

ERASMUS UNIVERSITY ROTTERDAM

The internationalisation of European SMEs

Dorota Łoszczyków-Stachowiak

**Erasmus University Rotterdam
Erasmus School of Economics
Rotterdam**

**Aurhor: Dorota Łoszczyków-Stachowiak (326034)
Study: Economics of Entrepreneurship, Strategy & Organisation
Supervisor: Dr. Italo Colantone**

Table of contents

1	Introduction.....	3
2	Literature overview	7
2.1	Definition of internationalisation.....	7
2.2	Theory of internationalisation	8
2.2.1	The establishment Chain (Stage) Models of Internationalisation	9
2.2.2	Foreign Direct Investment Theory.....	10
2.2.3	The Network perspective	11
2.3	Determinants of internationalisation.....	12
2.3.1	Motives.....	13
2.3.2	Barriers	14
2.4	Hypotheses.....	16
2.4.1	Innovation.....	16
2.4.2	Size.....	17
2.4.3	Competition.....	18
2.4.4	Business constraints.....	19
3	Empirical analysis.....	21
3.1	Sample selection	21
3.2	Variables description	21
3.2.1	Dependent variable.....	22
3.2.2	Independent variable	22
3.2.3	Control variable	24
3.3	Descriptive statistics.....	24
3.4	Research method.....	26
3.5	Results	27
4	Discussion and conclusions	30
5	References	34
6	Appendix	40

1 Introduction

“Globalization is the growing interdependence of national economies – involving consumers, producers, suppliers and governances in different countries” (Knight, 2000). Globalization of the world economy has created countless opportunities for growth and profit, and for most of today’s European economies, it has become a core value in operation. Globalization allows economies to grow faster and become stronger. The global economy gives an extraordinary opportunity for transforming economies to coexist in an open international market by selling and distributing products and services in countries around the world. It is related to governments reducing trade and investment barriers. Nowadays large firms manufacture in multiple countries and local firms source production inputs from cost-effective suppliers abroad. Such an open economy has been a gradual change. The first important step was economic and political liberalism in the post-World War II period. The shift toward development of internet communication created an opportunity for an open global market. Globalization gives opportunities but also creates turbulences on the market by increasing competitiveness, losing the protection of markets due to trade liberalization which all can affect the operations and performance of Small and Medium Enterprises, or SMEs.

The success of SMEs under globalization depends in large part on the formulation and implementation of the operational strategies a company chooses (1990). Strategy indicates a firm’s short and long- run responses to challenges and opportunities created in the business environment. One such strategy is existence in the international market. Thus, internationalisation is nowadays highly important. Companies and especially SMEs must stay internationally active in order to grow. For some companies international activity lets them to survive. Through entering new markets, firms are able to achieve a large volume of production and growth. This demonstrates that geographic expansion is one of the most important paths for firm growth, particularly for SMEs whose business scope has been geographically narrowed (Barringer and Greening, 1998). Furthermore, exploiting resources in different markets gives firms a possibility to capitalize on market imperfections and achieve higher returns on their resources. Numerous researchers have argued and empirically observed that a higher level of international diversification lead to higher firm performance (Tellman and Li, 1996; Bernard and Jensen, 1999).

SMEs tend to move into foreign markets as exporters and/or as foreign investors (Reynolds, 1997). Those are the two most prominent avenues of internationalisation. In this paper the main focus will be on export activity as exporting has been traditionally regarded as the first step to entering international markets, serving as a platform for future international expansion (Kogut and Chang, 1996). Such a strategy is particularly valid for internationalizing SMEs as they frequently lack either resources, finances or other factors for Foreign Direct Investment (FDI) (Zahar, Neubaum, and Huse, 1997). Engagement in export gives SMEs fast access to foreign markets in comparison to other modes of internationalisation (FDI). FDI requires little capital investment with comparatively low levels of commitment and risk. At the same time, export gives a company the opportunity to gain valuable international experience (Zahra et al., 1997). Exporting provides relatively faster access to a foreign market because a firm can use its existing production facilities in a foreign market. Furthermore, exporting is also a less risky path as it allows for easy withdraw from a foreign market when there are market fluctuations or any kind of political instabilities (Lu and Beamish, 2006). In addition, several economic benefits can be obtained by exporting. Among the more obvious ones are economies of scale and scope achieved from larger volumes of sales but also production and the possibility to exist in diverse international markets leads to advantages related to increases in market power. And finally, learning through exporting experience could help firms develop capabilities to pursue more comprehensive international expansion strategies.

There are national and international reports showing how internationalisation is becoming increasingly important for each European country and each individual company (shown for example in reports prepared by European Commission such as Competitiveness reports of European countries). The research has shown that there is a positive relationship between the amount of country's exports and its economic growth (Ghartey, 1993). Research has shown that firms' increasing involvement in export could bring benefits to the home market (Onkelinx and Sleuwaegen, 2008). It is clear that increasing engagement in export brings additional income to the domestic economy and increases total demand. This paper will look for possible differences between groups of countries and their engagement in export activities using numbers and data at the firm level. There are several scientific articles that attempt to show how company, industry and in the end, country characteristics can explain differences in the amount of international activity across Europe. This paper attempts to check how far those differences between European countries go.

The main focus is laid on studying the determinants of internationalisation of 25 European countries. First SMEs from all countries will be compared in regard to their engagement in export. Then the empirical models will be built based on literature review and previous research results. Statistical models will try to look for determinants of export. To achieve this, hypothesized relationships between factors, such as level of innovation, size of the company and business constraints, as well as the dependent export variable will be investigated and further discussed. Export is chosen as the dependent variable as the author follows reasoning of Kogut and Chang that export is a first step to entering international markets, being form of a platform for further international expansion.

In addition, the 25 countries will be divided in two groups of countries: EU15¹ countries and EU10² countries. This will allow a comparison to be made between “Old EU countries and new EU members who joined European Union in 2004 (EU10). The second group is composed of transformed countries, which, in opposite to developed countries of Old EU members quite recently become open economies and are still in the learning phase of an open global economy. The author seeks to investigate whether outcomes from regressions differ when the hypotheses are tested first on all 25 EU countries and then on two separate groups of countries. Furthermore, this research investigates two sectors, manufacturing and service sector. Those two sectors represent the economical system that provides goods and services respectively for different participants of the market.

This paper uses data covering the year 2006 in order to check whether there are any differences between European Union countries. The aim is to provide a comparison of European Union countries based on relatively new and unbiased datasets. Knowledge about what determines the decision to engage in export for all EU countries and for two groups of countries separately could help to build policies supporting further international cooperation with benefits for all participating parts.

The paper is organised as follows: section two will elaborate on the literature on internationalisation including academic findings on what can influence the decision to become internationally active. To give a broad perspective on internationalization, different

¹ The group “Old EU” further EU15 consists of 15 countries: Belgium (BE), Denmark (DK), Germany (DE), Greece (EL), Spain (ES), France (FR), Ireland (IE), Italy (IT), Luxembourg (LU), Netherlands (NL), Austria (AT), Portugal (PT), Finland (FI), Sweden (SE), and United Kingdom (UK).

² The group EU10 includes countries that joined European Union in 2004: Czech Republic (CZ), Estonia (EE), Cyprus (CY), Latvia (LV), Lithuania (LT), Hungary (HU), Malta (MT), Poland (PL), Slovenia (SI), and Slovakia (SK).

internationalisation theories will be introduced. In addition, in section two authors will elaborate on existing literature that gives a broader perspective on what motivates companies to engage in export and what discourages companies from engaging in export. Section two will end with four hypotheses. Section three introduces the empirical analysis including a description of the sample selection, an explanation of statistics, and will give detailed information about variables used. That section concludes with the research method used. In section four outcomes of the regressions will be presented. Finally, section five concludes the paper by discussing both the findings and the limitations of the research, as well as providing suggestions for further research.

