in the economy. (Exame Melhores e Maiores, 2012). According to Totvs’ International Market Operations officer, “the BNDES intends to establish a partnership with Totvs along the lines of its successful partnership with Embraer”.

As mentioned above, this partnership could lever Totvs’ international business, as well as improve international perceptions of the Brazil brand in the IT industry.

The next section presents the results for the steps of the Global SNA methodology pertinent to the relational perspective.

### **STRATEGIC ALLIANCES AND TOTVS’ EGO-NET**

So as to facilitate the analysis of the strategic implications of alliances in Totvs’ internationalization process, the research mapped these alliances using the Global SNA Framework’s model (Macedo-Soares, 2011). Besides its other advantages, this model constitutes a useful tool for the visual identification of the strategically most significant ties and the importance of the focal firm within its global value net. With this view, it is possible to identify unexploited opportunities, revealing potential new strategies that the firm could exploit. It should be emphasized that to use this model the firm does not necessarily have to operate globally, merely needing to belong to an industry that is important in the global market.

The model uses different colors and forms to represent the constructs defined by Galaskiewicz and Zaheer (1999) and Gulati et al. (2000) for the following dimensions of the network: (a) structure – represented in terms of the number of ties/linkages (high or low) by density; (b) composition – represented in terms of the volume of resources and status, by the size and form of network members; (c) tie/linkage modality, represented by strength of connections (strong or weak) and by the nature of ties, represented by the thickness of connecting lines and the direction of arrows: collaborative, or opportunistic or exploitative. When their nature is collaborative, there are arrows at both extremes, and when opportunistic, or exploitative, the arrow points to the partner who is at a disadvantage. The model also indicates the intensity of the linkage by colors, using the full rainbow spectrum, where red indicates high intensity – merger/acquisition or joint venture and purple is used for lower intensity – agreements.

The replies to the structured questionnaires show that the main partners were suppliers, re-sellers and complementors. Customers and government entities were also cited, but as less important, as well as some of Totvs’ crucially important competitors such as Oracle and Microsoft, given that they have the databases with which Totvs software needs to interact.

The documental investigation and interviews also evidenced that Totvs has preferred the franchise model to expand its territory, both domestically and internationally, although for a certain period of time it used acquisitions to expand in the domestic market. (Revista Exame and Valor Econômico, 2006, 2008, 2009, 2010). For this reason its partnerships with resellers may be considered the strongest tie in terms of the international reach of the Totvs ego-net.

According to Totvs International Market Operations Director, during the process of establishing an international partnership, the firm follows a guiding principle to ensure that a channel may grow and intensify its ties with Totvs until becoming owner of a territory. Partners are chosen from companies which are already established and whose business complements Totvs’s, such as, for example, firms that sell and distribute

hardware, which usually aspire to becoming software vendors with their higher margins. Thus, this tie has a dynamic characteristic as it achieves greater density over time.

Another important characteristic of this alliance concerns its nature which the research classified as collaborative, given that Totvs makes initial financial investments to lever the beginning of these firms' operations. According to Totvs' International Market Operations officer:

“One of the main reasons a channel goes bust outside Brazil, is the problem it has financing itself during the first months or the first year. So we organize a mixed team to prepare it to manage the project, but give it part of the revenues to pay the rent and water and electricity bills. This is crucial for the birth and survival of the channel during the first year.”

As regards the factors that motivated the setting up of alliances, the most frequent replies in the structured questionnaires were closer commercial relations, cost sharing and the reduction of entry costs to new markets. The latter, if we consider the aspects of the international operation, was often mentioned in interviews as alliances with resellers – and possible future franchisees – permitting entry to a new territory without the cost of creating an own structure.

Another important alliance identified in the research concerns the intention to narrow ties with multinational clients in order to increase the company's reach (Exame Melhores e Maiores, 2012). This strategy was confirmed in an interview with the International Market and Operations officer who revealed that Totvs was creating the position of business facilitating agent - an international market salesperson - whose role would be to incentivize domestic salespersons to seek cross selling outside Brazil through customers who already had a significant presence in its international units. According to the International Market Operations officer:

“One of the 187 actions is the creation of the AVN, a business facilitating agent, who is an International Market seller. He keeps on pushing sellers who have account relationships in Brazil to do cross-selling outside Brazil. We have a study showing that 5% of our base in Brazil that has a unit abroad is a Totvs customer. There is a great opportunity to be exploited here.”

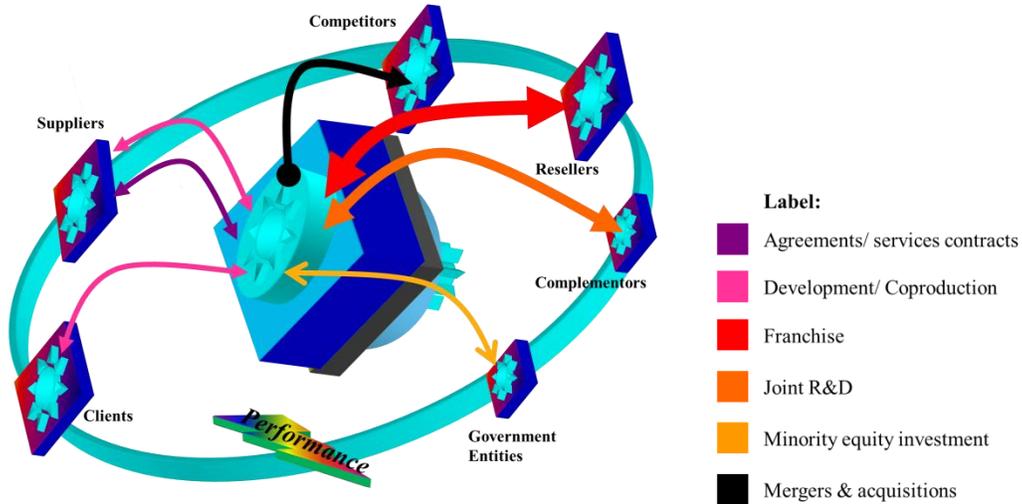
Another important alliance identified in the research was the one established between the Totvs' new R&D unit in Silicon Valley and two American universities – Stanford and San José State University. Although it is still classified as one of lower intensity/interdependency, its importance for Totvs' strategic objective of becoming a global benchmark justifies its mapping in Totvs' ego-net. According to Totvs' International Market Operations Director:

“An interesting thing is that we have Chinese, Thais, Russian, Indians, a pile of people working, to help us ... in this internationalization culture...it's a branch of our Brazilian technology team. There are 14 different nationalities. ...We hired Stanford to validate our roadmap, in other words, everything we think today and in the future in terms of technology and applications is presented twice year to a team of PhDs from Stanford and San Jose State and they validate our roadmap and bring the most modern news from the cutting edge to criticize ours.”

The links with competitors represented in the model refer to Totvs' acquisition of two competitors - RM and SIPRO - that enabled the company to gain entry to Portugal and Mexico, respectively (Revista Exame, 2006).

Based on the information collected in interviews and documents, the research mapped Totvs' ego-net, highlighting especially its international alliances, considering only the main types of alliances with each actor, as shown in Figure 1.

**Figure 1 – Totvs's ego-net, highlighting international alliances.**



Below we present the research’s results regarding the strategic implications – in terms of opportunities and threats - of Totvs’s international alliances that were analyzed after mapping the company’s ego-net.

**STRATEGIC IMPLICATIONS OF TOTVS’S INTERNATIONAL ALLIANCES**

Tables 1, 2 and 3 show the opportunities and threats constituted by Totvs’s international alliances at industry level, respectively, for each one of the three network dimensions contemplated in the research: structure, composition and tie modality.

**Table 1. Structure of Totvs’s alliance network.**

Dimension	Constructs	Results	Industry Level	
			Opportunities	Threats
Alliance Network Structure	Density	- <b>Average</b> with complementors - <b>High</b> with suppliers - <b>High</b> with resellers (franchisees).	- Increase presence in new countries - Access to technological information of global partners.	- Risk of sharing confidential information with complementors (Microsoft), ordinary customers and suppliers.
	Scope	- <b>Local</b> with resellers - <b>Restricted and Global</b> with suppliers and complementors.	- Facility of global expansion.	- Difficulty to expand geographically due to the greater density of regional competitors (Microsoft)
	Centrality in the network	- <b>Central</b> with resellers and suppliers - <b>Peripheral</b> with complementors	- High centrality provides bargaining power with resellers	- The peripheral position of complementors puts Totvs in a less favorable competitive position. - Risk of decline in performance due to weak arrangements with complementor partners

The research made evident that alliance networks with complementary partners are restricted and peripheral in relation to scope and centrality. Since its main complementor partners are those firms that make their databases available and provide consulting, Totvs needs to establish alliances with the main players to ensure that its software has solutions that are compatible with technological platforms of the greatest number of clients. However, these firms, such as Oracle and Microsoft are large global companies, and this is compounded by the fact that they also have ERP software that competes with Totvs’s products. Totvs is thus in a vulnerable position in these specific alliances.

Alliances with suppliers are more favorable to Totvs, given that despite being global players they do not compete with the company, thus facilitating its geographical expansion.

As seen above, alliances with resellers are the most important and generate more opportunities for Totvs. However, as the partners chosen are always small companies, there is a risk that international units will have a weak financial performance or even fail, as revealed in an interview with Totvs’ International Market Operations Director: “One of the most important reasons for a channel outside Brazil failing is the difficulty it has financing itself during its first months or the first year.”

**Table 2. Members of Totvs’s global alliance network**

Dimension	Constructs	Results	Industry Level	
			Opportunities	Threats
Composition of Global Network	Identity/ Status of Firm	- <b>Strong</b> and successful (6th. in world ranking).	- Easy to obtain partnerships in new geographical markets in the LA region.	
	Identity/ Status of partner	- <b>Rich</b> in distinctive resources; <b>global</b> complementors and suppliers and <b>local</b> resellers.	- Opportunity to access distinctive resources of partners with global experience.	- Resellers with a weak status and identity can be a complicating factor to face competition from stronger competitors. .
	Volume and ease of access to partners’ resources	- <b>Abundant</b> and <b>easy</b> with suppliers. - <b>Satisfactory and easy</b> with resellers and complementors..	- Opportunity to develop more enduring and innovative relations.	
	Complementarity of all partners’ resources	- <b>A High complementarity</b> with complementors and resellers.	- Positive exchanges for both sides of the partnership.	- Some alliances with complementors who are also competitors can lead to conflicts or breaches of confidentiality.

The analysis of the members of Totvs’s network made evident various opportunities, highlighting positive and bilateral exchanges. However, in the Latin American region, which nowadays is the main focus of Totvs’s strategy, there is an important rival – Microsoft – which has already conquered most of the territory, raising the question as to whether these alliances with small resellers will be able to face up to such strong competition.

**Table 3. Tie modalities of Totvs’s global alliance network.**

Dimension	Constructs	Results	Industry Level	
			Opportunities	Threats
Tie Modalities	Strength of connections	- <b>Strong</b> with resellers, complementors and suppliers.	- Opportunity for greater productivity of the industry	- Risk of losing access to a world class database
	Nature of ties	- <b>Collaborative</b> with resellers, complementors and suppliers.	- Opportunity for positive long-term actions which benefit not only partner firms but also the industry and external environment.	
		- <b>Explorative</b> with complementors and suppliers. - <b>Exploitative</b> with resellers	- Explorative partners explore new opportunities and create an environment that favors innovation.	- Exploitative partnerships can hinder or impede innovations.

From the analysis of the tie modalities of the ego-net, due to the strong and collaborative characteristics Totvs’s ego-net, we found opportunities for the expansion of productivity and innovation in the ERP software industry. An example of this is the recently created alliance with Silicon Valley universities, which act as complementors in Totvs’s network. As regards the nature of these ties, one should highlight the exploitative aspect identified in alliances with resellers, hindering the development of joint innovation.

The next section presents a broad outline of the latest results of Totvs’s performance, following the GLOBAL SNA methodology.

