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SHORT ARTICLE

On Measuring the Degree of Internationalisation

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Abstract: The paper critically reviews various definitions, parameters, and models of measuring the degree of internationalisation of companies. It suggests some new elements to be included in such studies in the future.

JEL Classification: M21

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Introduction

During the last three decades, intensive globalisation processes have motivated many scholars to define the term 'internationalisation' and determine appropriate factors upon which its measurement can be based. These scholars have made studies that range from economics to organisational behaviour. Most studies primarily focus on defining models that can determine the stages of internationalisation and track the processes. The common goal in the investigations was to use an appropriate model to estimate the degree of internationalisation and its impact on companies' performance and thereby create a tool for decision makers.

There is still no generally accepted model that can be used to determine the degree of internationalisation of a company, especially the one that would be independent to companies' activity. The published papers try to review parameters that affect internationalisation processes and evaluate existing models of internationalisation.

Definitions of Internationalisation

The term 'internationalisation' is interpreted in many different ways and thus measured by different parameters (Chetty and Campbell Hunt, 2000). Welch and

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Luostarinen (1988, p. 36) define internationalisation as ‘the process of increasing involvement in international operations’. Such definition approaches internationalisation from the macro/micro economic aspect and takes into account parameters that influence companies spreading in other countries. These parameters are usually asset structure of the company, labour force, revenue/profit analysis and management knowledge (Hadjikhani, 1997.).

Alternatively, internationalisation is sometimes defined in different context, i.e. as the process of adaptation of products and services for foreign markets. Accordingly, Beamish and Calof (1995, p.116) define it as ‘the process of adapting firms’ operations (strategy, structure, resources, etc.) to international environments’. This definition approaches internationalisation from the consumer’s point of view and is not as often represented in business research literature. In these cases, term ‘globalisation’ has the meaning that internationalisation has in business literature.

However, no matter which definition is adopted, there is still the question as how to measure the level of international activity of companies. If observed from macroeconomic point of view, broadly accepted parameter of internationalisation is FDI (Lu and Beamish 2001, Wei and Christodoulou, 1997), or the foreign direct investment which can be observed as the capital or equity invested in abroad in companies and businesses, or that same capital or equity invested in domestic companies from abroad. It is important to have in mind that a portfolio, for example a stock investment, is not considered as an FDI (Wei and Christodoulou, 1997). FDI can be linked with above stated definitions of internationalisation in developed and powerful economies. Weaker, and especially, transitional economies do not and still can not compete in international market, especially in the small and medium enterprises segment, so the FDI is probably not the best measure of internationalisation. Accordingly, Westhead et al. (2002) propose the level of export as a measure for internationalisation of SMEs. So far, FDI is not subjected to rules of economy of scale implying that there is some threshold of capital and economic activity that company has to reach in order to be capable to make an FDI. Export is not always so lucrative and challenging for a company in terms of investment to show international orientation of the company.

Some important contributions concerning the stages of internationalisation were made in the early 1980s. Firstly, the transaction cost theory (Williamson, 1981) looked at firm’s behaviour predicting that a firm is more likely to enter markets and countries where they have more knowledge and experience. Secondly, the eclectic paradigm (Dunning, 1981) proposed three variables of ownership advantages, internalisation and local advantages. Using more strategically based approach, eclectic paradigm predicts that the production will be established where advantages can be enjoyed, creating a model that is more static in nature (Hadjikhani, 1997).

So as to establish a methodology to measure internationalisation of the enterprises, we need to adopt one of the mentioned definitions of internationalisation. As mentioned earlier, Westhead and al. (2002) and Calof and Beamish (1995) use quantitative approach to internationalisation to measure its effect on macro level. They propose FDI and the level of export, as measures upon which the internationalisation can be measured, even on the level of single enterprise. Alternatively, Chetty and Campbell-Hunt (2003) take in consideration 'soft' parameters of enterprise, like market knowledge, strategy and profitability to estimate the level of internationalisation. This approach can lead to the models that can provide a tool to help decision makers within the companies to determine real conditions, possibilities and attractiveness of internationalisation for the company.