2 Literature overview

In order to analyse the determinants of international engagement of European countries, first the definition of internationalisation will be provided, in addition to the specification of Small and Medium-Sized Enterprises on which this paper is focused. Furthermore, important theories relevant to this paper will be explained, and the possible determinants of engagement in international activities will be discussed, including pushing factors and possible limitations for international activities. In addition, some empirical results concerning engagement of SMEs in internationalisation will be provided, which will build the bridge to the hypotheses.

2.1 Definition of internationalisation

Internationalisation is part of the reality of doing business; more small and medium-sized enterprises are confronted with the trend to internationalize (Hessels, 2005). Although the term “internationalisation” is used constantly, it is significant to address the various perspectives on what internationalisation actually embodies. A single, universally accepted definition of the term remains elusive (Coviello and McAuley, 1999). Literature gives several definitions and views of the term internationalisation. For example, internationalisation is seen as a pattern of investment in foreign markets explained by rational economical decisions based on economic analysis of ownership, localization and internalization advantages (Dunning, 1988). Another view focuses on internationalisation as a process of ongoing evolution whereby the firm increases its involvement in international activities as a consequence of increased knowledge and market commitment (Johanson and Vehlne, 1977). Among process-based perspectives on internationalisation, the view presented by Welch and Luostarinen is worth mentioning. In their studies from 1988 they define internationalisation as “...the process of increasing involvement in international operations...” (Welch and Luostarinen, 1988). They also argue that inward activities such as import are as important as outward activities, and that both should be included in international operations. Finally, there is a view offered by Beamish, (1990) who defines internalization as:

“...the process by which firms both increase their awareness of direct and indirect influence of international transactions on their future, and establish and conduct transactions with other countries.”

Coviello and McAuley (1999) argue that this definition of Beamish is perhaps most useful one because it integrates several views into one holistic interpretation of the internationalisation concept, and they summarize this view in four parts. Firstly, according to Coviello and McAuley, Beamish's definition integrates the internal learning of the organization with its patterns of investments. Therefore, this definition recognizes that internationalisation has both economic and behavioral aspects. Furthermore, Beamish's definition implies that internationalisation is dynamic and evolutionary because it is process-based. In addition, this definition includes inward and outward modes of internationalisation and finally, it implies that during international transactions, a firm acquires relationships which might influence its future growth, including expansion to other countries. Following this reasoning of Coviello and McAuley, the Beamish definition is the one most suited for the purposes of this paper.

2.2 Theory of internationalisation

In this study, the term "internationalisation" is used in the same context as that defined by Beamish. Such a broad perspective is necessary in order to investigate the dynamic process that is the internationalisation of companies. Currently, researchers seem to recognize that internationalisation is a concept too dynamic and broad to be exclusively defined by one school of research, perspective, or mode of explanation (Coviello and McAuley, 1999). They argue that such a process should be analysed by including several concepts. Coviello and McAuley also conclude that if the concept of SME internationalisation is not fully represented by one theory, research in that area should not limit investigation approaches to one school of research. Furthermore, using one single theoretical framework for empirical studies of SME internationalisation may reflect a myopic view of what is in fact a more complex process; thus integrated or comparative approaches to the study of internationalisation are beneficial in understanding of the overall concept (Coviello and McAuley, 1999). Consequently, for this research three individual schools of internationalisation will be identified: 1) the behavioral school of the Establishment Chain (Stage models), 2) the economic school of Foreign Direct Investment (FDI) theory, and 3) the relationship school of Network perspective (Coviello and McAuley 1999). Each given school of research has its own theoretical framework, research criteria and methodology. Nevertheless, all of them attempt to distinguish companies' incentives to internationalize. In order to better understand firms' motives for international activities, each of those approaches will be discussed in this section.

2.2.1 The establishment Chain (Stage) Models of Internationalisation

Much of the early literature on internationalisation concludes that the process involves a series of incremental “stages” whereby firms gradually become involved in exporting, as well as in other forms of international business. Such a pattern is one of “evolution rather than revolution” (Benito and Welch, 1994). Various models exist within this theory, but the first and most influential model in this field is the Uppsala model. It was originally published by Johansen and Wiedersheim-Paul in 1975 but later scholars have adjusted this model. The establishment chain model suggests that international activities occur incrementally and are influenced by increased market knowledge and commitment. The core of this theory is that managers are constantly in a learning process and that experience and knowledge, for example through export activities, will result in a higher success rate for future modes of internationalisation. This process is often called the establishment chain and has been described by different authors as including several stages. Although the number of stages differs, a common underlying assumption is that firms are well established in the domestic market prior to developing international strategies (Bell, Crick and Young, 2004). One view shared by most authors is that firms start international engagement with regular export; export via agents; subsidiaries sales and own foreign manufacturing establishment. These steps are taken with regard to commitment associated with them and provide an explanation why especially SMEs with often limited resources start with export activities. The development aspect of the stage model is intuitively appealing and consistent with some elements of the resource-based view proposed by Barney in 1991. In general, the resource-based view suggests that certain resource types under the control of a small firm may substitute for another resource type gained through path-dependent development stages. Through strategic actions, firms are able to skip or compress stages in the export development process to the point that these stages are no longer meaningfully distinguishable from one another, allowing firms to implement strategic actions that are consistent with the resources and capabilities available to them (Wolff and Pett, 2000). Wolff and Pett followed Dierickx and Cool’s path-dependence arguments and argued that the stage theory of export development is conditionally compatible with resource-based view of the firm. However, the stage model has been criticized. Oviat and McDougall (1994) present convincing arguments and evidence that some firms are international at inception. According to Knight and Cavusgil (1996) the emergence of such firms can be explained by recent trends such as advances in information and communication technologies, increasing role of niche markets, and the growth of global

networks. Born Global phenomenon – that is firms with an international vision from inception, present a substantive challenge to internationalisation stage theories and the notion of incremental internationalisation. Nevertheless, there are several empirical papers indicating that internationalisation is a gradual, incremental process (Dalli, 1994; Chetty and Hamilton, 1996).

2.2.2 Foreign Direct Investment Theory

The theory of Foreign Direct Investment has developed from neoclassical and industrial trade theory. This view explains internationalisation with the argument that firms choose their optimal structure for each stage of production by evaluating the cost of economic transactions. Firms therefore choose the organisational form and location for which overall transaction costs are minimized (Coviello and McAuley, 1999). This is the most managerial of all three schools because it is mostly based on rational economic decision making, a calculation of the costs and benefits of internationalisation. McDougall, Shane and Oviatt (1994) found in some international new ventures that entrepreneurs did not make internationalisation decisions on the basis of lowest cost locations; and neither did they attempt to internalize activities to the point where the benefits of further international engagement were outweighed by the costs (Bell, Crick and Young, 2004). However, Aharoni (1996) and Newbould et al. (1978) found FDI to be a managerial decision-making process. Another theory on internationalisation worth mentioning is the OLI paradigm. The OLI Paradigm is a combination of various theories of FDI, concentrating on aspects such as ownership, location, internalization (OLI). This approach was first proposed in 1976 and it is also known as the eclectic paradigm. Dunning suggests that if firm wants to internationalise then there have to be three sets of advantages of company (Dunning, 1988). Firstly, the Ownership advantage, which may translate to property rights over assets and includes items such as capital, natural resources, knowledge etc. Secondly, the firm must have clear location advantages from the host country. This can be addressed by competitive labour rates, better taxation rates or governmental findings. The final point is the decision to generate and/ or exploit their ownership specific advantages internally, rather than to acquire and/or sell these, or their right, through the open market (Dunning, 2001).