## TOTVS’S PERFORMANCE

In its 2012 annual report Totvs indicated that the company continues to consolidate its position as leader in Brazil and Latin America. Its net revenues totaled R\$1.437 million in 2012 (+12.4% in relation to 2011), with EBITDA of 26.7%, 260 basis points more than in 2011. Net revenues on international sales grew by 22.1% in 2012, increasing from R\$16.627 million to R\$20.306 million. During the same period, the firm’s EBITDA increased by 39.0%, reducing losses by R\$6.087 million. These gains in efficiency, despite the devaluation of the BRL in 2012, are the consequence of the initiatives taken during the year, based on the new plan for the internationalization of the Company’s operations, aimed at achieving an EBITDA equilibrium by the end of 2014. The company has a more significant presence in Latin America, with franchisees in Mexico, Argentina, Uruguay, Paraguay and Chile. It also has units in Portugal and Angola and products in Porto Rico, the Dominican Republic, Venezuela, Peru, Nicaragua, Guatemala and El Salvador.

Recently TOTVS was recognized by the consulting firm Interbrand as the 23rd most valuable brand in Brazil in 2012, appearing for the first time in its history among the 25 most valuable brands of the study.

## **DISCUSSION**

### **Assessing the Fit of Totvs's Industry-Level Internationalization Strategy**

Although it has been participating in the international market for 15 years, Totvs has made little progress where its internationalization process is concerned, especially in comparison with the company's impressive and consistent results in the domestic sphere.

In 2012, the company reviewed its international strategic positioning, establishing an international directorate and deploying various strategic actions, with some already showing positive results in 2012. The most important were: (a) closure of some of its own units (Mexico and Portugal), adopting a franchise model, and reformulating its cost structure; (b) changing the scope of offerings, focusing on vertical products with better growth potential and which are easier to adapt to local markets; (c) reformulating target markets, focusing more on the US market without neglecting Latin America, an obviously attractive market for a Brazilian software company. In terms of market segment, Totvs would continue to focus on SMEs in specific industries, which is compatible with its choice of target market, full of medium-sized firms with considerable software purchasing power.

Another important decision was to create the Silicon Valley unit, which has a team of designers, scientists and engineers from various countries such as Brazil, USA, China, Russia and India and whose aim is to study trends and develop innovative products focused on cloud computing, social media, big data and mobile. This unit will also have the important role of identifying and strengthening partnerships with local companies and start-ups that wish to expand globally, especially in Latin America. In fact, it has already begun forming important alliances with local universities that will orient Totvs's team of scientists in relation to technological trends.

These decisions and actions are compatible with the objectives defined by the company regarding its operations in the international market: achieve the break-even point in terms of EBITDA in 2014 and account for 3 to 5% of total revenues in 2016.

In sum, this research identified relational opportunities that were very important for the firm's strategic decision-making regarding internationalization. It was possible to show that Totvs has been trying to find the right path towards success in the international market and that its quest for alliances has formed one of the pillars of this undertaking, visible both in its use of collaborative partnerships with small local businessmen and the more sensitive alliances with global actors such as Oracle, Microsoft and IBM.

Thus the use of the relational perspective was crucial in this study, illustrating the importance of performing strategic analyses from both the traditional (i.e. non-relational) and relational perspectives, in a complementary fashion. Table 4 presents a comparison between the traditional analysis and the one that adopts a relational perspective.

**Table 4. Comparison between research’s results respectively from the traditional and the relational perspectives**

Traditional Analysis	Relational Analysis	Implication
<u>Real Threat</u> Size and bargaining power of the main ERP competitors.	<u>Potential Opportunity</u> Alliance with BNDES which could increase Totvs’s investment capacity.	<u>Potential Opportunity</u>
<u>Real Threat</u> Difficulty of adhering to the commercial and cultural rules of each country.	<u>Real Opportunity</u> Alliance with local companies and businessmen provides a competitive advantage as regards acculturation and identification.	<u>Real Opportunity</u>
<u>Potential Threat</u> Big global competitors with greater technological innovation capacity.	<u>Real Opportunity</u> Alliance with American universities.	<u>Real Opportunity</u>
<u>Real Threat</u> Global recession especially in Europe.	<u>Potential Opportunity</u> International expansion through the indications of multinational customers.. <u>Potential Opportunity</u> Establish alliances with large consulting firms to deploy Totvs’s solutions and expand territorially	<u>Potential Opportunity</u>

## CONCLUSIONS AND RECOMMENDATIONS

This article presented the results of a study that examined the strategic opportunities provided by Totvs’s alliances for its international expansion. Although the research concluded that the strategy is appropriate in terms of Totvs’s objectives in international markets, it is still possible to list some potential opportunities that could be exploited by the company.

More specifically, we should highlight the alliances with complementary firms such as the Big 5 (business consultants) or with some suppliers like IBM. These partnerships could produce positive results in Totvs’s geographical expansion, as these firms possess a broad and global network of clients.

Another important partnership would be with governmental bodies (for example with APEX), in order to publicize Brazil’s competence in the software industry, thus improving perceptions in potential markets.

Totvs has become aware of the potential opportunities achieved by forming strategic alliances. This awareness will be fundamental in preparing the company for its strategic intents.

Our study helped confirm a fact already evidenced in other studies of the technological sector (Macedo-Soares & Mendonça, 2010): namely that alliances create more opportunities than threats, on occasion even mitigating potential threats, especially non-relational ones, as shown in Table 4. By the same token, it fulfilled its objective of providing lessons for software firms through the analysis of Totvs’s strategic fit at industry level. Applying the Global SNA Framework to the case of Totvs demonstrated that the inclusion of the relational and global perspectives in the analysis of a firm’s strategy – which competes globally through alliances - enriches the analysis and consequently provides a more complete view on which to base strategic decision-making.

As to future research, we suggest carrying out a similar analysis in the case of other software firms in Brazil as well as in other emerging countries. As this industry is very dependent on innovation it would be

interesting to confirm whether global alliances reduce the threats related to the technological lag which is so common in less-developed countries.

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# INHIBITING FACTORS FOR KNOWLEDGE TRANSFER IN INFORMATION TECHNOLOGY PROJECTS

*Ramesh Babu Paramkusham and Jean Gordon*

## ABSTRACT

*Information technology (IT) projects have been known for the high failure rates caused due to multitude of factors ranging from project dynamics, project environment to flexibility and fluid building blocks of these projects (Keith & Demirkon, 2009; Pretorius & Steyn, 2005; Shwalbe, 2010). The work in this paper following a qualitative methodology, based on six IT projects implemented in the last five years in the USA, identified inhibiting factors that influence them negatively. The results indicate that the knowledge transfer initiatives could help the IT projects to improve the overall performance. The research also helps in synthesizing convergence solutions to IT projects in creating innovative methods to minimize project risks.*

**Keywords:** Information technology, IT project management, knowledge management and transfer, KM models, and frameworks.

## INTRODUCTION

Information technology (IT) projects are impaired with intricate and complex issues which range from organizational culture, project environment, to project team skills, project body of knowledge, available skill level, temporary or permanent membership of the projects, team cohesion, predominantly virtual environment, project goals and their dissemination to the project teams, political and organizational capabilities, and complexity (Aladwani, 2002; Daniels & LaMarsh, 2007; Drake & Byrd, 2006; Hartman & Ashrafi, 2002; Keith & Demirkon, 2009; Shwalbe, 2010). The risks associated with IT projects are discussed in contemporary literature, for example 50 IT investments (challenging projects and associated budget) were analyzed to apply risk management (Benaroch., Lichtenstein, & Robinson, 2006). Environmental factors (that relate to customer demand), lack of staff skills, and competing business drivers are key factors that can lead to project failures (Chen., Zhang., & Lai, 2009; Benaroch,

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2002). These factors have their component influencing the projects negatively, which cause to fail and/or lead to dismissal in the middle. Failure rates close to 70% have become common in IT projects (Daniels & LaMarsh, 2007). Knowledge transfer (KT) in IT projects depends on the extent of the knowledge culture and KT is related to the overall success of the project (Karlsen & Gotschalk, 2004). Project performance depends on the level of effort of KT (Landaeta, 2008). This work, following a qualitative case study methodology, derived patterns that impede the progress of the projects. This paper analyzed and identified the role of knowledge inhibitors with respect to IT project performance. These inhibiting factors, identified in this paper, enable IT project managers and future research in paying attention and in devising methods to mitigate project risks.

Software engineering testing analogy can be drawn for the research methodology used for this research. In software testing, functional testing assumes no internal logic of the system under test, while white box testing involves structural aspects of the software and requires the knowledge of internal (Singh & Rakesh, 2010; BCS-SIGIST, 2001). Following the black box method, defined as functional verification of a software system, however, is not possible to discover internal mechanism on how these projects were planned and executed (BCS-SIGIST, 2001). Adapting black box method for the research provides results without knowing the internal dynamics; where as following white box method the project's internals are probed, analyzed and researched to gain better understanding. It allows to addressing associated problems that challenge these projects.

The paper is organized into introduction, which is this section, literature review, research goals, methodology, results, summary and recommendations, and conclusions and potential for future research. Literature review prepares the ground for this research, while projecting the gaps in the existing research. Methodology section provides research method selected and its rationale. Research goals include details of what the research tried to achieve and how it was done. Results section explains what the findings were and their interpretations and how to use them. Summary and recommendations part of this paper incorporates brief details of findings along with the recommendations derived from the data, collected. Conclusions and future research potential, the last section of the paper, projects the research conclusions and the possibilities for further research on this topic.

## **LITERATURE REVIEW**

IT projects are found to poorly manage the associated risks. These risks include lack of skilled professionals, ambiguous business cases, poorly done requirements, and inadequate risk mitigation plans (Debbie, Timothy & Mark, 2007). IT projects suffer from multitude of problems due to measurable factors such as scope, time, quality, staff and money. These projects over the years have been found to fail and are still failing with lower success rates of only 29%, according to Standish Group CHAOS report published in 2004, along with other refereed references in IT project management literature (Debbie, Timothy & Mark, 2007; Hartmann, 2006). The trend of the failure rates is continuing despite the fact that there have been tremendous amount of advances in technology over the last decade. One observable phenomenon is that the IT projects are dealing with changing environment with dynamic business goals that are ever changing with increasingly difficult and competitive markets. Projects are going through challenges in the areas of overload, political motivations, and ambiguity (Haas, 2006). There are two major concerns in IT project environments, first, the building blocks are fluid, and the second there are multiple IT solutions for the same business need (Pretorius & Steyn, 2005). This flexible and fluid nature of IT projects lead to increased ambiguity, which is accentuated by organizational environmental factors, which influence the project performance negatively (Aladwani, 2002).

In knowledge management, the primary forms of knowledge transfer include two types of knowledge - tacit and explicit knowledge. While tacit knowledge resides internally in a person, explicit knowledge can be modeled and can be perceived through possible representations using modeling, expressions, and/or by other means (Cortada & Woods, 2000; Nickols, 2000). There are mechanisms, found in the literature, where tacit

knowledge takes the forms of explicit and explicit knowledge taking the form of tacit, through knowledge flow (Nonaka, 1994). Project based knowledge, comprising of technical design knowledge, organizational knowledge, and business value knowledge enables the projects to compete with desired business outcomes and the key factor is alignment of these three areas (Reich., Gemino & Sauer, 2012).

Knowledge management literature, to this point, have included topics on frameworks that are general and includes project sense making, process coordination, knowledge transfer between projects for project management knowledge, and some other papers on capability models (Burgess, 2005; Ermine & Boughzala & Toukara, 2006; Iyer & Shankarnarayan & Wyner, 2006; Jewels & Ford, 2006; Haas, 2006; Kalpic & Bernus, 2006; Kane & Pretorius & Steyn, 2005; Landaeta, 2008; Whelton & Ballard & Tommelein, 2002). This paper provides results based on project dynamics in projects that were planned and executed in commercial settings. Impeding factors for knowledge transfer, within IT projects, are specific to the industry related to IT projects and vary from country to country (Argote & Ingram, 2000). IT project performance has been discussed in the literature with perspectives from culture, diversity, technologies and approaches followed by the teams (Aladwani, 2002; Daniels & LaMarsh, 2007; Drake & Byrd, 2006; Hartman & Ashrafi, 2002; Keith & Demirkon, 2009; Shwalbe, 2010). There is a gap in the literature in this area, which this research tries to address through exploring inhibiting factors for KT in IT projects from a project dynamics perspective. The research in this paper takes another approach, from qualitative stand point, working through data captured from project managers and project leads on project specific conditions, environment, and causes for failure from KM perspective. Project performance relates to knowledge transfer (KT) via the level of KT effort, and body of knowledge in the project (Landaeta, 2008). In this paper inhibiting factors, causing the projects to fail, were identified. These factors were recognized with a reference to knowledge transfer and analyzed. The analysis leads to devising the methods and practices for knowledge management.