Factors in Measuring Internationalisation

The main motivating force behind measuring internationalisation is the determination of the stage of internationalisation of a particular company, rather than the measurement of the effects of internationalisation on macroeconomic level. There have been various parameters used in the business research, but they are spread in following general categories that can be interpreted as five aspects where the internationalisation manifests itself (Hadjikhani, 1997):

- Asset structure of the company usually expressed is the ratio between domestic against foreign owned assets. This ratio is especially important when measuring the internationalisation of companies in financial/banking sector, as the industry has no real economic component (Hejazi and Santor, 2005.).
- The amount of sales (revenues) that a company makes in home market and abroad. This is the most common used measure, as most studies on internationalisation have tried to explore internationalisation phenomenon in order to find links with company's performance, as argued by Bloodgood (1995).
- The most commonly used parameter is the labour aspect of internationalisation measured as a percentage of domestic against the overseas workforce. This is a variable that is highly appropriate for the estimation of degree of internationalisation of companies engaged in labour intensive activity (McGovern, 2002.). However, this aspect is not to be mixed-up with management structure or management experience as they are to be considered as different categories.
- Management is although a part of labour force, but it has to be separated as a variable because of its decision making power and thus its influence on the

companies' behaviour. International management structures with previous international experience can easily make a decision for a company to go abroad (De Clercq et al., 2005).

- The location refers on how large space or in how many different countries company can be dispersed. This category is sometimes referred to as 'spatial distribution'.

In practice, however, determining the parameters for measuring internationalisation has remained an unresolved issue in business research (Hassel et al. 2003.). Thus, from the assets aspect, some studies used foreign sales over total sales alone (Dunning 1985, Rugman, Lecraw and Booth 1985, Collins, 1989). Others have used foreign sales over total sales and foreign assets over total assets but in separate models (Erunzy & Senbet 1981; Daniels & Bracker 1989). It is therefore understandable that some of these studies gave unsatisfactory results as a consequence of unreliable measurement of degree of internationalisation, as Sullivan (1994) has noticed.

Models for Measuring Internationalisation

Pioneering attempts in measuring internationalisation were focused to describe it through a process model. In late 1970s, Johanson and Vahlne proposed an internationalisation process model (Johanson and Vahlne, 1997) that suggests four stage progressive development in internationalisation (stage model):

- No regular export activities
- Export via independent representatives (agents)
- Sales subsidiary
- Production/manufacturing

It is visible that this model assumes that firm develops in the domestic market and that the internationalisation model is the consequence of incremental decisions (Hadjikhani, 1997). Downside of this model is that it does not offer any fine-tuning or exact parameter by which different companies can be compared but only the stage of the process an internationalising company is currently on. Companies are simply put in one of four categories; while there can be huge difference in degree of internationalisation for two companies that, for example, have production set abroad. It can as well be assumed that different conditions the modern business is taking place in, like E-business or new firmer economic integrations (like EU) can make this model inadequate.

Therefore, Hadjikhani (1997) argues that better measures for internationalisation should be used. Hassel et al. (2003) argue that there are only three developed models, up to date, that can provide exact indices for internationalisation:

- Transnationality index – TNI - published by UNCTAD
- Transnationality spread index –TSI- (Ietto-Gillies, 1998)
- Degree of internationalisation – DOI - by Sullivan (1994).

1. The transnationality index (TNI) takes in consideration three parameters: FSTS (foreign sales against total sales), FETE (foreign employment against total employment) and FATA (foreign assets against total assets). The TNI is thus calculated as the average of three components. However, empirical testing of this index (UNCTAD, 1997, 1998) has shown that combining parameters in an index is not a straight-forward procedure. For instance, factor analysis show that FATA and FSTS can be grouped into one factor, FETE cannot be grouped into that same category. One of the reasons could be that since the firms spread their activities all over the world, the lack of correlations can be due to varying degrees of assets per employee in different countries. Another problem with TNI is that it will show higher value for companies from smaller countries. Possible reason could be in smaller number of working force in smaller countries, thus higher and easier penetration of foreign labour force. If the components are observed, there can be much more information collected, while the TNI index itself is not providing sufficient information.