2.2.3 The Network perspective

The two former views imply that the firm exhibits some form of strategic decision-making behavior with centered planning within the firm. So, generally speaking, decisions to engage in international activities are based on internally driven perspectives. A more recent area of internationalisation research focuses on non-hierarchical systems where firms invest in building and monitoring their position in international networks (Coviello and McAuley, 1999). The network perspective focuses on firm's behavior in the context of a network of inter-organisational and inter-personal relationships. Such relationships can involve customers, suppliers, competitors, private and public support agencies and even family or friends. Therefore, according to this theory, internationalisation depends on an organization's set of network relationships rather than a firm-specific advantage. Coviello and McAuley suggest that the Network perspective is more of an alternative view to the previous approaches whereas Bell et. al. (2004) based on empirical finding of Coviello and Munro, argue that Network perspective as a externally driven view of internationalisation provides additional insights to the internally driven perspective.

Coviello and Munro state that internationalisation process for small firms can be enhanced by integrating the models of incremental internationalisation with the network perspective. Nowadays, more researchers tend to agree that in order to properly investigate the phenomena of international activities of SMEs, more than one theory has to be applied because only by studying the broader perspective of the dynamic process of internationalisation possible determinants and differences in volume of international activities can be drawn. According to Coviello and McAuley the three schools of internationalisation research should be viewed in a holistic, integrated manner (Figure 1).

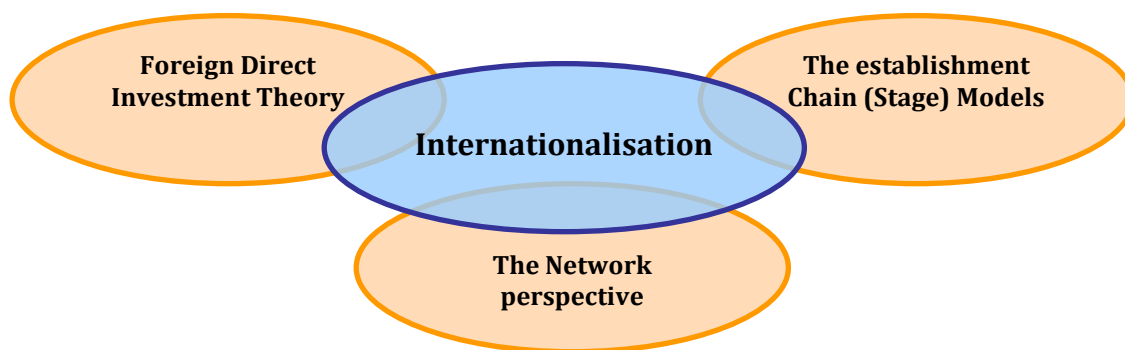


Figure 1 Integrating Three Schools of Internationalisation Research
Based on Coviello and McAuley (1999)

2.3 Determinants of internationalisation

As Morgan and Katsikeas stress in their paper from 1997 expansion in a nation's exports induce several favourable outcomes in productivity performance. Among these are labour market employment levels, foreign exchange accumulation and related externalities such as industrial welfare and societal prosperity. In addition, exporting might be beneficial for individual firms as a form of innovation, better utilization of capacity, skills development and generally improved business performance (Morgan and Katsikeas, 1997). Burton and Schlegelmilch found in their research comparing exporters with companies who are not engaged in export activities that exporting leads to organisational, managerial, and attitudinal improvements. Furthermore, their findings indicate that exporting might have a positive impact on better education, higher research and development expenditures and more marketing research, all of which positively correlate with a firm's performance (Burton and Schlegelmilch, 1987).

Many empirical papers show that firms can become more competitive through cheaper sourcing or subcontracting across borders. Thanks to the internationalisation process, efficiency of companies can be improved and costs reduced through economies of scale. In addition, profitability may benefit from higher profit margins abroad and extending product life cycles by introducing the product to foreign markets can bring feasible profits to companies. Finally, spreading sales across different markets can reduce market related risk and may be less risky than diversifying in the home market (Onkelinx and Sleuwaegen, 2008).

Nevertheless, while expanding into new geographic markets presents an important opportunity to growth and value creation, the percentage of SMEs who decide for such an expansion is still not very high for EU countries. Chen and Martin concluded that the decision of whether or not to use foreign expansion depends on a firm's internal characteristics. These characteristics are shown through the firm's strategies (Chen and Martin, 2001). Applying strategy that leads to engagement in foreign market involves many unique challenges in addition to common ones associated with the domestic growth of SMEs. Trading with suppliers overseas would necessitate additional consideration in relation, for instance, to complexity of documentation requirements, trade regulations, and cultural differences. In general, "many of the difficulties are associated with the liabilities of foreignness and newness if the target markets are dissimilar to original markets" (Lu and Beamish, 2001).

These challenges may effectively prevent many SMEs from going abroad. Further in this section possible motives and barriers for internationalisation of SMEs will be discussed.

2.3.1 Motives

Drivers for SME internationalisation can be internal or external to the firm. Internal factors can be differential firm advantages (Crick and Jones, 2000), networks (Coviello and Munro, 1997), available production capacity (Johnston and Czinkota, 1982), unsold inventory (Sullivan and Bauerschmidt 1990), economies of scale resulting from additional orders (Kaynak and Kothari, 1984), opportunities to better exploit management talent and a management team with favorable attitudes towards exporting (Morgan and Katsikeas, 1997). External factors include foreign country regulations (Bilkey and Tesar, 1977), availability of foreign market information (Albaum, 1983), increased competition in the home market (Ursic and Czinkota, 1984), value chain advantages (Bell et al., 2004), export promotion programs (Kaynak and Erol, 1989), profit and growth opportunities (especially within small market niches (Crick and Spence, 2005)), and unforeseen opportunities, such as receiving unsolicited orders (Spence and Crick, 2006).

Motives for internationalisation have also been classified as proactive and reactive (Johnston and Czinkota, 1982; Piercy, 1981). Some firms proactively search for opportunities outside their home market. However, many firms go abroad reacting to changing conditions in their environment. These firms have a passive attitude toward seeking opportunities in foreign markets, but still might become unexpectedly involved in international markets, by chance or if forced by circumstances rather than resulting from deliberate strategic choices. Examples of reactive stimuli are a saturated domestic market, need to reduce inventory, excess capacity, favorable exchange rates, encouragement from contacts in business environment, exclusive information, competitive pressures, reducing market risk, and unsolicited orders from overseas. Proactive stimuli are factors such as attractive profit/growth opportunities, products can easily be adapted to foreign market needs, unique products, managerial aspirations and economies of scale.

As motives for internationalisation can be both internal or external to the firm, and proactive or reactive, these stimuli can be classified into four categories: proactive-internal, proactive-external, reactive-internal and reactive-external (Morgan and Katsikeas, 1997).

Proactive-internal stimuli are factors in the firm's internal environment that are linked to internal competencies or market opportunities. Examples are the possession of unique products or services, a competitive cost advantage, unique management competences, a favorable attitude towards exporting, production savings resulting from additional orders and the ease with which products can be adapted (Barker and Kaynak, 1992; Kaynak and Kothari, 1984).

Proactive-external stimuli are related to the firm's deliberate search for market opportunities overseas, but the origin of these stimuli is the external environment. Typical examples of such elements are reductions in tariffs, favorable currency movements, product regulations in foreign countries, government export assistance programs, attractive export incentives and attractive growth opportunities abroad (Diamantopoulos et al., 1990; Kaynak and Erol, 1989; Leonidou, 1994; Sullivan and Bauerschmidt, 1990).

Reactive-internal stimuli arise from within the firm, but they reflect engagement in international business as a reaction to certain conditions or events. These drivers relate to factors such as protection against an economic downturn in the domestic market or available production capacity (Barker and Kaynak, 1992; Katsikeas and Piercy, 1993; Ursic and Czinkota, 1984).