## RESEARCH GOAL

The research aimed at looking at the problem of identifying the inhibiting factors, directly, from the collected data on projects that were implemented in the last five years. These projects have the latest history of what went during the project planning, execution and delivery stages, dynamics of the project teams, availability of resources, project environment, organizational elements, and project specific knowledge. By drilling through the data, it was possible to gain an understanding of the project specifics including the environment. This has lead to discovering methods to mitigate and improve the project performance. Finally the research calls for marinating a continuum in knowledge transfer and project performance, which would be observed over a period of time.

## METHODOLOGY

The research methodology adopted for this research was qualitative method with a case study approach. The intent of the research was to analyze the data derived from the projects that were conducted in the five years and to consider these projects as objects that had to be looked at from the perspective of understanding, exploring, and discovering and not necessarily for deducing inferences. While quantitative methods adopt reductionist approach, which tends to churn the data and operate on data from deduction techniques, qualitative methods adopt inductive and integrative approach and tries to find “what”, “how” and “why” of the story. The research in a qualitative study focuses on aggregation of the data rather than reducing the data, to provide greater understanding within the context specific knowledge (Verschuren, 2003). The projects were implemented, which cannot be manipulated for their outcome. These have to be viewed as such, and understood. Since this research focuses on understanding of the project specifics, as they existed, during the project execution, the research topic dictates the methodology to be qualitative. Case study method within qualitative branch was selected to study the object in question (which were the projects in this research), which requires considering the study of an object as a whole and a holistic manner (Yin, 2003).

The patterns of inhibiting factors in IT projects were gathered through the case study using multiple case-method. Since single case method may not yield valuable information, albeit, used in the contemporary research, and may impact negatively, in that it lacks generalization (Baxter & Jack, 2008). This also ensures the qualitative research characteristics such as conformability, transferability, generalizability and dependability and provides the research credibility (Creswell, 2007). This research took the approach of multiple case studies, with six cases, to make sure that the data were consistent. The data provided rich qualitative information to derive meaningful and powerful conclusions to allow continuing this research further in the future. Six cases in this research constitute six IT projects that were conducted within USA and which were performed in the last five years. Thus, it was possible to work on qualitatively rich data that was current and as well as potent to yield such findings that these can formulate into best practices.

The research adapted purposeful sampling method, designed by the researcher, to select the projects. The selection criteria, in addition, included those projects, which were initially challenged for scope, time, quality, staff or money, although succeeded after provisioning additional resources, and these projects are defined as challenged projects. These projects were also selected based on the environment in which they were initiated, planned and executed. The environment specifics included items such as project’s organizational level, project methodologies followed, standards adopted, and a clear absence of knowledge management infrastructure. The projects data was collected from five different organizations and the organizations selected followed and shared similar organizational maturity and project management levels which were implemented in the USA within the last five years. The selection provided the research with a plain field for comparing themes derived from multiple IT projects. Case study method in qualitative research methodology provided a platform to gather data from project managers and project leads via face-to-face interview sessions. The challenging factors, relative to KM, were analyzed to explore inhibiting factors for knowledge transfer and prescribed KM practices that should be followed to alleviate the concerning issues.

The qualitative data from six IT project interviews were recorded, transcribed, and coded into themes and identified as KM practices. These patterns were listed in the Table. The transcribing process included de-natural, instead of natural. Natural transcription requires that the speech is translated exactly as spoken, while de-natural transcription allows to transcribe the essence of the speech and not necessarily the verbatim (Cameron, 2001; Schegloff, 1997). IT project data contained technical information and was specific to the projects. The essence of what was said is important, relative to capturing exactly what was spoken.

**Table. Causes of inhibiting factors in Knowledge Transfer (KT)**

<i>S.No</i>	<i>Project 1</i>	<i>Project 2</i>	<i>Project 3</i>	<i>Project 4</i>	<i>Project 5</i>	<i>Project 6</i>
1	Multiple project assignment. The project members were assigned to 1 – 3 projects in parallel.  The project team spent, at certain stage, 98% of the time on this project.	No one in the project was assigned to multiple projects.  40% people who were temporary members of the project.	The project team was assigned to 50% of their time for this project.	Team members assigned to multiple projects.  One person who worked on temporary basis and was assigned to this project for 50% of the time.	Project team members were assigned for 2 – 3 projects at the same items  There were people worked on temporary basis.	Project team members were assigned for four different projects at the same time including this project.  There were temporary members who were the clients of the projects deliverables.

INHIBITING FACTORS FOR KNOWLEDGE TRANSFER IN INFO TECH PROJECTS

2	<p>Technology Skills – average 3- 5 on (1-10 scale with 10 being most significant).</p> <p>Business and Systems Analysis skills were to be acquired and/or polished.</p>	<p>Technology Skills – average 9 (1-10 scale with 10 being most significant).</p> <p>Project had dependencies from other projects that were not necessarily captured due to lack of control on other projects.</p>	<p>Technology Skills – average 5 (1-10 scale with 10 being most significant).</p> <p>There was poor analysis done for the project and was essentially based their analysis empirically.</p>	<p>Technology Skills – average 6 (1-10 scale with 10 being most significant).</p> <p>There were issues on scope related concerns on ‘how’ of the tasks on the deliverables.</p>	<p>Technology Skills – average 9 (1-10 scale with 10 being most significant).</p> <p>Scope was changed to deliver, given the fixed time resulting in reduced deliverables.</p>	<p>Technology Skills – average 9 (1-10 scale with 10 being most significant).</p> <p>Detailed scope was not perceived and projected due to lack of analysis, although the team had technical expertise.</p>
3	<p>Virtual and time shifted environment.</p> <p>Lag time affected the project negatively on the project.</p>	<p>The team had heavy use of email communications followed by phone conversations.</p> <p>There were 10% offshore team members involved in this project.</p>	<p>There were two external team members who have dealt with the code involved for extending their help to the project.</p>	<p>The team interacted using predominantly virtual communications.</p>	<p>Teams interacted half and half for face-to-face and virtually, although virtual interactions dominated to the extent of 80%.</p>	<p>Team interactions were both face-to-face and virtual.</p>
4	<p>Interaction levels to the tune of 70% by the team</p>	<p>The interaction levels were found to be at 30%.</p> <p>There was some interaction among the project team, which resulted in informal knowledge sharing although informal in nature.</p>	<p>There was 20 – 25% (business group 70%) interaction level within the project teams.</p>	<p>There were interactions to the tune of 40%.</p>	<p>The team had to interact to about 30% of the time.</p>	<p>There were 60% of the interactions took place in the project teams.</p>
5	<p>Fluid deliverables. Scope changed 15 – 20 times.</p>	<p>Scope was reduced due to time constrains.</p> <p>Team spent several additional hours and beyond the normal working</p>	<p>Scope was changed with additional work added to the existing scope with no time extension.</p>	<p>Scope changed by 30% and changed five times.</p>	<p>There were no scope changes.</p>	<p>Deliverables had to be changed due to fluid and poorly understood requirements.</p>

		schedule.	Scope of the project, initially, was too big.			
6	Vendor team performed majority of deliverables and this was a vendor product based development project.		The project was a vendor product based development and was an upgrade of the system.			Vendor product based development and upgrades for this project.
7	Training and learning happened at insignificant levels and occurred informally.	On-shore team trained offshore folks in the technology area.  New team members joined the team. This led to time constraints, which impacted the scope of the project.	The project suffered from lack of knowledge.  There was some gap in the skills and some new skills had to be acquired and could have been better.  There were technical knowledge required and the vendor manuals were utilized as privileged by the team leads.	30% of the skills were to be learned for this project and happened informally.	Informal help received from the team members. The team was big and the project manager interacted with the team and found that there was drag on the resources within the project.  New people joined the team and existing people left the project at different stages of the project affecting the project deliverables.	Some training took place on the vendor product.

### Knowledge Inhibitor 1: Multiple Project Assignments

Project teams worked on multiple projects simultaneously with temporary members who were contracting. Teams were working beyond the regular hours and it was difficult for the teams to transfer knowledge on the tasks on which they performing. Teams focused on their deliverables with no other activity. Quality of the project output suffered resulting in an inferior product/service. No buffer time allocation

identified and/or the teams could not use the buffer time for any knowledge activities. Temporary members focused on specific tasks and could not do beyond that. Multiple project assignment is common in IT project environment and requires team members to organize their tasks and schedules. Team members require time and bandwidth for knowledge activities such as sharing, representing, structuring, and transferring knowledge. The projects have had some buffer time allocated, as part of the project planning, and this time was used in resolving ambiguities, conflicts, unidentified risks, and changes in the scope. These factors lead to chaos in the project dynamics, which impacts KT.

### **Knowledge Inhibitor 2: Distributed and Insufficient Expertise**

The project teams suffered from lack of analysis skills, which linked to both systems and business related expertise. Projects worked in a virtual environment working with teams from multiple countries. Expertise in project specific areas were all distributed over teams and individuals, with time and space dispersion, based on the function. While the scope at a high level was fine, detailed scope was challenging resulting in fluid and ambiguous deliverables. Inter project dependencies troubled the milestones while extending the timelines along with scope reduction and modifications. Teams required to be on a constant vigil and used their time to fixing scope problems. These scenarios inhibit the teams, due to lack of time and bandwidth, and make it harder to exchange knowledge. KT in these projects occurred at low levels with individuals learning bare essentials informally with no recourse to the knowledge activities. Different approaches and mental models of multiple global teams also add to inferior knowledge transfer and act as inhibiting factors (Karlsen & Gotschalk, 2004).

### **Knowledge Inhibitor 3: Virtual Environment**

Virtual environment dominated the project teams with the project teams interacting virtually for the majority of their time. Virtual settings required the teams to communicate asynchronously, for the most part, and the teams experienced delays and suffered from lack of understanding and clear goals. Teams relied on electronic communication and troubled by lack of ground rules, best practices, expectations, and clear understanding of project goals. These factors inhibit the project knowledge flow regardless of whether it is formal or informal.

### **Knowledge Inhibitor 4: Interaction Levels**

Team interactions were found to be in excess of 20% and some cases to the tune of 70%. These increased and extended interactions caused project environments to use the resources inappropriately with less accountability to both quality and output of the project deliverables. The resource drag had led to unproductive atmosphere. Interaction levels that were informal in nature experienced some knowledge transfer locally with few people benefiting and on a temporary basis. This has a devastating effect on project performance as well as on knowledge transfer.

### **Knowledge Inhibitor 5: Fluid Deliverables**

These projects were teams troubled with fluid deliverables due to lack of detailed scope analysis with poor skill level. Multiple scope changes in excess of 5 were experienced along with reduced scope. The team members did not understand the deliverables and compromised the scope due to time constraints and the analysis was not given necessary importance. This is a knowledge inhibitor with people spending time on

something that they are not good at. This means that there would be increased dependencies on the resources. For knowledge transfer to occur people should have time, however little it might be, and bandwidth. In one of the projects, it was found that information flow was privileged, which is also fairly common, as the projects may have to go through Sarbanes-Oxley (SA, 2007) or similar compliance guidelines for security and privacy reasons.

## **Knowledge Inhibitor 6: Vendor Product Development**

Three of the six projects were delivering projects that were directly developing applications on vendor products. Vendor based development warrants specific knowledge on the products and requires integration skills for applications to be developed. Vendor development within these projects was found to challenge the teams due to teams' inadequate skills that relied heavily on vendor experts. The teams did not have time to interact enough for knowledge transfer. This is inhibiting factor for knowledge transfer, as there was not enough time or bandwidth for the project teams to share knowledge, which was accentuated by multiple time zones.