2. Transnationality spread index (TSI) is an extension of TNI model proposed by Ietto-Gillies (1998). Criticism of the original TNI model driving the extension was that the original model just distinguishes between the foreign and domestic activities of the company and it doesn't take in consideration how widely the foreign activities are spread. Therefore, Ietto-Gillies proposes additional parameter – NSI (Network-Spread Index). This index is calculated as a ratio of number of countries where company has affiliates against the total number of countries world-wide in which there is inward stock of FDI minus one (to exclude the home country). Transnationality spread index is calculated as TNI multiplied by NSI, making NSI an equivalent parameter of the extended TNI model. This is so that the TNI is calculated as the product of FETE, FSTS and FATA. Scholars point out the shortcomings of this model, the main argument being that the end index gives little information about the company's international activity and that NSI has to be observed additionally from TNI and not just as the one factor in end calculation. One of the proofs for that point of view is the study for the top 100 Multinational Enterprises (MNEs) which have shown rank correlation coefficient of TNI and NSI of 0,4 (UNCTAD, 1998). It means that when TNI and NSI are multiplied to get TSI, it provides very little information on

the real nature of the company's internationalisation. However, this question remains opened for each index that is calculated by combination of different parameters.

3. Daniel Sullivan (1994) has developed a third index – degree of internationalisation (DOI). To resolve the above mentioned problems, Sullivan has proposed a multi variable DOI measure that consists of the following parameters:

- FSTS (foreign sales against the total sales)
- FATA (foreign assets against the total assets)
- OSTS (number of overseas subsidiaries to total subsidiaries)
- TMIE (Top managers' international working experience in years)
- PDIO (Physical dispersion of international operations) i.e. the estimated value, measured by the dispersion of subsidiaries of a firm among ten physical zones of the world as defined by Ronen and Shenkar (1985).

The index is calculated as a sum of all five parameters what simplifies the analysis of the index, compared to TSI and TNI. Sullivan's proposal is in line with factors that Hadjikhani identified, except that there is no measure for labour internationalisation in Sullivan's proposal. Different from the first two models, Sullivan introduces the measure for management's experience in international experience, which has previously been recognised as highly important for company's internationalisation (Mc Dougall, 1989; Mc Dougall and Oviatt, 2000; De Clercq et al. 2003). Their main argument for the importance of this parameter to be included in internationalisation indexes is that the internationalisation can be described as a process in which company goes through incremental steps that reduce the uncertainty embedded in cross-border activity (Prasad, 1999.). They provided two arguments that level of knowledge in international operations correlates positive with companies' performance. First is that when companies get more comfortable with the particular situations encountered in foreign markets, the uncertainty related to further increasing the intensity of international activities may diminish. Second, the more knowledge a firm has gained through intensive learning efforts, the more willing it will be to utilise and exploit this knowledge through subsequent international activity.

Sullivan's model, as well as TNI and TSI, has been criticised for combining measures of different levels, i.e. structural and attitudinal as well as a performance-related indicators of internationalisation (Ramaswamy et al., 1996.). According to him, components of the different levels were no substitutes as conveyed by the index, being the sum of all components. A high value of one parameter could not simply be replaced by a high value of another variable, regarding the different outcomes on the part of dependable variable. Sullivan has argued such criticism, with an argument that mixture supports construct validity because it conforms to theory.

Although the critics have displayed very reasonable arguments, it is the fact that the Sullivan's model was empirically confirmed by factor analysis

Additional Remarks on Parameter Measurement

Global economy can be discussed through various parameters, like the supply and demand, but also on development of new social relations in which economic processes are taking place. Therefore internationalisation includes economy, but also different conditions relevant for life and work of the individuals. These relations are built both collectively and individually.