Reactive-external stimuli on the other hand originate from the external environment and reflect a passive attitude towards export engagement. These factors relate to environmental pressures or circumstances such as unexpected orders from overseas customers, intensifying competition in the home market (Albaum, Peterson, 1984; Katsikeas, 1996; Piercy, 1981; Weaver and Pak, 1990).

2.3.2 Barriers

Many SMEs do not have international activities because they lack the ambition to internationalize, or the entrepreneur may not want to take the risks involved in internationalisation. Other SMEs do not have the necessary resources to overcome the barriers involved in internationalisation, although many physical, technical and fiscal trade barriers have been removed, especially within the European Union. European integration has favorably affected SME exports (European Network for SME Research, 1997). Still, firms are confronted with numerous obstacles that prevent them from entering international markets, or make doing business outside their home market more difficult. These barriers often have a

substantial impact on the internationalisation decision of SMEs. Given the resource constraints of SMEs, overcoming these barriers may be a challenge that is simply too big. Not only do SMEs have limited assets and financial resources, they tend to have little or no international experience in their management team, limited knowledge of international markets, and limited international networks.

Nevertheless, SMEs should not be in a worse position when compared to large enterprises. According to De Chiara and Minguzzi (2002) size is not restraining the international competitiveness of small firms they also state that sales abroad are not affected by firm size. They do however point out that small firms cannot enjoy all options in the internationalisation process, due to structural handicaps such as limited financial resources. Moreover, some country-specific factors may also impede the internationalisation of small firms. Because small firms are facing diseconomies of scale, the specialization of skills cannot reach a certain threshold. The main obstacles to internationalisation of small firms are in the limited internal resources and capabilities, and thus not outside the firm.

Acs and Terjesen (2005) mention limited access to financial capital and imperfect information as most important barriers for new firms. De Maeseneire and Claeys (2007) find that SMEs face more severe financing constraints for FDI than for domestic projects. New ventures also face a liability problem of something new, limiting not only their access to financing opportunities, but also their access to information about labor, raw materials and output market conditions. Export barriers can make doing business more difficult for firms with current international operations, but may also prevent firms from initiating international activities. According to the OECD (2006), a majority of SMEs rated barriers related to internal capabilities as being more significant obstacles to internationalisation than those related to the business environment. Problems internal to the firm are considered to be more important barriers to access to international markets than barriers in the home or foreign environment in which firms operate. Trade barriers such as tariffs and regulations are not ranked among the top 10 barriers by SMEs in already mentioned research of OECD.

However, there appears to be a difference in perception of barriers between firms in terms of export activity. Non-exporters are more concerned with financial and access barriers, whereas firms that are already exporting prioritize issues related to the business environment, including trade barriers. Firms with experience with foreign markets tend to pay more attention to barriers outside their control. These results suggest that once SMEs have

overcome internal constraints, they become more aware of other challenges in their business environment such as tariffs and trade regulation.

2.4 Hypotheses

This paper focuses on determinants of international operations of European SMEs. Level of internationalisation and possible determinants for the decision to be active on international market have been studied by several researchers (among other by: Benito and Welch, 1993; Melin, 1992; Wolff and Pett, 2000). The fact that European Commission is nowadays intensively focused on investigating the motives and barriers for opening on international cooperation, is showing how important and worth of further research the topic is. The theoretical background discussed in the previous section indicated that there are at least a few possible determinants for internationalisation. Those can have their roots in company characteristics and the specific market situation can also come as an outcome to changing circumstances and acquiring possibilities. However, besides the firm-specific characteristics, the differences in regard to level of engagement in export can come from country specifics. Thus this paper will investigate the level of export in 25 European countries. Furthermore, all countries are compared and investigated in order to find possible patterns for the decision to export as a first step toward internationalisation. Possible determinants for engagement in export are chosen based on theoretical background and existing research results. In the remainder of this section four research hypotheses are presented.

2.4.1 Innovation

The relationship between innovation and export has been studied deeply as the two of them are the most important factors in determining business success today (Buckler and Zien, 1996). Wakelin, in his paper from 1998, argues that innovation has a positive influence on trade performance and that the number of innovations has a positive impact on the probability to export. Lachenmaier and Wossmann, in their empirical paper from 2006, try to identify whether innovation causes export among German manufacturing firms. With the use of data from 2002 on 981 manufacturing companies they confirm what was expected: innovation is a driving force for industrialised countries' export. Their research shows that being innovative causes firms to have substantially larger export shares than non-innovative firms in the same sector. Similar results were found by Lopez and Garcia (2006). In their research they use a sample of 1234 Spanish manufacturers. They find out that innovation in products and

processes has a positive and significant effect on likelihood that firm will start to export. Another empirical research is being conducted in Italy. The data set of more than 4000 observations is used by Basile in his research from 2001 in order to investigate the relationship between innovation capabilities and export behaviour. The results shows that firms that introduce product and/or process innovations either through R&D activity or via investment in new capital equipment are more likely to export. Author's conclusions are that innovation is a very important competitive factor for Italian firms. The link between innovation and export also has a strong theoretical background. The evolutionary theory of the firm indicates that behaviour and activities of transnational companies are linked to innovation development (Kogut and Zander, 1993). In addition, the resource-based view indicates in what way a firm can use its resources. Innovation is an important resource used in order to gain a more international market. Taking into account the objective of this paragraph, which is to find a relationship between innovation and export, internationalisation theory overlapping with its resource-based view fill the theoretical background? There are also several empirical studies indicating that relationship between innovation and export can be two dimensional so that not only innovation influences the decision to export but also that companies active on international market can be more eager to engage in export. It has been shown in research projects, including those led by the European Commission, that companies that operate in many countries learn from different innovation contexts and are therefore able to benefit from them. There can be different modes of learning but general point is that if a firm is highly internationalised it is likely to perform higher. That is thanks to its resources which includes labour. But also, the fact that the product is exposed to alternative innovation context helps a company/us to learn from different environments. Finally, a higher level of competition forces the firms to innovate. The above arguments indicate that internationalisation is positively related to innovation. However, the causal link could go the other way round.

Taking above arguments into consideration the first hypothesis is as follows:

Hypothesis 1 *There is a positive relation between innovation and exporting*

2.4.2 Size

This paper investigates the determinants of internationalisation measured by export of European Small and Medium Sized Enterprises. Within the group of SMEs there are companies which have from 1 to 249 employees. The group of SMEs is usually divided into 3

subgroups: micro enterprises with 1-5 employees, medium size till 50 employees and the group of larger enterprises within SMEs where the number of employees is from 50 till 249. Such a division has a reason, which is the fact that several important and strategic decisions depend on the size of company given by number of employees. Along with resource-based view mentioned in the theoretical part of this paper, size of the company might be a factor which determines the decision to be active on the international market. Empirical evidence on the impact of firm size on SME's international involvement has been mixed. "Whether measured by employee number, sales, ownership of capital equipment, financial capability or a combination of criteria" (Carter, et al. 2006). Most of the literature is supporting the view that larger firms have a higher likelihood to internationalize than smaller firms. Medium-sized enterprises are more involved in international activities than small and micro enterprises. According to report of European Commission from 2003, only 17 per cent of micro enterprises export. The same report shows that 50 per cent of medium enterprises are exporters. Small firms are characterized by resource limitations and in general lower multinational experience. They are unlikely to have sufficient resources or skills to enter a large number of foreign markets. By contrast, large firms' greater capacities and larger numbers of international target markets economize on transaction costs for selecting, establishing and controlling local subsidiaries. Enhanced productivity through economies of scale and learning encourages large firms to self-perform many export functions. As already mentioned in the theoretical part, Chiara and Minguzzi state that size does not restrain the international competitiveness of a company. However, they point out that there are some disadvantages for smaller size enterprises. Consequently:

Hypothesis 2 *Firm size is positively related to the internationalisation measured by export*

2.4.3 Competition

In the one of previous section, describing the possible determinants for export the four groups of motives are described; among others the proactive-external motive is mentioned. Small firms can face various potential problems in business competition. Chen and Martine in their paper write about external problems like decline of customer base and internal problems such as sales or profit decline (Chen and Martin, 2001). While some business problems may limit a company's options, others can force a company to take certain actions. The decision in what way companies will try to overcome problems depends on a firm's internal characteristics and strategy. Researchers argue that small firms may use foreign expansion to cope with declining

country markets (Chen and Martin, 2001). Such a motivation would be a proactive-external factor. In his 1973 publication, Knickerbocker says: “foreign expansion is an oligopolistic reaction to checkmate the move of rivals” (Chen and Martin, 2001) and Mascarenhas indicated that firms go abroad to avoid domestic competition (Mascarenhas, 1986). Furthermore, decision to engage in international cooperation is foreseen by Network perspective described in the theoretical part of this paper. According to Network approach, a company’s decision about whether to start exporting is also based on organisational relationships which can include competitors. Thus:

Hypothesis 3 *Increases in competition on the domestic market corresponds to increased engagement in export*

2.4.4 Business constraints

The three previous hypotheses are expected to have a positive relationship with the decision to export. The following variable is expected to have an opposite effect. Based on European Commission report from 2007 one of the most important limitations to international activity are business constraints. In this paper three business constraints are included into the research as ones which can seriously correlate with a firm’s decision about internationalisation. Those will be limited access to finance, lack of quality management and problems with administrative regulations. To analyse the effects of constraints, research uses the judgment of each respondent/firm on the occurrence of various constraints. These measures illustrate the perception of firms on the obstacles that are specific to their operation. These factors may affect the efficiency levels, trade costs as well as export management strategies of firms, which in turn influence their export intensity. Acs and Terjesen (2005) mention limited access to financial capital and imperfect information as most important barriers for new firms. Taking into account that business constraints might become barriers for engagement in international trade the following hypothesis will be tested:

Hypothesis 4 *Business constraints have a negative relation with export*

While most previous papers investigate specific determinants of internationalisation for different sectors, barely any firm specifics compare European Union countries and take the timing of when they joined the open market of the EU into account. Next to analysing 25 European countries, this paper investigates the level of export for two groups of countries,

named for the purpose of this research as EU15³ and EU10⁴. EU15 group is also labelled in this paper as “Old EU” and consists of countries which are within European Union Structures for longer period of time and have longer experience in cooperation in open international market. EU10 group consists of members who joined European Union in 2004. Those groups are compared and investigated in order to find possible patterns for decision to export. The reason those two groups of countries are compared in such a way is that besides the firm-specific characteristics, the differences in regard to level of internationalisation can come from country-specific factors; An example is the previously mentioned experience in open economy. It is expected that companies from countries which coexist in open market for a longer period are to a further extent active on international markets than companies from countries that have less experience in using international possibilities.

³ The group EU15 consists of 15 countries: Belgium (BE), Denmark (DK), Germany (DE), Greece (EL), Spain (ES), France (FR), Ireland (IE), Italy (IT), Luxembourg (LU), Netherlands (NL), Austria (AT), Portugal (PT), Finland (FI), Sweden (SE), and United Kingdom (UK).

⁴ The group EU10 includes countries that joined European Union in 2004: Czech Republic (CZ), Estonia (EE), Cyprus (CY), Latvia (LV), Lithuania (LT), Hungary (HU), Malta (MT), Poland (PL), Slovenia (SI), and Slovakia (SK).

3 Empirical analysis

This section will elaborate on the dataset used for empirical analyses. First the sample selection will be described then the focus will be put on variables used in statistical models. Finally, after descriptive statistics, the results from regressions will be presented.

3.1 Sample selection

In order to investigate the determinants of engagement in export this paper uses the dataset collected in a survey organised and managed by the Eurobarometer team of the European Commission. The survey of the European Commission is a successor of earlier surveys of the Observatory of European SMEs. The purpose of the original research is the provision of information on the characteristics and specificities of small and medium-sized enterprises across Europe. The points of interest are perception on business constraints, competition and human resources problems and data on internationalisation and innovation. The enterprises were interviewed in the period between November 2006 and January 2007 providing data for one year.

This research focuses on two sectors: manufacturing and services and at first investigates 25 European Union members and finally compares outcomes for two groups of countries (EU15 and EU10). From the original questionnaire, twelve questions were chosen for further analysis in this research. Detailed overview of chosen questions will be given in the following paragraph. The analytical analysis of this research covers in total 2565 observations with 1691 observations for EU15 and 874 for EU10.

3.2 Variables description

For the purpose of the paper and based on available data, fourteen variables were created. Those variables will be used for statistical analyses -which allow us to elaborate on investigated topic about differences in international activities in European countries and investigate the possible determinants of export.

[Table 1 about here]

3.2.1 Dependent variable

The aim of this paper is to look for possible determinants of internationalisation of 25 European countries. Internationalisation is a complex process which can have different modes such as: import, export, FDI, subsidiaries, strategic alliances, licensing, and franchising. Some of these options are regarded to be more suited for SMEs (e.g. export, licensing) as they involve less financial needs and risks than others. Several researchers argue that export is regarded as a first step to entering international markets. Kogus and Chang approach the role of export as a platform for future international expansion (Kogut and Chang., 1996). In a 1997 paper, Reynolds also discovers that SMEs tend to move into foreign markets as exporters (Reynolds, 1997). This paper uses export as a company activity representing internationalisation and at the same time exporting status (whether a firm exports or not) is a dependent variable for analytical research in this paper.

3.2.2 Independent variable

In order to test what can determine whether a company will open on international market and specifically in this paper whether a company will have export activity, six independent variables were chosen from the available dataset. The choice of variable is based on literature review and previous research outcomes. The use of the following variables will allow the validity of four hypotheses stated in the previous section to be tested.

Innovation is expected to have a positive correlation with international engagement of companies. Such an effect of innovation has been tested and confirmed by several researchers, among others Lopez and Garcia (2005) and Lanthenmaier and Wossman (2006). In the econometric models innovation is included as a variable which indicated what percentage of company turnover comes from new or significantly improved products and services.

A company's size can be measured by sales, ownership of capital equipment, financial capability and also by number of employees. This paper uses information regarding number of employees as a measurement of company size. In the research two size groups are included creating two binary variables (yes=1, no=0): variable `size_medium` related to companies which have 10-49 employees and `size_large` where number of employees is between 50 and 249. Micro size of the company (1-9 employees) constitutes the control group. Such a division is necessary due to lack of information on exact numbers of employees. Based on

previous findings (Agarwal, Ramaswami, 1992) it is expected that size has a positive correlation with dependent variable export.

Competition is expected to be a push factor toward export in this model. Previous findings suggest that companies facing increasing competition on the domestic market will open to the international market in order to achieve or maintain their competitive advantages. The original questionnaire asks whether competition within a company’s market increased in two years prior to the research. This question allows using competition as a dichotomous variable which attains value 1 if a company answer yes to the question and value 0 if company indicates otherwise.

Business constraints are expected to be impeding factors for decisions about company activity on international business scene. Such an expectation is especially realistic for SMEs, which are characterized by limited financial possibilities. Each of the following constrains: limited access to finance, lack of quality management, and problems with administrative regulations are transformed in three separate binary variables with possible values of 1 for companies who answered yes for such a constraint and 0 when specific constraint has not occurred for a company in the two years before the original research is conducted.

Summery of independent variables with expected effect on dependent variable is presented in Table 2.