## **Knowledge Inhibitor 7: Informal Training and Learning**

There were people leaving and joining the project in the middle of the projects and learning curve of the people affected the projects dearly. People from the teams had to train the new professionals, which were a drag on the resources. This inhibits the knowledge transfer in ways where people may suffer from lack of motivation and become hard-pressed for time and other resources. There were also experts in technology within the teams, although no apparent knowledge transfer could be found.

Training and learning activities were found to be minimal or poor and informal, although there were requirements from the teams for new skills for the projects. This is inhibiting in the sense that the project teams had no formal training or learning provision, although the teams were interested in the learning the required skills.

All of these projects were performed in predominantly virtual environments with the projects interacting teams were in different countries with time dispersed and space dispersed conditions. This commonly found team structuring generates a consensus that the teams require common ground rules, which were lacking in all these projects. Communication, interactions, and relationships, developing trust, and setting expectations, were found to be in jeopardy. There were teams within these projects, which could not interact adequately for transferring knowledge due to lag time, asynchronous communication methods, and delayed or shifted project deliverables. This causes hindrance to knowledge transfer.

## **SUMMARY AND RECOMMENDATIONS**

It was found that from the rich qualitative data that the projects were challenged for time, scope, quality and money. The research provided appropriate data that supported the significant presence of knowledge inhibitors. These have to be addressed through knowledge transfer mechanisms while minimizing or eliminating these hindering effects. Projects were found to have either low-level knowledge transfer and/or inadequate knowledge flow, although the projects required these and demanded optimized environment. The following are the recommendations.

- Allocate buffer time for KT within projects teams and account for it.
- Formalize KT through structuring knowledge and storing in knowledge base (KB).

## INHIBITING FACTORS FOR KNOWLEDGE TRANSFER IN INFO TECH PROJECTS

- Measure knowledge transfer using structured knowledge references.
- Adapt to fast search mechanisms and provision organization techniques and tools.
- Reward knowledge-contributors.
- Maintain a continuum of knowledge flow.

### **Managerial Implications and Policy**

These research findings can be mapped out to why and how practicing managers and leaders in information technology should use to make improvements in the project management as well as on regular job functions. Including these finding into the project management framework would help the projects teams and the organizations to leverage resources and add value in providing quality to the projects while managing the project risks. The following are the managerial implications that can be made into a policy within any program and project teams.

- Allow 20% of buffer time for the teams to work on tasks for formal knowledge transfer. This provides with reusable knowledge building for later projects.
- Devise a method for metrics on knowledge transfer.
- Follow through knowledge flow and provide impetus, when needed, to accelerate this flow to enhance knowledge transfer.
- Identify knowledge providers to knowledge seekers and leverage the resources. The roles of these may change and depends on the area of expertise.
- Reward knowledge contributors based on value addition to the business.

## **CONCLUSIONS AND FURTHER RESEARCH**

The main contribution of this paper is the exploration of the inhibiting factors for KT within IT project environment. The research concludes that IT projects, despite the tremendous strides in technologies, processes and methods adopted in organizations can benefit from KT initiatives. These factors challenge the quality of the product/services that the projects deliver. Structuring and formalizing knowledge to enable it for exchange is the key, although not all knowledge can become a candidate for interchange. This significantly drives the project performance towards quality deliverables with improved project environment. Formalizing KT provides knowledge assets to organizations and helps in value creation. The increased complexity of IT projects with predominantly virtualized and global environments require to identify, recognize and implement creative methods to provision solutions for IT projects via managing vender product knowledge management and learning management (Paramkusham, 2011).

The knowledge transfer should be viewed as a process and should be treated as such and made accountable, similar to any other process in the project development (Paramkusham2, 2011). The probability of improving the state of affairs in IT project management increases with the implementation of KM processes within risk management (Alhawari., Karadsheh., Nehari & Mansour, 2012). There is a large potential for further research on this topic. Environment specific to the industry and organization provides unique inhibiting factors, which can then be addressed through competent management methodologies. The research can be repeated with projects from a different population, such as India, to see if similar inhibiting factors could be found and how this compares. Further, the research can be extended to discovering KT motives within IT projects.

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# PROFILING NON-USERS OF E-GOVERNMENT SERVICES: IN QUEST OF E-GOVERNMENT PROMOTION STRATEGIES

*Mercy Mpinganjira and Phineas Mbango*

## ABSTRACT

*Developments in information technologies are providing great opportunities for organizations to diversify their service delivery channels. The success of these channels however largely depends on their acceptance by intended users. This paper aimed at profiling non-users of e-government services in an effort to explore factors that need addressing in trying to promote usage of the channel. Data used in the analysis was collected from 161 non-users of government services using a structured questionnaire. The results show that while lack of experience in using the internet may be a contributing factor to non-usage of e-services, the majority of non-users were experienced enough with the internet. The respondents were however found not to have very strong favorable attitude towards e-government services. The results showed no significant relationship between demographic factors and non-users attitude. The results provide useful insights for promoting use of the internet as a channel for accessing government services.*

Key words: *E-government, attitude, demographic factors, South Africa, Africa*

## INTRODUCTION

Wide appreciation exists of the opportunities to organizations created by developments in information technology, the internet in particular. Awa et al (2010), as well as Chau and Lai (2003) noted that the internet has compelled organizations in various business and service sectors to support their products or deliver their services online. While private organizations took a leading role in integrating the use of internet in their business processes, the public sector is making significant strides in the same direction. Benefits that accrue to private businesses as a result of embracing the internet include opportunities to lowering of costs associated with sourcing, distribution and promotion of products as well as communicating with customers; increased resource efficiency as a result of reduction in duplications and service time including reduced man hours due to automation of processes. While economic reasons commonly dominate reasons for adoption of e-services by private business organizations, adoption of e-government is often driven by both economic and social benefits (Gabberty, 2013, Zouain et al 2012). Some of these social benefits include the need to promote universal access to government services, increased transparency in government dealings and reduced corruption.

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## PROFILING NON-USERS OF E-GOVERNMENT SERVICES

Reports on e-government adoption in Africa show that while many African governments have embraced the new system of delivering government services, a lot of them are still in the early stages of e-government adoption (Asogwa, 2011). According to the United Nations (2012), there are five main successive stages of e-government revolution. These are, in order of sophistication, the emerging stage, the enhanced stage, the interactive stage, the transactional stage and the connected stage. They described the stages as follows:

*Emerging stage* – As the first stage in the evolution process, this stage is characterized by government's online presence comprising mainly of a web page and/or official website and provision of mostly statistics information.

*Enhanced stage* – This stage is characterized by provision of more information online by government on government policy and governance. Links to archived information are also put in place thus allowing citizens easy online access to such things as government forms and reports.

*Interactive stage* – Apart from the features associated with the emerging and enhanced stage, the interactive stage is further characterized by online government presence that allows for government officials to be contacted for example through e-mail. In the interactive stage, government contact details including email, fax, telephone numbers and physical address are provided online.

*Transactional Stage* – The stage is characterized by two-way online interaction between government officials and citizens. During this stage citizens are able to conduct all stages on a transaction online. For example, citizens may be able to apply and pay for identity documents, passports or birth certificates online.

*Connected Stage* - This is considered the most sophisticated stage in the e-government evolution process. Among other things, it is characterized by connections between government departments. In order for this to be possible, issues of interoperability have to be taken care of.

A quick review of e-government sites in Africa shows that most countries are still in the early stages of e-government development with most of them not providing transactional services. Despite this, the presence of official government websites often containing a wide range of information for almost all African countries bears testament to the fact that African governments have widely embraced the concept of e-government.

## RESEARCH PROBLEM AND OBJECTIVES

While African governments have clearly embraced the concept of e-government, one challenge that most of them face is how best to ensure universal access and increased use of the services to its citizens. While private businesses have the choice as to the type of customers to target their services to, governments are by mandate expected to serve each and every one of its citizens (Jaeger and Bertot, 2010; Stahl, 2005). The difficulty that comes with this mandate as far as provision of services through e-channels is concerned is that not everyone has the technological skills associated with use of such services. At the same time it is important to appreciate the fact that while lack of the technological skills is a hindrance to use of such services, possession of such skills is not a guarantee that one will make use of e-government services. A review of literature shows that attitude is particularly important in understanding use or non-use of new technologies (Aderonke (2010); Aggelidis and Chatzoglou (2009)). The argument put forward in this study is that while it is difficult to ensure that all citizens make use of government services provided through e-channels, it is in the interest of governments to ensure that as many people as possible are making use of available services. Efforts aimed at ensuring increased use of e-government services thus need to pay particular attention to current non-users of the services with the aim of understanding them better. A good understanding of this group of citizens can enable government come up with better programs targeted with the aim of growing number of citizens making use of e-government services. This study aims at contributing to this understanding by examining the demographic profiles of non-users of e-government services in Gauteng, South Africa. The specific objectives of the paper are to (a) examine demographic characteristics (age, gender, education, income status) associated

with non-use of e-government services (b) examine levels of experience with using the internet among non-users of e-government services (c) investigate the relationship between demographic characteristics of non-users of e-government services and their attitude of e-government services and (d) highlight the implications of the findings on efforts aimed at promoting use of e-government services among non-users of e-government services.

## LITERATURE REVIEW

In marketing, it is commonly agreed that the key to customer satisfaction is in understanding their needs and providing products that meet identified needs. In practice, it is however difficult to come up with products that appeal to all customers. It is for this reason that companies often divide customers into different groups before deciding on how to target them. This process of dividing up a market into smaller and distinct groups of customers with similar needs or other characteristics that make them respond in a similar way to marketing efforts is referred to as market segmentation (Mortimer et al 2012; Brooksbank, 1999). It is important to note that while private organizations often have a choice as to which group of customers to target, the public sector by its mandate is supposed to be at the service of every customer. In such cases market segmentation is not aimed at helping decide on which groups to target at the exclusion of others but rather to help better understand the needs and characteristics of different groups of customers so as to help develop programs that better target them.

The market segmentation process involves a number of steps one of which is deciding on the segmentation base to use in dividing up a market. While there are several factors that can be used to segment markets, demographic factors tend to be more commonly used than most other factors. Demographic segmentation involves dividing up a market based on such factors as age, gender, race, income and education. Some of the reasons why demographic factors are commonly used in segmenting markets are because demographic information tends to be readily available and also because people in different demographic groups tend to be associated with different factors that make them behave differently. It is thus not surprising that studies on e-service adoption often include demographic variables as important factors worthy examining in trying to understand why some people adopt or do not such services.

James et al (2009) noted that many studies report differences in attitude towards new technologies between people in different demographic groups. One important characteristic of attitudes is that they are relatively enduring which means that they persist over time unless something happens or is done to change them (Mpinganjira, 2013). It is important to note that attitude is commonly considered a factor of critical importance in behavioral studies. This is due to the fact that as a measure of degree of favor or disfavor a close relationship often exists between attitude and behavior. As noted in the objectives, this paper profiles non-users of e-government services. Gender, age, income and education are the specific demographic variables of interest.

*Gender* – In most African societies including South Africa, women account for a larger percentage of the population compared to men. Despite this, many studies especially those conducted in developing countries often report lower levels of usage of information technologies among women than men (Shambasivan et al 2010; Wahid, 2007). Psychological differences between men and women may explain the differences that often exist between them in terms of use of technology. He and Freeman (2010) as well as Koohang, (1987) observed differences in attitude towards technology between men and women. The hypothesis being put forward in this study is that:

H1: there are significant differences in attitude towards use of e-government services between male non-users and female non-users.

*Age* – Young people of today are undoubtedly growing up in a technological environment that is significantly different from that of their parents. In many areas students are being introduced to computers right from primary schools and in worst cases in high school. This was not the case for most people who studied

## PROFILING NON-USERS OF E-GOVERNMENT SERVICES

their primary and high school levels prior to mid 1990's. It is thus not surprising that many studies report high usage levels of internet among younger people than among older people (Naseri and Elliot, 2011; Kolodinsky et al 2004). One would thus expect high familiarity with internet in general among young people than older people. At the same time one would expect high levels of familiarity with internet to make one have favorable attitude towards adopting internet based services such as e-government. The following hypothesis will therefore be tested in the study:

H2: Younger non-users of e-government services have significantly higher levels of experience with using the internet than older non-users.