Process of internationalisation in economy is, in a relative sense, stronger in financial than in real sector. It is because the conditions of internationalisation of financial sector are defined by global institutions like IMF, Word Bank and World Trade Organisation and are not dependent on the state of information systems, while the real economy and competitive market in real sector need a developed information system. In order to explain the aspects of real and financial asset structure, the two aspects need to be differentiated, and some additional parameters introduced to measure internationalisation.

Foreign Assets over Total Assets (FATA)

Similar to FSTS, FATA is a percentage of assets in foreign countries as a percentage to total assets. Hassel et al. (2003) point out that it is very important to make a distinction between financial and real assets because the motives of the company to gain one are not the same as to gain another and thus affect internationalisation process. By the term 'real dimension of internationalisation' same authors consider the share of foreign activities, while the 'financial dimension of internationalisation' refers to orientation towards international capital markets.

The 'Real dimension' of internationalisation is usually much easier to observe. By definition, multinational company is the company that control and manage production plants in more than two countries (Caves, 1996.). Therefore it is the most visible and most important aspect of the firm's internationalisation in its decision to invest in cross-border production activities rather than sell rights to other firms in foreign market (Dunning, 1998).

Considering the financial dimension of internationalisation, scholars find the impact of foreign-exchange rates on investment decisions (Blonigen, 1997; Caves, 1998) as a key factor. Hassel et al. (2003) count other effects also that appear in the financial dimension as these affect firm's performance e.g. ownership structure and its country of origin, etc., pointing out that ownership structures and market capitalisation vary significantly between different countries. It would be interesting to measure the extent to which a company internationalises it's financing or ownership structure by approaching international investors, but there hasn't been any study so far to in that direction. They propose three additional measures to determine the financial aspect of asset structure of the company:

- Foreign Owners as Percentage of Total Ownership (FOTO) – this parameter estimates the actual extent of foreign shareholders of companies. A high degree of this parameter is seen as high degree of openness and a closer relationship to international capital, suggesting important dimension of company's internationalisation.
- Number of listings in foreign stock exchange (FSE) – this parameter indicates a stronger effort by the company to attract institutional investors, thus displaying company's international orientation.
- Degree in which company adapts international against domestic accounting standards (for instance US-GAAP against IAS – International Accounting standard). The US GAAP is focused on protecting creditor's interests, where IAS is based on 'true and fair' principle that protects the minority shareholder. This variable is called Accounting standards (AS) and is expressed with an ordinal scale.

Conclusion

There are two general approaches in defining internationalisation. The first observes internationalisation as the process of company being more involved in international operations, while the second takes in consideration marketing aspect of internationalisation and defines it as the process of adoption of companies' services and products for different markets. We have opted here for the first definition as it is more appropriate and provides the opportunity to measure internationalisation of the company in much wider sense.

However, if the internationalisation is observed from macroeconomic level, this approach is highly appropriate, but it proves to be inadequate if the stage of internationalisation has to be determined for the single company. Accordingly, we suggest the use of other alternative approaches.

Generally, model that would take in account all aspects that may occur in internationalisation process should be more complex than any suggested. For instance, asset structure is probably the most complex structure in measuring internationalisation, especially distinction between real and financial asset structure.

We have shown that additional parameters can be added to the model, depending on the conditions and specific company for which the internationalisation is measured. This can be applied on any factor important for internationalisation measurement.

'The criteria for constructing an index must be based on whether the individual components of the index are sufficiently complementary so that combination of different variables measures something which can be described both theoretically and empirically' (Hassel et al., 2003, pp 705). Another important obstacle in any study of internationalisation remains the unavailability of data for empirical testing.

We conclude that Sullivan's DOI model provides a solid concept for measuring internationalisation, but has to be extended with additional parameters for specific markets and businesses.

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