Hypothesis	Variable used to test hypothesis	Expected effect
H1: There is a positive relation between innovation and exporting.	Innovation	+
H2: Firm size is positively related to the internationalisation measured by export.	Medium size, Large size	+
H3: Increases in competition on the domestic market corresponds to increased engagement in export.	Competition	+
H4: Business constraints have negative relation with export.	Limited access to finance Lack of quality management Problems with administrative regulations	-

Table 2 Hypotheses tests variable and Expected Signs
(Dependent Variable: Export)

3.2.3 Control variable

Three control variables are included in this research, in order to correctly analyse the determinants of internationalisation. These control variables are necessary to test for other factors that could affect engagement in international activities. Based on literature review, three control variables have been introduced in the models:

- Sector
- Import
- Subsidiaries_FDI

Sector variable is a binary variable in which 1 stands for companies from the manufacturing sector and 0 stands for companies from the service sector. Those two sectors represent the economical system that provides goods and services respectively for different participants of the market. Being part of a certain sector can influence whether a company is internationally active or not (Masurel, 2001).

Other modes of internationalisation are included into a model as control variables because previous research results suggest that engaging in forms of international cooperation other than export can influence the decision to engage in export (Katsikeas, Kalifa, and Crick, 1997).

Those other modes of internationalisation are represented with two variables. First variable import which has values 0 for companies who are not engaged in import and 1 for enterprises which have import. Second variable is binary Subsidiaries_FDI variable. Value 0 stands for respondents who answered no for question whether company is engaged in foreign subsidiaries and/ or Joint Ventures abroad and consequently value 1 represents companies who have these international activities.

3.3 Descriptive statistics

Before starting the econometric analysis it is worth describing the data. Table 4 provides descriptive information about dependent, independent and control variables to give an overview of the data used. All descriptive are also given separately for the two groups of countries EU15 and EU10 (Table 5) which are being investigated in this research. In addition results are also presented in regard to sectors included into the research: manufacturing and service.

	EU25	EU15	EU10
Total			
Number of observations	2174	1434	740
Percent of companies with export	31%	29%	35%
Manufacturing			
Number of observations	1601	1066	535
Percent of companies with export	40%	37%	47%
Service			
Number of observations	572	368	205
Percent of companies with export	7%	8%	5%

Table 3 Descriptive Statistics: Dependent variable export

[Table 4 about here]

[Table 5 about here]

Table 3 shows that 31% of companies are engaged in export activities. 40% of companies operating in the manufacturing sector declare having export activity while in the service sector only 7% are engaged in international cooperation via export. Further analysis of Table 3 reveals differences between the EU15 and EU10. Firstly, 29% of SMEs from the EU15 group of countries are engaged in export activities, while for EU10 that number is 35%. When the sector division is taken into account, the difference between those two groups of countries becomes even bigger. In EU15 37% of manufacturing companies have export and for EU10 almost half of companies operating in the manufacturing sector declare export activities (47%). The financial sector has a tremendously lower percentage of companies operating on international market via export. In the model with 25 EU countries only 7% of service companies declare having export. In the group of EU15 countries 8% of service enterprises have export and in the EU10 group only 5% of companies operating in this sector answered yes.

When taking a quick look at Table 4 and 5 with descriptive statistics for all variables used in this research, some further observations can be made. According to the dataset, companies from EU10 countries are overall more innovative. More than 16% of the total turnover (16,1%) comes, for EU10 companies, from new or significantly improved products, while at the same time for EU15 companies, 12% of their income is generated by innovative products.

For both groups of countries the manufacturing sector is more innovative than the financial sector (14,6% > 10,6%).

SMEs from EU10 are also slightly bigger than SMEs from EU15. 28% of EU10 SMEs has from 49 till 249 employees, for EU15 this number is 21%. For both EU15 and EU10 manufacturing companies are bigger than financial ones (28,1% and 8,6%).

Competition is measured by whether the competition on the domestic market increased during the two years leading up to the research. For EU10 and EU15 countries, around 6% of respondents answer yes to that question.

Constraints for export are measured in this research by three separate independent variables: limited access to finance, lack of quality management and problems with administrative regulations. Companies from the EU10 group indicate that all of above constraints occurred to them in the last two years. The most important limitation is problems with administrative regulations. More than 43% of EU10 SMEs indicated that this was a constraint. Furthermore, the differences between sectors can be observed for this variable. For manufacturing companies, limited access to finance is the most serious issue (21,8%), while in the financial sector the more important problems are with administrative regulations (40,9%). When the focus is put on EU 15 countries it can be seen that problems with administrative regulations is the most often acquiring, (31,4%). Limited access to finance is a constrain for 17,2% of respondents and the least important limitation for export is for EU15 countries lack of quality management. Implications and further analysis of descriptive statistics will be continued in discussion part of this paper.

3.4 Research method

In this section the methodology that has been used to investigate the possible determinants of export will be elaborated upon. The dependent variable for this research is the binary variable of export. The variable has two possible values: 1 if a company exports and 0 if a company does not. Adequately for binary dependent variable Logit Regression is used to analyse the dataset and look for possible determinants of internationalisation. In order to accurately determine possible correlation between the dependent variable and independent variables, a set of control variables is included. In short, one dependent, seven independent and three control variables are included in different configurations in econometric models. In addition, a

country variable representing the origin country of the respondent is included as a dummy variable to each model.

The aim of this paper is to study determinants of involvement in international cooperation in regard to different origin country of companies who participated in the original research. In order to get the broader picture to all interesting aspects which are hypothesised in one of the previous sections eight regressions are run. The first regression includes all independent variables and all 25 EU countries. The second regression includes other modes of internationalisation as control variables. It is believed that companies that have different types of international cooperation would be more prone to engage in export. In order to check how different factors are influencing the decision to start exporting for EU15 and EU10 countries the same regressions are run separately for each group of countries. Finally, to see if there are any differences in sectors, general models are created with division for manufacturing and service sector.

3.5 Results

The first two models are run for all countries together to see which independent variables significantly correlate to the dependent variable export for 25 EU countries. Results for both models are presented in Table 6.

In both models innovation is positively related to the decision to export. According to these models, companies with higher turnover coming from new or significantly improved products are more likely to export. Furthermore both size variables included into the model are correlated with export, which means that the size of the company measured by number of employees, *ceteris paribus*, is in fact an important aspect when it comes to decisions about involvement in international cooperation via export. Increase in competition on domestic market does not influence companies' decisions about export in the models for two groups of countries. Business constraints are measured with three possible obstacles to internationalisation. From those three only lack of quality management correlates to the dependent variable at the 10% level. When the general model for 25 countries is controlled for other modes of internationalisation so variable import and foreign subsidiaries/FDI are included, a lack of quality management is no longer significant (Table 6, model 2). For those models the evidence in favour of H1 and H2 is found. In addition, the sector variable negatively correlates to the decision to export. That means that companies from the manufacturing sector are more likely to export. The other modes of internationalisation are

also positive and significant, which proves what was expected: companies active on the international market through other international cooperations are more likely to decide to export, *ceteris paribus*.

[Table 6 about here]

In order to answer the see whether there are differences in regard to determinants of export among EU15 countries and EU10 countries, two general models were run for each group of countries separately (Table 7, model 3 and 5). Additionally, general models were controlled for possible effects of other model of internationalisation by including import and subsidiaries/FDI variables into the models (model 4 and model 6).

For both groups of countries, size is a significant determinant of export. Alike as in models for 25 countries, the more employees a company has, the higher the probability that that company will decide to start exporting. When it comes to innovation, for EU15 and EU10 this variable is significant. However, in the model for EU10 countries the effect of innovation does not occur when general model is controlled with import and subsidiaries/FDI variables.

Business constraints have a significant relationship with export only for companies coming from EU10 group of countries. However, limited access to finance is expected negative sign, lack of quality management is not significant and problems with administrative regulations are positive signs. The sector effect holds for all 4 models, so, similarly to previous models, manufacturing companies are more likely to engage in internationalisation measured by export.