H3: Older non-users of e-government services have significantly more negative attitude towards e-government services than younger non-users.

*Level of education* - Most of the information and services available online are in English. For most people in Africa, English is not their first language. This means that for one to be able to use the internet they need not only to be able to read and write their first language but also have a good command of English. This often entails attaining higher levels of education. Nasri (2011) noted that people with higher levels of educational attainment are likely to also have an aptitude for computers. This may be due to growing use of internet in educational institutions as well as in offices of formal employment. Education is also important in that the knowledge gained is useful in producing the ability for one to be familiar with how the internet works as well as services made available using it. For this reason this study proposes that:

H4: There is a significant positive relationship between level of education and experience with use of internet among non-users of e-government services.

H5: There is a significant positive relationship between level of education and attitude towards use of e-government services among non-users of e-government services.

*Income* – A report by Zickuhr and Smith (2012) noted that income levels remain a strong predictor of internet use. A number of factors may explain this. First is the strong correlation that often exists between education levels and income levels. In most societies high levels of education is associated with high levels of income and since high levels of education is associated with increased use of internet, the same will be the case with income. A related factor is the issue of access to internet infrastructure. Many people in Africa access the internet at office. High costs associated with accessing internet at home is a likely contributing factor to less people accessing internet from home. At the same time it should be noted that it is not everyone who has the privileged of having a computer with internet access at the office. Such privileges are often not made available to low level employees in organizations. The hypothesis put forward in this regard are that:

H6: There is a significant positive relationship between level of income and attitude towards e-government services among non-users of the services.

H7: There is a significant positive relationship between level of income and one's experience with use of internet among non-users of e-government services.

## RESEARCH METHODOLOGY

This paper is based on part of a larger study on e-government. The focus of the paper is on non-users of e-government services provided over the internet by main stream government departments. Data used in the analysis was collected from a total of 161 respondents using a structured questionnaire. The study was conducted in Gauteng, South Africa. Gauteng was considered ideal location mainly because of its cosmopolitan nature. As the main economic hub of South Africa, Gauteng attracts people from all areas of South Africa. The views of the sample drawn from this area can thus also be seen in a way as views that

represent what is happening not only in Gauteng in terms of e-government services but also in the different areas where the different people come from.

Research assistants were used in collecting data using the structured questionnaire. The assistants were first trained on issues relating to data collection including how to approach respondents and ethics in data collection. The training was also aimed at helping them familiarize themselves with the contents of the questionnaire. Non-probability sampling in the form of quota sampling was used to guide in selecting respondents. The aim was to get respondents from different groups based on such demographic factors as gender and race. Respondents to the questionnaire were approached at different locations including offices and shopping malls.

Constructs of interest in this analysis include age, gender, level of education, level of income, level of experience using the internet and attitude towards e-government. Age, level of education level of income as well as level of experience using the internet were all measured as categorical variables that are ordinal in nature. These variables were treated as ordinal scales. Gender was measured as a nominal scale as respondents had to indicate by ticking either male or female. Attitude towards e-government was measured as a construct made up of five items. A five point Likert scale with 1 = strongly disagree, 2 = disagree, 3 = neither agree/nor disagree, 4 = agree and 5 = strongly agree was used to measure each item. Cronbach's alpha was used to test the reliability of the attitude towards e-government services construct. The results showed an alpha coefficient of over .8 which means that the scale was highly reliable. Statistical Package for Social Science (SPSS) version 21 was used to analyze all data collected using the questionnaire.

## **RESULTS AND DISCUSSION**

Presented in table 1 are background characteristics of the respondents in the study. According to the statistics the respondents were relatively evenly spread on gender with 85 of the respondents being male while 76 were female. Percentage wise this represents 52.8 male and 47.2 percent female. Just over half of the respondents (54 percent) were less than 30 years of age while a total of 11.2 percent were 50 years and above. Those between the ages of 30 and 39 years old were 18.6 percent of the sample whereas 16.2 percent of the sample was between the ages of 40 and 49. It can thus be said that in terms of age the sample was largely younger in age with those below the age of 40 making up a total of 72.6 percent.

Educational level statistics show that the majority of respondents can be considered to be moderately educated. Only 2 respondents representing 1.2 percent of the sample can be considered of low level education. These 2 indicated primary school as the highest level of education achieved. On the higher end, only 35 respondents had a bachelor's degree and above. These presented a total of 21.8 percent of the respondents. 80 respondents representing just below half (49.7 percent) of the sample had high school as their highest level of education. This group was in terms of size followed by a total of 44 respondents (27.3 percent) who had a diploma as the highest qualification. Those with high school and diploma as the highest qualification together consisted of 77 percent of the sample.

When it came to income level measured as gross monthly income, the statistics in table 1 show that a total of 73 respondents which represents 45.3 percent of the sample were in the low income group as their gross monthly income level was no more than R 5,000 per month. A total of 48.4 percent were in the middle income group earning gross monthly incomes of between R 5, 001 and R 20,000. Only 3 respondents representing 6.3 percent of the respondents were high income earners earning more than R 20,000 per month. Thus the sample consisted of mostly low and medium income earners.

**Table 1: Non-users background characteristics - Descriptive statistics**

	Frequency	Percentage
<b>Gender</b>		
Male	85	52.8
Female	76	47.2
<b>Age</b>		
Less than 30 years	87	54.0
30 to 39 years	30	18.6
40 to 49 years	26	16.2
50 to 59 years	13	8.1
60 + years	5	3.1
<b>Highest level of education</b>		
Primary School	2	1.2
High School	80	49.7
Diploma	44	27.3
Bachelors degree	32	19.9
Masters and Doctorates	3	1.9
<b>Income level (gross monthly income)</b>		
R5,000 or less	73	45.4
R5,001–R10,000	35	21.7
R10,001–R20,000	43	26.7
R20,001–R30,000	7	4.3
Over R30,000	3	1.9
<b>Level of experience using the internet</b>		
None	9	5.6
Beginner	33	20.5
Intermediate	80	49.7
Advanced	39	24.2

Also presented in table 1, as part of the background characteristics of the sample, is the respondents' perceived level of experience with using the internet. Respondents were in this case asked to indicate their level of experience with the internet by marking any of the four options given namely none, beginner, intermediate or advanced. The findings show that only 9 respondents representing 5.6 percent of the sample had no experience with the internet. This means that over 90 percent of the non-users of e-government services had some experience with the internet. The results actually show that 73.9 percent of the respondents considered their experience with the internet to be either intermediate or advanced. This shows that the majority of the respondents had the skills necessary for them to make use of online government services.

**Table 2: Attitude towards e-government – descriptive statistics**

Variables	Mean	Std. Dev.
- Using internet to accesses government services is a good idea	3.83	1.10
- I like the idea of using e-government services provided through the internet	3.83	1.12
- Using e-government services provided through the internet is a pleasant idea	3.77	1.09
- Using e-government services provided through the internet is an appealing idea	3.74	1.15
- Using e-government services provided through the internet is an exciting idea	3.77	1.19
Overall attitude towards e-government services	3.79	1.02

Table 2 presents findings on attitude towards provision of government services using the internet channel. One important characteristic of attitude is that one can measure its strength. Strength refers to one's level of favorability or unfavorability towards an attitude object. Since a five point scale, ranging from strongly disagree to strongly agree was used to measure attitude in this study, mean values were accordingly interpreted as follows: values of less than 1.5 = strong levels of disagreeing; 2 or to the nearest of 2 = disagreeing; 3 or to the nearest of 3 = neutral (neither agree nor disagree); 4 or to the nearest of 4 = agree while 5 or to the nearest of 5 denotes = strong levels of agreement. According to the results in table 1, the mean values for the five items

used to measure attitude towards e-government were between 3.74 and 3.83. The overall mean value was at 3.79. Although the values do not indicate very high levels of favorability towards e-government services they nevertheless show that in general non-users of e-government services have a favorable view on provision of government services using the internet.

Spearman’s rank correlation was used to test above hypotheses 2 to 7. The results according to table 3 show an inverse relationship between age and level of experience with using the internet (correlation coefficient =  $-.176$ ). The results further show that correlation was statistically significant at 0.05 level of significance. Thus according to the results hypothesis 2 which states that younger non-users of e-government services have significantly higher levels of experience with using the internet than older non-users is hereby accepted. The results in table 3 also show an inverse relationship between age and attitude towards e-government services (correlation coefficient =  $-.142$ ). This means that positive attitude towards e-government was associated more with younger people than with older people. However the correlation coefficient was not statistically significant. Thus hypothesis 3 stating that older non-users of e-government services have significantly more negative attitude towards e-government than younger non-users is not accepted.

In terms of correlation between level of education and experience with use of internet, the results show a positive but statistically insignificant relationship between the two variables (correlation coefficient =  $.009$ ;  $p > .05$ ). Hypothesis 4 which states that there is a significant positive relationship between level of education and experience with use of internet among non-users of e-government services is hereby not accepted. The results also show a positive but statistically insignificant relationship between level of education and attitude towards use of e-government services (correlation coefficient =  $.090$ ;  $p > .05$ ). Hypothesis 5 stating that there is a significant positive relationship between level of education and attitude towards use of e-government services among non-users of e-government services is thus also not accepted.

**Table 3: Correlation Analysis**

		<b>Attitude towards e-government</b>	<b>Level of experience with internet</b>
Age	Correlation coefficient	-.142	-.176*
	Sig (2-tailed)	.073	.026
	N	161	161
Level of education	Correlation coefficient	.009	.090
	Sig (2-tailed)	.913	.254
	N	161	161
Level of income	Correlation coefficient	.057	.204**
	Sig (2-tailed)	.470	.010
	N	161	161

Table 3 also presents results of the correlation analysis between level of income and attitude towards e-government services as well as experience with use of internet. The results show a positive but statistically insignificant relationship between level of income and attitude towards e-government services (correlation coefficient  $.057$ ;  $p > .05$ ). Hypothesis 6 which states that there is a significant relationship between level of income and attitude towards e-government services among non-users of the services is thus hereby not accepted. The results however show a statistically significant relationship between level of income and experience with use of internet at 0.01 level of significance. Hypothesis 7 stating that there is a significant positive relationship between level of income and experience with use of internet among non-users of e-government services is thus accepted.

**Table 4: Differences in attitude towards e-government - Independent Sample t-Test**

Gender	Descriptive		t-Test for equality of Means			
	Mean	Std. Deviation	t	Sig. (2-tailed)	95% confidence interval of the Mean	
					Lower	Upper
Male	3.91	1.02	1.64	0.103	-0.054	0.58
Female	3.65	1.01				

With gender being a categorical variable testing for differences in attitude towards e-government between male and female respondents was done using independent sample t test. The results as presented in table 4 show that although male non-users had more positive attitude towards e-government services (mean = 3.91) compared to female non-users (mean = 3.65) the differences were not statistically significant. Thus according to the results hypothesis 1 stating that there are significant differences in attitude towards use of e-government services between male non-users and female non-users is hereby not accepted.

## MANAGERIAL IMPLICATIONS

As more and more governments in Africa adopt use of internet as a delivery channel for public services, it is important that they put in place measures aimed at encouraging more citizens to make use of available services. In trying to do so, government needs to take a number of factors into consideration. Firstly, it is important that efforts to encourage e-government use take into consideration differences that are there in citizen groups and, the different factors that may be at play in influencing acceptance of e-government services. Citizens background characteristics can make them respond differently to e-government initiatives. The use of internet to deliver government services has its origins in developed countries. The background characteristics of citizens in such countries are often very much different from what one finds in developing African countries. African countries, unlike developed countries, are widely associated with large segments of low income and less educated people. Many of such citizens do not have access to personal computers or sophisticated cell-phones that can enable them access internet. It is thus important for government to look at ways of ways of promoting access to the internet. Such efforts need to include provision of public access points where citizens can access internet services free of charge.