[Table 7 about here]

Table 8 presents the results of regressions run for each sector separately. The author also ran models for separate sectors for each group of countries, but unfortunately the number of observation for the service sector in EU10 countries turns out to be insufficient for further analysis of output. Thus, only findings for 25 EU countries in regard to the sector in which companies operate will be elaborated on. For both, the manufacturing and the financial sectors, innovation, *ceteris paribus*, is a significant predictor of internationalisation. Size correlates with the export factor only for manufacturing companies. Finally, from three business constraints included into the model, only a lack of quality management appears to have a positive (not as expected negative) relationship with export and only for manufacturing companies.

[Table 8 about here]

Further implications of results will be elaborated on in the next section of this paper.

Table 9 summarizes the results for each hypothesis.

	1	2	3	4	5	6	7	8
H1: There is a positive relation between innovation and exporting.	■	■	■	■	■	□	■	■
H2: Firm size is positively related to the internationalisation measured by export.	■	■	■	■	■	■	■	□
H3: Increases in competition on the domestic market corresponds to increased engagement in export.	□	□	□	□	□	□	□	□
H4: Business constraints have negative relation with export.								
H4a: Limited access to finance has negative relation with export	□	□	□	□	■	■	□	□
H4b: Lack of quality management has negative relation with export	□	□	□	□	□	□	□	□
H4c: Problems with administrative regulations has negative relation with export	□	□	□	□	□	□	□	□
1 – All countries general model 2 – All countries model with import and subsidiaries included 3 – EU15 general model 4 – EU15 model with import and subsidiaries included 5 – EU10 general model 6 – EU10 model with import and subsidiaries included 7 – All countries – manufacturing sector 8 – All countries – financial sector								

Table 9 Hypotheses results

4 Discussion and conclusions

The main objective of this paper is to examine level and determinants of internationalisation measured with export status among 25 European Union countries. In regard to this purpose, the descriptive statistics of the dataset allow us to see that activity on the international market is important and, especially for SMEs, crucial. The dynamics of the world economy and increasing global competition are not only encouraging but in some cases necessitating SMEs to expand into foreign economies. However, according to the dataset from 2006 only 31% of European enterprises are active in exporting.

Another point of interest of this paper is to see whether there are any differences in regard to the amount of export between two groups of countries. The original group of 25 EU countries is divided into two groups. The first group is built from countries that originally formed the EU before 2004. The second group, named EU10, is a group of ten countries that signed the Treaty of Accession in 2003. The dataset indicated that EU10 countries have more export than EU15 countries. Such an outcome can be seen at first as surprising as EU10 are emerging market economies and transitional economies that have moved from a centrally planned closed market to a transparent open market economy. They often lack financial resources and liability for foreign partners. According to Meyers, less information is available in developing countries (Meyers, 2001) and the lack of information about potential business partners and their business skills in the open market economy might bring along increased risk and therefore limit the possibility for international cooperation. Nevertheless, internationalisation in this paper is measured by export status. Export is regarded to be the least hazardous type of internationalisation. This is because export is often seen as the most appropriate form of international cooperation for Small and Medium Sized enterprises. Consequently, export is also an adequate international action for countries that have less experience in cooperating on the free, open market. Companies from EU10 have firm-specific advantages like lower costs of production, relatively lower labour costs, quite often a less formal organisational structure and production orientation. In addition, EU10 countries can still make use of a currency advantage they have at the time the data is collected. In order to check if the predominance for EU10 is a matter of the type of dependent variables included into the model (export), descriptive statistics were run also for other modes of internationalisation such as Import and Subsidiaries/FDI. The results presented in Table 10

show that, indeed, the advantage of EU10 holds only for the export status of investigated companies. EU15 overcomes Old EU members in regard to subsidiaries and FDI cooperation.

[Table 10 about here]

Another expected effect is observed when the analysis is followed at the sector level. Based on data from 2006, the manufacturing sector is ahead of the service sector in regard to engagement in international cooperation through export.

The main objective of the paper is to investigate possible, determinants of export. Based on literature review and economical theories, a set of variables were chosen to be included in the statistical models in order to see which of them correlate with export. The first expected relationship was between innovation and export. Previous research has suggested a positive correlation between those two important aspects of companies' operations. This expected effect was confirmed in each statistical model run for all European countries, and also for separate groups of EU15 and EU10.

The direction of correlation between innovation and export is not a focus of this paper thus is not tested. The results should be then taken into consideration with keeping in mind that more innovative companies might be more likely to engage in export but also that companies which operate in foreign markets via export can be more prone to innovate.

Nevertheless, the important message is that innovation and export are the two key factors that often determine the success of an enterprise. Thus, the attention of governments and policy makers should be put in both.

Another important effect observed in statistical analysis is a positive relationship between the size of a company and export. The expected positive correlation between those two was supported in almost all models. That implies that companies operating on international markets through export hire more employees. This effect was not found in EU10 service companies it can be expected that in the service sector, other enterprise characteristics like financial resources and the level of education of managers and employees are more important factors when it comes to making the decision to export. Unfortunately, the limited dataset did not allow for adequate controlling for those effects.

Hypothesis 3: The hypothesis that increases in competition on the domestic market have a positive relationship with engagement in export does not hold for any of eight statistical models. The effect of increased competition on a local, domestic market was expected to be a

push factor towards export. According to Moen (1999), if a small company encounters increased competition in the domestic market, most would not be motivated to export in order to compensate for this situation, while larger firms could be expected to start exporting. The smallest companies would be reluctant mainly because of their limited resources.

The literature section described motives and barriers for exporting. The three first hypotheses were built around possible motives where the expected sign of correlation between independent and dependent variables is positive. Various business constraints were included into the models as possible barriers for engagement in export. Based on the theoretical section, an assumption is made that the limited access to finance, lack of quality management and problems with administrative regulations will have a negative correlation with export. The most important finding for this hypothesis is that the problems with limited financial resources are a concern only for countries from the EU10 group, and not for the EU15 group. This finding supports what was generally expected – that EU10 countries are still behind the Old EU countries in regard to accessibility to finance. The problem with finance can also explain the previously discussed finding that EU10 outperforms Old EU countries only in export status but not in engagement in foreign subsidiaries and FDI, both of which require more financial resources. Unexpected results were found regarding a constraint due to a lack of quality management. The quality management variable is significant and supports the general model run for all 25 countries, as well as the manufacturing sector specifically. Such an outcome can be explained by the fact that this variable was built based on a backward-looking question. The original questionnaire asked respondents whether their company had encountered a problem like “lack of quality management” in the last two years. The positive sign in regression can imply that companies that participated in the research already made up for this problem.

Findings and conclusions should, as always, be seen within the context of certain limitations. First, the statistical analyses which were used in empirical part do not allow investigating the causality of observed relations between independent and dependent variables. The results indicate that level of innovation, size of the company measured in number of employees and business constraints are significantly influencing the probability of a firm to export. What is impossible at the current time is to tell what the directions of those correlations are. In addition, a lack of financial indicators of company situation such as turnover within a company makes the complex investigation of determinants of internationalisation near

impossible. Several researchers indicated that internationalisation is positively correlated to a firm's financial performance (Bernard and Jensen, 1999).

Finally, all information in the Observatory of European SMEs is obtained from firms that cooperated on a voluntary basis. This could create a self-selection bias since the incentives to participate might depend on several, uncontrolled factors.

It would be worth further investigation on the given dataset the direction of found relationships between variables.

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6 Appendix

Variable	What does the variable say	Type	Values
DEPENDENT VARIABLE			
Export	Whether company is engaged in export activities	binary	Yes=1 No=0
INDEPENDENT VARIABLES			
Innovation	What % of turnover is coming from new or significantly improved products or services?	nominal	%
Micro size	1-9 employees	binary Excluded from the model	Yes=1 No=0
Medium size	10-49 employees	binary	Yes=1 No=0
Large size	50-249 employees	binary	Yes=1 No=0
Competition	Whether competition within company's market increased in 2005 and 2006	binary	Yes=1 No=0
Limited access to finance	Whether company encountered problem like: " Limited access to finance " in 2005 and 2006	binary	Yes=1 No=0
Lack of quality management	Whether company encountered problem like: " Lack of quality management " in 2005 or 2006.	binary	Yes=1 No=0
Problems with administrative regulations	Whether company encountered: " Problems with administrative regulations " in 2005 or 2006.	binary	Yes=1 No=0
CONTROL VARIABLES			
Sector	In which sector company operates.	binary	0=manufacturing 1=financial
Import	Whether company is engaged in import activities.	binary	Yes=1 No=0
subsidiaries_FDI	Whether company is engaged in foreign subsidiaries and/or Joint ventures abroad.	binary	Yes=1 No=0

Table 1 Variable description

	EU15			EU10			All countries				
	obs	mean	std dev	obs	mean	std dev	obs	mean	std dev	min	max
DEPENDENT VARIABLES											
Export	1434	29		740	35		2174	31,3		0	1
INDEPENDENT VARIABLES											
Innovation	1130	12,26	19	625	16,1	22,1	1755	13,6	20,3	0	100
Medium size	1691	26,1		874	27,4		2565	26,6		0	1
Large size	1691	21		874	28		2565	23,3		0	1
Competition	1642	6,8		866	6,2		2498	6,6		0	1
Limited access to finance	1650	17,2		854	23,6		2494	19,4		0	1
Lack of quality management	1663	12,8		860	18,2		2523	14,6		0	1
Problems with administrative regulations	1668	31,4		859	43,2		2418	21,8		0	1
CONTROL VARIABLES											
Import	1350	51		737	51		2087	51		0	1
subsidiaries_FDI	1565	7		833	3		2398	5,5		0	1

Table 4 Descriptive statistic

		EU15			EU10			All countries				
		obs	mean	std dev	obs	mean	std dev	obs	mean	std dev	min	max
1	Manufacturing	1066	37		535	47		1601	40,1		0	1
	Service	368	8		205	5		573	6,8			
2	Manufacturing	860	12,8	19,9	475	17,7	22,7	1335	14,6	21,2	0	100
	Service	270	10,4	15,9	150	11	19	420	10,6	17,1		
3	Manufacturing	1283	31,2		657	33,8		1940	32,1		0	1
	Service	408	10		217	8		625	9,4			
4	Manufacturing	1283	24,3		657	35,5		1940	28,1		0	1
	Service	408	10,3		217	5,5		625	8,6			
5	Manufacturing	1254	7,6		650	6,1		604	7,1		0	1
	Service	388	4,1		216	6,5		604	4,9			
6	Manufacturing	1253	19,8		641	25,7		1894	21,8		0	1
	Service	397	9,1		213	17,4		610	11,9			
7	Manufacturing	1263	14,8		654	20,9		1908	16,9		0	1
	Service	400	6,5		215	10,2		615	7,8			
8	Manufacturing	1267	32,2		645	44		1833	15,6		0	1
	Service	401	28,9		214	40,6		585	40,9			
9	Manufacturing	1046	60		558	62		1604	60,8		0	1
	Service	304	20		179	17		483	19,5			
10	Manufacturing	1181	7		621	4		1802	5,7		0	1
	Service	384	6		212	2		596	4,9			

1 – Export
2 – Innovation
3 – Medium size
4 – Large size
5 – Competition
6 – Limited access to finance
7 – Lack of quality management
8 – Problems with administrative regulations
9 – Import
10 – subsidiaries_FDI

Table 5 Descriptive statistic for sectors

	1. All countries general model	2. All countries model with import and subsidiaries included
Innovation	0.00264*** (0.000663)	0.00188** (0.000780)
Medium size	0.256*** (0.0387)	0.249*** (0.0438)
Large size	0.500*** (0.0357)	0.459*** (0.0419)
Competition	0.0247 (0.0563)	0.0530 (0.0678)
Limited access to finance	-0.0401 (0.0310)	-0.0370 (0.0375)
Lack of quality management	0.0731* (0.0383)	0.0684 (0.0450)
Problems with administrative regulations	0.00522 (0.0280)	-0.0192 (0.0334)
Sector	-0.279*** (0.0247)	-0.269*** (0.0324)
Import		0.224*** (0.0326)
subsidiaries_FDI		0.195** (0.0870)
Country dummies	yes	yes
Number of observations	1,484	1,224
pseudo R-squared	0.303	0.328
Robust standard errors in parentheses * – significant at 10% ** – significant at 5% *** – significant at 1%		

Table 6 Results regression 1- 2

	3. EU15 general model	4. EU15 model with import and subsidiaries included	5. EU10 general model	6. EU10 model with import and subsidiaries included
Innovation	0.00298*** (0.000859)	0.00197* (0.00102)	0.00236** (0.00111)	0.00182 (0.00129)
Medium size	0.246*** (0.0460)	0.252*** (0.0530)	0.268*** (0.0735)	0.255*** (0.0811)
Large size	0.470*** (0.0449)	0.417*** (0.0525)	0.557*** (0.0609)	0.541*** (0.0711)
Competition	0.0790 (0.0717)	0.104 (0.0857)	-0.0984 (0.0861)	-0.0492 (0.110)
Limited access to finance	-0.0115 (0.0393)	0.0117 (0.0498)	-0.0882* (0.0533)	-0.112* (0.0609)
Lack of quality management	0.0653 (0.0461)	0.0744 (0.0568)	0.0864 (0.0689)	0.0558 (0.0767)
Problems with administrative regulations	-0.0349 (0.0319)	-0.0518 (0.0394)	0.0964* (0.0534)	0.0557 (0.0622)
Sector	-0.235*** (0.0290)	-0.223*** (0.0399)	-0.365*** (0.0470)	-0.342*** (0.0607)
Import		0.214*** (0.0392)		0.247*** (0.0588)
subsidiaries_FDI		0.157* (0.0930)		0.406** (0.184)
Country dummies	yes	yes	yes	yes
Number of observations	961	771	523	453
pseudo R-squared	0.271	0.290	0.364	0.403
Robust standard errors in parentheses * – significant at 10% ** – significant at 5% *** – significant at 1%				

Table 7 Results regression 3-6

	7. All countries – manufacturing sector	8. All countries – financial sector
Innovation	0.00317*** (0.000886)	0.00257*** (0.000943)
Medium size	0.317*** (0.0430)	0.179 (0.144)
Large size	0.548*** (0.0345)	0.274 (0.174)
Competition	0.0282 (0.0733)	0.0271 (0.0820)
Limited access to finance	-0.0618 (0.0422)	0.0846 (0.0821)
Lack of quality management	0.0845* (0.0467)	0.0833 (0.0862)
Problems with administrative regulations	-0.0211 (0.0375)	0.121** (0.0476)
Country dummies	yes	yes
Number of observations	1,105	211
pseudo R-squared	0.235	0.216
Robust standard errors in parentheses * – significant at 10% ** – significant at 5% *** – significant at 1%		

Table 8 Results regression 7-8

	Import		Subsidiaries/FDI	
	EU15	EU10	EU15	EU10
Total				
Number of observations	1350	737	1565	833
Percent of companies with export	51%	51%	7%	3%
Manufacturing				
Number of observations	1046	558	1181	621
Percent of companies with export	60%	62%	7%	4%
Service				
Number of observations	304	179	384	212
Percent of companies with export	20%	17%	6%	2%

Table 10 Descriptive Statistics: Other model of internationalisation