Apart from looking at provision of access points, government needs to also focus on development of skills needed to access e-government services. From the findings in this study it is clear that while internet technology has become the norm for some people, there are still other people who lack the skills needed to make use of it or who may not be skilled enough to effectively make use of e-government services. The results in this study show that just over a quarter of the non-users fall within this group. One way of addressing this problem is to ensure that skills development opportunities are made available to citizens. Government can do this by providing community based training programs. Some African governments including South Africa have embarked on programs aimed at ensuring provision of ICT related infrastructure in schools and making the study ICT part of the curriculum. The South African government is also implementing projects aimed at ensuring that public libraries as well as community centres have internet facilities need to be commended. Such efforts are commendable and government needs to ensure that they receive adequate support as they have the potential to significantly impact on skills related problems that affect use of e-services.

Another matter that government needs to consider especially in designing its e-services is the issue of 'ease of use'. While related to the issue of skills, ease of use is concerned more with the level of complexity associated with making use of e-services. Studies in Human Computer Interaction highlight the need to 'know thy user' in designing the human computer interface. Some of the issues that need to be taken into consideration in order to ensure delivery of user friendly e-government include the cognitive abilities of targeted users. E-services need to be made available in a way that most citizens are able to read and comprehend what is going on. Use of simple language is important in this regard.

Lastly, those tasked with promoting use of e-government needs to realize that non-use of e-government services is not necessarily due to negative attitude towards the services. The results also show that demographic background factors are poor predictors of attitude towards e-government services. Citizens, irrespective of gender, age, income and level of education generally find the idea of using internet to provide government services to be likeable. The fact that the citizens' positive attitudes were not very strong is however a matter that government needs to look at. The focus should be finding possible factors that may be contributing to this. Some of the factors that may need to be looked at are matters relating to perceived risk and trust associated with use of e-government. The internet in general is associated with high levels of security risk to people's privacy. Stories abound of hackers getting into systems of reputable organizations. Governments

need to pay attention to this matter and ensure that their systems are as secure as they can be. It also needs to find ways of building citizens' trust in their systems. Attitude behavior inconsistencies may also be due to lack of awareness on the part of citizens of services that can be accessed online. Intensification of awareness campaigns will help deal with this potential problem.

## CONCLUSION

This study aimed at profiling current non-users of e-government services in order to explore possible factors that make them not take up use of e-government services. From the findings a number of conclusions can be drawn with respect to level of non-users' experience with the internet as well as the relationship between demographic background characteristics of non-users and their attitude towards e-government services. In terms of level of experience with the internet, the study shows that the majority of respondents had medium to high levels of experience with using the internet. As internet skills are a prerequisite for anyone to make use of e-government services, it can be concluded that lack of experience with the internet may not be used to explain non-usage of e-government services among the majority of respondents. For people with good internet skills, other factors may be contributing to non-use and these need to be explored. Special efforts also need to be made in provision of skills development opportunities to those who may be lacking. As the study showed significant relationship between level of experience and age as well as income levels, special measures need to be put in place to make sure that training opportunities can be taken up by people lacking the skills including older people as well as those from low income backgrounds.

From the findings it can also be concluded that while attitude is often considered a factor of great importance in trying to understand behavior, other factors at play may result in positive attitude not translating into uptakes of e-government services. Furthermore, the findings did not show statistically significant relationship between attitude and background characteristics of age, level of education and level of income nor did they show significant differences in attitude between male and female respondents. It can thus be concluded that amongst the non-users of e-government services, demographic factors are not good predictors of strength of attitude towards e-government. Public officials aiming to promote use of e-government services need to understand differences in non-user attitude by exploring other possible factors that may explain attitude including issues relating to perceived risk associated with the channel as well as levels of awareness of available services. There is thus need for future research in this area to pay attention to efforts aimed at identifying other factors apart from attitude that influences uptake of e-government services. There is also need for studies aimed at identifying factors that influence attitude towards e-government services. Such studies can be helpful in coming up with better efforts aimed at enhancing citizens' positive attitude towards e-government services.

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# DOES POLITICAL RISK AFFECT THE FLOW OF FOREIGN DIRECT INVESTMENT INTO THE MIDDLE EAST NORTH AFRICAN REGION?

*Ritab Al-Khouri and M. Umaima Abdul Khalik*

## ABSTRACT

*Given the political risk in the Middle East North African (MENA) region, this research aimed to unveil the importance of the different components of political risk on the change in foreign direct investment (FDI), controlling for other types of risks and macroeconomic factors. Furthermore, we look at whether there are differences in the factors that affect FDI between rich and poor countries in the region. Fixed effect and random effect dynamic models are applied on a sample of 16 MENA countries over the period 1984 - 2011. Taking all countries together, we find, as hypothesized, that agglomeration, market size, and political risk are significant and positively related to FDI. Additionally, among the 12 political risk components, the level of corruption and the level of external conflict have close association with FDI flows. FDI motives, however, vary greatly between rich countries and the non-rich countries in the MENA region.*

Key words: Foreign Direct Investment, fixed and random effect models, political risk, MENA

## INTRODUCTION

Trade and investment has become an important path to foreign markets. As business becomes more global, and the level of competition between firms increases, managers in multinational firms face strategic decisions which are more complex in nature than those decisions taken by national firms. Managers in multinational firms find it compelling to study the different political risks indicators that could face them in the countries they decide to make business in. Lately, managers in multinational firms encountered a change in the political environment, and hence, a change in the conditions for doing business in the MENA region. Foreign investors in the MENA region face many kinds of political risks due partly to the lack of stability in the political risk indicators as, among others, corruption, military in politics, and ethnic tension.

Butler & Joaquin (1998) defined political risk as the risk that host countries' governments might unexpectedly alter the institutional environment within which enterprises operate. Many researchers suggest that political risk has a negative effect on the MNE's decisions to invest in a foreign country. The reason behind that lies on the negative effect that political risk and institutional instability have on the firm cost of making business in a foreign country. A MNE can hedge against political risk in different ways through insurances and through prior negotiations with governments. Although MNE can reduce their political risk still we believe that this risk might hinder the flow of FDI to the country.

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Literature on FDI determinants in the last two decades have shown that in addition to stable macroeconomic policies, political stability, and institutional quality are crucial in attracting FDI. However, previous empirical research did not reach to a consensus about the effect of political risk on FDI flow (Grosse & Trevino, 1996; Kobrin, 1979; Tallman, 1988). Evidence shows that political instability and the level of corruption significantly affects FDI flows in the MENA region (see, Kamaly (2002), Eid and Paua (2002), Rivlin (2001), and Richards and Waterbury (1996) Batra, et al (2000), Onyeiwu (2004)). While Wheeler and Mody (1992), find political risk to be insignificant in determining the production location decision of U.S. firms. In addition, Steiner (2010) investigated the relationship between FDI flows and political stability in MENA countries especially Egypt, was unable to find a clear relationship between FDI and political instability.

In addition, some researchers found political risk indicators including internal armed conflict, political strikes, riots, terrorism, and external conflicts to prevent the flow of FDI (see Nigh, 1985; Tuman and Emmet, 1999; and Schneider and Frey, 1985). A negative effect of terrorism on FDI inflows, for example, seems to be more damaging in low-income and less developed nations (Gaibullov & Sandler, 2009; Lee, 2011; Skaperdas, 2011). This result was supported by Khan, et.al. (2013) who found a negative effect of most of the political risk indicators on FDI for the world as a whole; however, they found that the relationship was the strongest for the upper middle-income countries.

On the other hand, Busse and Hefeker (2005), was unable to find a significant effect of internal and external conflicts on FDI into developing economies.

Furthermore, institutional quality which is considered as part of political risk indicators found to significantly reduces the FDI inflows. Researchers find that corruption negatively affect FDI since it adds significantly to firm costs (Wei, 2000, and Asiedu, 2006). On the other hand, Kolstad and Villanger (2004) find that corruption increases FDI inflows, while Wheeler and Mody (1992) find no significant relationship between corruption and quality of the legal system on U.S. FDI. In addition, researchers find that regulatory framework, bureaucratic hurdles and red tape, judicial transparency, and the extent of corruption in the host country are insignificant (see Wheeler and Mody (1992)).

The differences in results in the literature related to the effect of political risk indicators and institutional quality could be related to the use of different types of data, different methodologies, different measures of institutional quality, the application on developed vs. emerging countries, and the application on rich vs. poor countries.

The aim of this research is, therefore, to examine the political risk indicators and to identify the relative importance of these indicators for FDI inflows, controlling for other relevant determinants of observed changes in FDI flows. In particular, given the importance of FDI, the aim of this study is threefold. First; given the political instability in the region this research will unveil the importance of the different indicators of political risk on the change in FDI. These indicators are; the effects of government stability, socio-economic conditions, investment profile, internal and external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and the quality of bureaucracy. Second, in addition to political risk indicators, this study controls for the relationship between FDI and other types of risks, which are associated with the macroeconomic environment in the MENA region, including the financial and the economic risks, financial liberalization, and openness to try to understand the controversy over these relationships documented in the literature. Finally, the study looks at whether there are differences between the factors that affect rich and poor resource countries in the region in attracting FDI.

To reach to our goals, we apply two methodologies, the fixed effect (FE) and the random effect (RE) dynamic models on a sample of sixteen MENA countries over the period 1984 to 2011. The results of this study will unveil the instrumental factors that help promoting FDI in the region. It points what and where measures may need to be employed by countries to enhance business environment, which is favorable to foreign investors, especially those seeking FDI.

This research is structured as follows. Section two sets out and discusses our variables. Section three describes the data and the econometric methods employed. Section four contains the regression results and the last section concludes.

## **FOREIGN DIRECT INVESTMENT DETERMINANTS**

According to the International Monetary Fund (IMF, 2003), determinants of investment locations differ among countries and across the economic sectors. They concur, however, that certain general factors consistently determine which countries attract the most FDI. This paper identifies the following indicators that affect the capital flows to the MENA region.

### **Political Risk (PR)**

It refers to the probability that a sovereign state will be unwilling or unable to guarantee an environment which is favorable to investors, either because of policies pursued by the state or policies which are outside its control (like social unrest, and instability). It could affect economic uncertainty, safety of invested capital and economic prospects of the host economy. Often political risk refers to the quality of institutional environment. Political instability ranges from political restrictions to the probability of revolutions and violent uprising of the population. Inefficient institutions and high political risk can adversely affect operating costs. Therefore, multinational firms usually require a higher return to undertake FDI in countries with high political risk (Butler and Joaquin 1998).

This study expects a negative relationship between political risk and foreign direct investment. We will use political risk index, where higher values indicate less risk associated with specific country. Information on political risk and institutions are taken from the International Country Risk Guide (ICRG), provided by the Political Risk Services (PRS) Group. Risk ratings range from a high of 100 (least risk) to a low of 0 (highest risk), though ratings generally range in the 30s and 40s. Note that when considering political risk scores, a higher political risk score is “better” (i.e. would be associated with lower levels of political risk).

In addition to the aggregate level of political risk, the following components of political risk, as defined in ICRG are considered separately:

Government stability, (GOS), which measures the ability of the government to carry out its policies and to stay in office.

Socio Economic Pressure (SOCIO) that might restrain government action or promote social unrest due to dissatisfaction and thus destabilize the political regime.

Investment profile (INVP), relates to any investment risks, which are not covered by financial and economic risk components, like expropriation and risk of profits repatriation.

Internal conflict (INCON) relates to political violence within the country and its impact on governance, like the risk of civil war, terrorism, political violence or civil disorder.

External conflict (EXCON) relates to risk to the existing government from foreign action, like non-violent external pressure, such as diplomatic pressures, withholding aid or trade sanctions, to violent external pressures, ranging from cross-border conflicts to war.

Corruption (CORR) measures the level of corruption.

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Military influence (MLTINF) represents the influence of the military in politics, which could lead to an unfavorable environment for foreign businesses.

Religious Tensions (RELT) stemming from the domination of society and/or governance by a single religious group seeking, for instance, to replace civil by religious law or to exclude other religions from the political and social process.

Law and order (LAWO) measures the strength, independence and fairness of the legal system.

Ethnic Tension (ETT) relates to the degree of tensions among different ethnic groups related to racial, nationality or language divisions.

Democratic accountability (DEMO) measures how responsive the government to its citizens, fundamental civil liberties and political rights.

Bureaucracy (BUR) reflects the institutional strength and quality of the bureaucracy.

H1: An increase in the political risk of host country environment will result in a negative impact on foreign direct investment. A positive coefficient will show a negative relationship between political risk and foreign direct investment.

## Economic risk (ER)

It is related to changes concerning market, competitive, and technological factors that reduces a firm's effectiveness and expected profit. Previous research shows that the macroeconomic environment affects the level of a country's productivity. Therefore, risk adverse investors would require higher return the higher the riskiness of their investment associated with high volatility of return. According to Iqbal (2001), Countries in the MENA region was struggling to maintain macroeconomic stability.

The ICRG assesses risk points for each of the component factors of GDP per head of population, real annual GDP growth, annual inflation rate, budget balance as a percentage of GDP, and current account balance as a percentage of GDP. Risk ratings range from a high of 50 (least risk) to a low of 0 (highest risk), though lowest ratings are generally near 15.

H2: High economic risk in a host country will have a negative impact on FDI.

## Financial Risk (FR)

It refers to the risk of the inability of the country to repay its foreign liabilities. Countries with high financial risk are more likely to face financial crisis, since FDI cannot be easily liquidated when financial situation of the host country deteriorates. Therefore, multinational firms might be very sensitive to financial risk. As the amount of foreign debt grows the ability to pay debt obligations by the host country decreases, and consequently financial risk increases. As a result multinationals find countries with too much foreign debt to be less attractive for investments.

In addition, the instability in the country exchange rate may reduce the FDI since it would increase the level of uncertainty of the multinational firm. A high inflation rate may also affect foreign investment through its effect on future return and the level of competition by foreign firms. Risk rating from ICRG is used to test our hypothesis, which ranges from a high of 50 (least risk) to a low of 0 (highest risk).

H3: High financial risk will have a negative impact on FDI

## **Macroeconomic performance and the size of the economy (Size)**

This paper uses the change in GDP per capital growth to proxy for the growth of the economy. A higher economic growth captures the change in demand for goods and services, and indicates rising productivity and profitability. This represents the market size hypothesis (eg. Hubert et al (2004) Abdul-Mottaleb (2007); Jana (2008)).

H4: The higher the growth in real GDP per capita, and the GDP per capita the higher the FDI.

## **The previous period FDI to GDP (a pull factor for new FDI) (lagFDI)**

The higher the previous period's FDI, the higher the prospective FDI. Hisarciklilar et al. (2006) study the determinants of FDI into the MENA region shows a positive feedback effect of FDI (agglomeration). Foreign investors may be attracted to a host country that has large existing FDI stocks. It may be viewed as a signal for good investment environment. Thus, we use the lag in FDI stocks as a percentage of GDP in the host country as a proxy for agglomeration effects (AGGLO).

1. The act or process of gathering into a mass.
2. A confused or jumbled mass

H5: Countries that attracted FDI in the past is more likely to attract additional FDI

## **Trade openness (TO)**

The openness of the economy, or the degree of liberalization of trade of the host country, is also regarded as a very crucial for foreign investors' decisions to allocate their capital. A positive relationship between FDI and openness is well established in the literature (see Asiedu, 2002; Morisset, 2000). In a host economy, the absence of an environment characterized by an open trade and investment regime and macroeconomic stability, FDI may impede rather than promote growth by enhancing the private rate of return to investment for foreign firms while exerting little impact on social rates of return in the recipient economy (Balasubramanyam et al. (1996)). The degree of trade openness is measured by the home country's trade (i.e. the sum of exports and imports) as a proportion of its GDP.

H6: Trade openness is expected to be positively associated with FDI.

## **Inflation volatility (IV)**

Inflation is used to proxy for macroeconomic stability. It reveals the shocks suffered by the economy over the study period and, consequently, could affect FDI. A high and/or variable rate of inflation signals an internal economic uncertainty and of the host government's inability to maintain reliable monetary policy. It also may increase costs, and reduce the ability for multinationals to compete in the international markets (Grosse & Treviño, 2005). Therefore, inflation is an important source of uncertainty for foreign investors (see Rogoff and Reinhart, 2003) and is expected to have a negative effect on FDI. Addison and Heshmati (2003), on their study of the FDI into 182 countries, find a weak impact of inflation variance in the pooled model,

while it exhibits a negative effect on FDI for Europe, Central Asia and for MENA countries. Economic stability is controlled for by the volatility in inflation rate in the host countries.

H7: We would expect a negative relationship between inflation volatility and FDI.

## DATA AND METHODOLOGY

The study uses a sample comprises annual panel data from 1984 to 2011 for 16 Middle East and North African Countries: 11 Middle Eastern countries and 6 North African countries. Our sample include GCC countries (Kingdom of Saudi Arabia; United Arab Emirates; Oman; Bahrain; Qatar; Kuwait), other middle eastern countries (Jordan; Syria; Turkey; Lebanon; Yemen), and North African countries (Egypt; Morocco; Tunisia; Libya; and Algeria). Capital flow data (i.e. FDI and FPI) is drawn from the IMF's International Financial Statistics database and the World Bank's World Development Indicators. FDI refers to net inflows—that is, gross inflows minus repatriation. Capital inflows are characterized as FDI if the investor acquires a lasting management interest (10 percent or more of the voting stock) in the foreign enterprise. The dependent variables are the ratio of FDI inflows to GDP, and the FPI to GDP. Normalizing capital inflows in terms of GDP allow us to avoid a dependent variable non-stationary problem. Information on political, financial and economic risks is taken from the International Country Risk Guide (ICRG), provided by the Political Risk Services (PRS) Group. Trade openness data is from OECD publication.

Empirically, the level of capital flows appears to have high persistence that is likely to generate a unit root in the series.

We assume that capital flows as a percentage of GDP follow the following data generating process:

$$Y_{it} = \alpha + \beta Y_{it-1} + \delta X_{it} + \varepsilon_{it} \quad (1)$$

$$\varepsilon_{it} = \mu_i + v_{it} \quad (2)$$

$$v_{it} \sim \text{iid} (0, \sigma^2 \varepsilon)$$

Where:

$y_{it}$ : is the dependent variable (the ratio of FDI inflows to GDP)

$X_{it}$ : denotes a  $1 \times k$  vector of explanatory variables that vary in the cross-section in time  $t$ .

$N$ : total number of countries

The subscript “ $i$ ” denotes a particular country and “ $t$ ” indicates particular time.

$\varepsilon_{it}$ : country specific effect. Error component structure where  $\mu_i$  models the time-invariant country specific effects and  $v_{it}$  is a stochastic error term, which is assumed to be uncorrelated over all  $t$  and  $i$ .

$\beta$ : reflects persistence in the process of adjustment towards equilibrium.

$\delta$  measures the short-run effect of  $x_{it}$  on  $y_{it}$  given  $y_{i,t-1}$ . The long-run effect is calculated as  $\alpha / (1 - \beta)$ .

$\alpha, \beta, \delta$ : parameters to be estimated

$v_{it}$ : iid residuals with zero mean and constant variance.

The model assumes that the slope is homogeneous across countries, and assumes that unobservable characteristics are invariant over time. Therefore, this model specification assumes country-specific unobservable. Panel data allows one to control for unobserved time invariant country specific effects resulting from omitted variable biases (Ravallion, 1995). Using lagged dependent variable help us to capture capital flow agglomeration effects and to correct for residual autocorrelation present in panel data specifications. The analysis is conducted by employing two econometric methods namely, Random Effect (REM) and Fixed Effect (FEM) Models.

Our choice of suitable panel data econometric technique depends on whether there is likely correlation between the individual and, cross-section specific i.e. error component and the explanatory variables. In FE model, each cross-sectional unit has its own (fixed) intercept value. Implementing FE within regression model is expected to remove potential heteroscedasticity problems resulting from possible differences across countries (Greene, 1997). This study first tests panel data by running FE model. Second, this study runs the RE model, in which the intercept correspond to the average value of all the country specific intercepts and the unobserved error components to the (random) deviation of individual intercept from this average value.

If it is assumed that the error term and the independent variables are uncorrelated, RE may be appropriate, whereas if the error term and the independent variables are correlated, FE may be a better model to use (Gujarati, 2003).

To choose between fixed and random effect models we run a Hausman test (1978). The Hausman test checks a more efficient model (RE) against a less efficient but consistent model (FE) to ensure that the more efficient model will also give consistent results.

## EMPIRICAL RESULTS

This paper analyzes the factors that affect FDI to 16 Middle East North African countries. Table 1 provides summary statistics and the correlation matrix of all the variables under study for the panel data over the period 1984-2011.

**Table 1. Summary statistics and correlation matrix.**

Variable	Mean	Std. Dev.	Min	Max
FDI/GDP	2.598304	3.419454	-2.5	15.75
FPI/GDP	-0.01297	0.071313	-0.4322	0.326002
Size	0.225179	0.299931	-0.32	1.29
TO	21.48536	19.17344	0	69.56
ER	35.38089	6.540251	19.75	48.75
PR	60.79437	11.55326	19.5	78.75
FR	34.73786	8.473405	10.75	48.5
IV	6.355815	21.1246	0	215.5526
ROI	0.250407	2.168708	-0.3556	22.87875

### Correlation Matrix

	FDI	FPI	Size	TO	ER	PR	FR	IV	ROI	Mcap
FDI/GDP	1.0000									
FPI/GDP	-0.1224	1.0000								
Size	0.3723	-0.1141	1.0000							
TO	0.3374	0.1749	0.1580	1.0000						
ER	-0.0185	-0.2547	0.1635	-0.3775	1.0000					
PR	0.0431	-0.2167	0.2347	-0.1876	0.5844	1.0000				
FR	0.0534	-0.2853	0.3028	-0.1518	0.6926	0.7889	1.0000			
IV	0.2747	0.0773	0.2407	0.1709	-0.2471	-0.4560	-0.3283	1.0000		
ROI	-0.0591	0.0428	0.0107	0.0218	0.0182	0.0900	0.0454	-0.0224	1.0000	
Mcap	0.3948	-0.3374	0.1527	-0.2884	0.4861	0.3920	0.3572	-0.1377	0.0095	1.0000

Where: FDI/GDP: is foreign direct investment as a percent of gross domestic product, FPI/GDP: is foreign portfolio investment as a percent of GDP, Size: measured as the growth per capita gross domestic product, TO: is the trade openness measured as the sum of import and export as a percent of GDP, ER: refer to economic risk, PR: refer to political risk, FR: refer to financial risk, IV: is inflation volatility, ROI: is the return on investment.

We apply our data to both fixed effect and random effect dynamic panel models. The fixed effect estimation includes the country-specific effects as regressors rather than assigning them to the error term, thereby reducing omitted variable bias. Fixed effects always give consistent results; therefore, it is reasonable to employ them with panel data. Fixed effect model, however, may not be efficient to run. Random effects give better P-values as they are a more efficient estimator, so we will check our data to see which model is statistically justified.

To choose between fixed and random effect models we run a Hausman test. The Hausman test checks a more efficient model (RE) against a less efficient but consistent model (FE) to ensure that the more efficient model will also give consistent results.

First, we ran the first set of regressions for all MENA countries. We used the lag of change in the variables, FDI and size. The results of fixed effect model, random effect model and Hausman test for all countries in MENA region are outlined in table 2. Panel A of table 2 runs the fixed effect regression of our explanatory variables on the first difference in FDI as a percent of GDP. The model was significant at 5 percent level. Results show that political risk and the lag of difference in FDI are the only significant determinants of FDI. Panel B shows the results of the Random Effect regression model. The model was significant at 5 percent level as indicated by Chi square value. Results, however, indicate that lag FDI, political risk, size of the economy and financial risk are main determinants of FDI in the MENA region over the period 1984-2011. In the case of MENA the Hausman test was insignificant with p value equals to 0.99, at 5 percent significant level, and thus, we use the results of the random effects model. The results of the random effect model are consistent with the results in the literature for the variables lag FDI, market size, and political risk. All these variables are significant and positively related to the change in FDI as we hypothesized previously. As political risk increases in the host country, inward foreign direct investment is affected negatively. A positive coefficient is associated with lower levels of political risk, since a higher political score is better. Therefore, political risk affects economic uncertainty, safety of invested capital and economic prospects of the countries in MENA region. Our results show that the lagged change of FDI affects positively the current change in FDI. This is consistent with the literature, where FDI tends to cluster in particular location, in what is known in the literature by the “agglomeration” effect (Kamaly, 2002). Therefore, FDI flows depend on a country’s past stock of FDI. Market size and growth opportunities, proxied by the change in the GDP per capita growth are proved to be important determinants of FDI in the MENA region. Finally the financial risk index is significant, with a negative coefficient. This result seems surprising, however, is consistent with what has been found in the literature on developing countries (Hayakawa, Kimura and Lee, 2011). This result, however, could be explained by looking more closely to the different type of FDI attracted to the MENA countries. Or we can say that foreign investors do not give too much attention to financial risk when deciding to invest in MENA countries.

In panels C and D of table 2, the 12 indicators for political risk from ICRG have been added in addition to the control variables. First we test our pooled data using fixed effect model (C) and then (Panel D) using the Random effect regression. Results of Hausman test gives support to the Random Effect model as indicated by the insignificant p value of .996. Therefore, we will give more attention to explain the results from the Random effect model. The results show as before market size and the agglomeration effect are significant determinant of FDI. As for the components of political risk, results show that the level of corruption and the level of external conflict have positive impact on FDI inflows. The coefficients on these determinants are positive and statistically significant at the 5 or 10 percent level. Therefore, countries with low level of corruption, and less external conflict were more able to attract FDI to the MENA region in the period 1984-2011. However, countries with less democracy attract more FDI than otherwise. The level of democracy and socioeconomic conditions are significant, however have negative signs indicating that countries with less democracy and more socio economic pressure attracted more FDI. This could be explained by the amount of FDI that enters the GCC market representing the large amount of investments in the oil industry. In addition, given a high correlation between democracy and socio economic pressure might explain the results. Countries with low democracy use its political power to suppress people and consequently reduce the effect of socio-economic pressure.

**Table 2. Fixed and Random Effect Regression Results for the period 1984-2011**

FDI/GDP	FEM (A)	REM (B)	FEM (C)	REM (D)
Lag FDI	.498 (29.88)*	.498 (31.04)*	.507 (30.19)*	.507 (31.3)*
Lag size	1.257 (1.59)	1.26 (1.65)**	1.34 (1.70)**	1.32 (1.78)**
IV	.0036 (.72)	.0028 (.62)	.0003 (.05)	.00099 (.22)
TO	.0027 (.32)	-.0002 (-.03)	-.0043 (.42)	.001 (.11)
RE	-.0412 (.04)	-.003 (-.12)	-.0098 (.33)	-.0088 (.32)
FR	-.0412 (1.18)	-.048 (1.90)**	-.072 (2.19)*	-.0655 (2.50)*
PR	.045 (2.33)*	.039 (2.35)*		
CORR			.823 (3.31)*	.642 (3.28)*
BER			.395 (1.43)	.403 (1.57)
DEMO			-.261 (2.36)*	-.243 (2.21)*
ETT			-.095 (.68)	-.1005 (.76)
EXTCON			.1698 (1.68)**	.1360 (1.64)**
GOST			.1448 (1.54)	.1161 (1.39)
INCON			-.091 (-.94)	-.101 (.98)
LAWO			.176 (.91)	.176 (1.05)
MILTE			.182 (1.37)	.178 (1.46)
RELT			-.145 (1.05)	-.077 (.60)
SOCIO			-.166 (1.96)*	-.135 (1.85)**
INVP			.078 (.87)	.101 (1.26)
Const	-1.413 (.99)	-.691 (.76)	-.751 (.50)	-1.31 (1.24)
F. Value	131.7 (000)*		57.5 (000)*	
Wald X <sup>2</sup>		988 (000)*		1090.8
R <sup>2</sup> (within)	.72	.72	.75	.75
between	.036	.43	.49	.471
Hausman test X <sup>2</sup>	0.55 P = .99		3.27 P=.996	

In order to see if there is any significant difference between the results for GCC countries and those of the other countries in the MENA region, Table 3 shows the results for a sample of 6 GCC countries, while table 4 outlines the results for other countries in the MENA region other than the GCC.

Results of Housman test for the GCC countries are significant at 5 percent level as indicated by the p value. Therefore, the Fixed Effect regression model is more efficient. Results show that Market size and growth, agglomeration, and openness are positively and significantly related to FDI. However, as before, financial risk is significant however, has the wrong sign.

Including the components of political risk, we find economic risk become insignificant determinant of FDI. The level of Bureaucracy and ethnic tension affects FDI negatively. However, surprisingly, the level of corruption, internal conflict and the level of democracy are significant, however, enter with the wrong sign. This result indicates that the GCC countries that have high level of corruption, with low democracy and with high internal conflicts, ceteris paribus, are more able to attract FDI over the period 1984-2011.

The results on democratic rights are inconsistent with our hypothesis and with the results reported in the literature (see Harms and Ursprung (2002), Jensen (2003), and Busse (2004)), who all find a statistically significant link between fundamental democratic rights, such as civil liberties and political rights, and foreign investment inflows. Moreover, our results on quality (and institutional strength) of the bureaucracy supports what has been found in the literature (eg. Gastanaga et al. (1998), Busse et. al. (2005) who established a statistically significant (negative) link between FDI flows and bureaucratic delays (that is, lower bureaucratic quality is associated with lower FDI inflows)

**Table 3. Fixed and Random Effect Regression Results for the period 1984-2011 For GCC**

FDI/GDP	FE (Panel A)	RE (B)	FE (C)	RE (D)
Lag FDI	.424 (19.58)*	.448 (20.97)*	.42 (17.95)*	.453 (19.05)*
Lag size	4.003 (3.20)*	3.69 (2.95)*	2.313 (2.03)*	2.54 (2.08)*
IV	.076 (.81)	-.106 (1.72)**	.246 (2.70)*	-.076 (1.26)
TO	2.51 (11.42)*	2.03 (10.79)*	3.126 (12.94)*	2.15 (9.96)*
RE	.041 (.64)	-.0354 (.75)	.054 (.66)	-.078 (1.19)
FR	-.140 (2.20)*	-.1001 (1.75)**	-.073 (1.02)	-.065 (.98)
PR	-.029 (.51)	.016 (.45)		
CORR			-1.87 (3.36)*	-.976 (1.83)**
BER			1.89 (2.42)*	2.23 (2.82)*
DEMO			-1.115 (3.76)*	-.732 (2.58)*
ETT			.948 (1.65)**	2.04 (3.57)*
EXTCON			.517 (2.15)*	.236 (1.21)
GOST			-.129 (.49)	-.199 (1.07)
INCON			.186 (.53)	-.518 (1.70)**
LAWO			-.167 (.27)	-.794 (1.34)
MILTE			.703 (1.96)*	.388 (1.09)
RELT			-.745 (1.34)	-.655 (1.42)
SOCIO			-.247 (.98)	-.244 (.97)
INVP			-.218 (1.19)	.052 (.32)
Const	1.856 (.39)	1.52 (.81)	-6.26 (1.34)	3.08 (1.33)
F. Value	116.02 (000)*		70.72(000)*	
Wald X <sup>2</sup>		988 (000)*		938.43 (000)*
R <sup>2</sup> (within)	.91	.72	.95	.93
between	.0077	.43	.09	.21
Hausman test X <sup>2</sup>	35.91 P = 0.000		86.01 P= 0.000 Use FE	

Table 4 shows the result on countries in the MENA region excluding GCC region. Housman test was insignificant indicates that the random effect model is more efficient than the fixed effect model. Panel B shows positive and significant effect of agglomeration, and political stability on FDI. However, open countries were not able to attract foreign direct investment as compares to countries, which are less open. This result could indicate an omitted variable, which is highly correlated with openness that masks the actual results. To see which political risk elements affect more the FDI, paned D shows the results of regressing the various elements of political risk along with our control variables, on FDI. Results show that government structure and military tension play a significant role in attracting FDI. Ethnic tension and socio economic pressures are significant however enter at the wrong sign, which might mean that foreigners do not consider socioeconomic pressure and ethnic tension as important factors that affect their decision to invest in the MENA countries other than the GCC.

**Table 4. Fixed and Random Effect Regression Results for the period 1984-2011 For NON GCC**

FDI/GDP	FE (panel A)	RE (B)	FE (C)	RE (D)
Lag FDI	.445 (20.02)*	.440 (21.33)*	.469 (19.26)*	.467 (20.81)*
Lag size	.831 (1.12)	.815 (1.17)	.009 (1.50)	1.10 (1.68)**
IV	.0054 (1.54)	.0046 (1.45)	.0019 (.53)	.002 (.61)
TO	-.043 (3.78)*	-.042 (4.56)*	-.033 (2.42)*	-.085 (2.49)*
RE	.042 (1.32)	.0398 (1.41)	.0338 (1.02)	.0158 (.57)
FR	-.028 (.88)	-.032 (1.48)	-.068 (2.03)	-.030 (1.35)
PR	.035 (2.22)*	.029 (2.09)*		
CORR			.3596(1.60)	.237 (1.20)
BER			.154 (.54)	.129 (.50)
DEMO			-.043(.35)	-.068 (.64)
ETT			-.216 (1.78)**	-.238 (2.18)*
EXTCON			.027 (.30)	.034 (.47)
GOST			.119 (1.15)	.123 (1.65)**
INCON			.059 (.56)	.092 (.66)
LAWO			-.072 (.39)	.028(.18)
MILTE			.278 (1.96)*	.221 (1.63)**
RELT			.129 (.93)	.078 (.74)
SOCIO			-.138 (1.36)	-.151 (1.78)**
INVP			-.212 (1.68)**	-.152 (1.59)
Const	-1.42 (1.21)	-.916 (1.13)	.49 (.38)	-.187 (.19)
F. Value	61.77 (.000)*		27.10(0.000)*	
Wald X <sup>2</sup>		480.51 (.000)*		541.17 (.000)
R <sup>2</sup> (within)	.70	.70	.74	.73
between	.21	.32	.39	.40
Hausman test X <sup>2</sup>	.95 P = 0.99		4.12 P= 0.98 Use RE	

## CONCLUSIONS

In this paper, we study the factors affecting the level and change of FDI inflows among 16 economies comprising the MENA region using panel data for the period 1984-2011. Given the constant political risk in the region, this research aimed to unveil the importance of the different components of political risk on the change in FDI. Other types of risks are also considered, including financial risk, economic risks, and trade openness, which are associated with the macroeconomic environment in the MENA region. Finally, the study looks at whether there are differences between the factors that affect rich and poor resource countries in the region in attracting FDI.

Taking all countries together, our results are, as hypothesized, consistent with the results in the literature for the variables lag difference of FDI (agglomeration), market size, and political risk. All these variables are significant and positively related to the change in FDI at a 5 percent significance level. We also find that among the 12 political risk components, the level of corruption and the level of external conflict have close association with FDI flows.

FDI motives vary greatly between the GCC and the non-GCC countries. Results for the GCC countries show that market size and growth, agglomeration, and openness are positively and significantly related to FDI. Including the components of political risk, we find that the poor quality of bureaucracy and ethnic tension affects FDI negatively. However, surprisingly, the level of corruption, internal conflict and the level of democracy are significant, however, enter with the wrong sign. This implies that countries with high level of corruption, with low democracy and with high internal conflicts, ceteris paribus, are more able to attract FDI in the GCC region over the period 1984-2011.

The main findings on countries in the MENA region excluding GCC region show positive and significant effect of agglomeration, and political stability on FDI. However, open countries were not able to attract foreign direct investment as compares to countries, which are less open. Results of political risk components show that government structure and military tension play a significant role in attracting FDI.

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