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Regional Trade Agreements as Structural Networks: Implications for Foreign Direct Investment Decisions

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Regional Trade Agreements as Structural Networks: Implications for Foreign Direct Investment Decisions

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The last few decades have witnessed a proliferation of preferential trade agreements and regional trading blocks. Yet little research has been done to integrate trading block considerations into country attractiveness and foreign direct investment decisions. In this paper, we show how network analysis can be used to study, track, and forecast the structural changes among countries in regional trade agreements. Using intra-regional trade data, we analyze the overall trade structure and the relative positions of countries belonging to the European Union. The results show that certain countries offer better opportunities for within-EU market penetration than do others. Our approach provides managers with additional criteria for evaluating country attractiveness, therefore, allowing for more comprehensive and informed FDI decisions to be made.

INTRODUCTION

Market attractiveness evaluations drive firms foreign direct investment (FDI) and market entry decisions (Root, 1987). In virtually all cases, the unit of analysis is the country -- that is, the decision to be made is which country or countries to enter and/or invest in. The fields of international management and marketing have researched how firms should and do evaluate market attractiveness. For example, Preble, Rau, and Reichel 's (1988) study on the environmental scanning practices of U.S. multinational firms showed that most managers look at the legal, economic, and political situations in a particular country before assessing the appropriateness of doing business with that country. In terms of market entry decisions, clustering techniques using a variety of economic, political,

social, and other country statistics have been used to identify and group countries in terms of their attractiveness (Sethi, 1971; Sethi and Holton, 1973; Johansson and Moinpour, 1977; Cavusgil 1990). Country indicators are also used to help guide foreign direct investment decisions. Agarwal and Ramaswami (1991), for instance, identified two country factors, market potential (country size and growth rate) and investment risk (economic and political uncertainty), as important indicators of FDI. Their findings are similar to those of other studies that showed the importance of specific country characteristics as predictors of FDI (e.g., Larimo *1995;* Woodward and Rolfe 1993).

Among all of the economic, social, political, and other indicators prescribed by researchers, few, however, have studied the impact of regional trade agreements on market selection and FDI decisions. There are a number of compelling reasons why they should. First, preferential trading terms reduce the cost of exporting to member country markets. Locating within a trading block provides lower cost access to member country markets than does exporting to member countries from outside of the block. Second, the costs of serving multiple countries within a trading block may differ depending on the base of operations. That is, strategically locating in one country can lead to greater efficiencies than investing in another country, even though both are members of the same trade agreement. Such efficiencies arise from nation-specific benefits such as lower factor costs, economic rents, and agglomeration economics (e.g., Head, Ries and Swenson 1995; Jones 1980; Sanford and Fink 1997). While such advantages of locating operations within a trading block are straightforward, less obvious is how to determine which countries within the block are more attractive than others. That is, if one goal of investing in European operations is to provide a gateway for serving multiple countries within the European Union (EU), which countries are most attractive on this criterion? And is the relative attractiveness of countries likely to change in the future?

The purpose of this research is two-fold. First, we show how a countrys current and forecasted position in a regional trade network affects its attractiveness. Second, we look at the effects of the formation of a trade or economic union on the member countries of the union in question. To answer the above two-questions, we use within-region trade patterns to study the EU regional trade agreement as a network of countries. The structure of the network describes country interrelationships as a function of the flow of goods between member countries. A countrys specific position in the network can be identified, and serves as an important indicator of its attractiveness vis-à-vis market entry, foreign direct investment, and market withdrawal. As such, the study of regional trade agreement membership using a network analytic approach can be a useful complement to traditional country attractiveness analyses in making strategic market entry and FDI decisions.

Regional trade agreements represent an attempt by a group of countries to increase the flow of trade and investment by reducing direct and indirect trade barriers between them, as well as implement similar trade policies vis-a-vis outsiders. Multinational trade blocks are a major global trend. Most of these blocks are formed by geographically close countries, and revolve around a small group of larger economies (Kotabe and Coutinho 1998). This is further testament to the importance of closeness and proximity in establishing network structures. Proximity in this case refers to both geographic as well

as economic and social similarities among countries (Beije and Groenewegen 1992). Such trade and economic conglomerations give the group a bigger role in the world economy, and insures that smaller member countries are not marginalized. In a recent study of future high growth areas, it was shown that world trade and economic growth will be fueled by regional trade conglomerations such as NAFTA, MERCOSUR, ASIAN, and the EU (Czinkota and Ronkainen 1997).

The common trading policies and preferential treatment for member countries created by a trade agreement have the double effect of promoting intraregional trade, while, at the same time, putting outsiders at a disadvantage. This has two major implications for investors. First, due to the liability of being an outsider, many companies decide to set up shop inside a trade area in order to benefit from the intraregional preferential arrangements. Second, in most cases, countries do not stop at homogenizing their trade policies, but rather move towards greater trade and economic integration. This is further evident in the continuously increasing degree of integration between the economies of Western Europe. Such trends create greater market similarities as laws and business practices are standardized within the region. Market similarities have been identified in the literature as an important determinant in foreign market selection decisions. In addition, costs associated with international commerce can be reduced when doing business in similar markets as harmonization of trade practices reduces the need for adopting different trade approaches for different markets (Davidson, 1983).

Most studies on the processes firms use to make foreign investment decisions incorporate country specific variables. These include both descriptive studies of the information managers use, and prescriptive studies on tools and techniques firms should use to assess country attractiveness. In this paper, we propose that structural variables, which describe the position of specific countries within an integrated trade and investment network offer additional insight and are therefore important to consider. By analyzing the position each country occupies in the flow of goods, services, and capital, a more complete picture of the relative attractiveness of specific countries can be ascertained, and would thus lead to better FDI decisions. Moreover, intra-regional trade networks can be modeled at an industry, or even a specific product category level, enabling mangers to identify the role a country plays in a specific intra-regional trade structure. Therefore, our goal is not to replace conventional approaches for evaluating foreign market entry and investment opportunities. Rather, structural trade data for countries within a trading block should complement economic, political risk, socio-cultural, and industry information widely prescribed for evaluating foreign market investment decisions (Root 1994).

Network analysis provides powerful tools for formal descriptions of complex interaction systems and has been used by a number of researchers to, among other things, analyze the structure of the worlds economy and its evolution over time (Smith and White, 1992; Beije and Groenewegen, 1992; Snyder and Kick, 1979). The focus on relations, and how they change over time, makes network analysis a fitting tool for describing and predicting regional trade structures. The main difference between network analysis and other non network-based approaches used in the area of FDI is that each countrys attractiveness is assessed in terms of its position within the overall regional trade structure. As such, a

greater emphasis is placed on the structural attributes versus the country-level statistics per se. In other words, rather than analyzing country attributes such as economic, legal, political and social indicators in isolation, such attributes can be examined in conjunction with the resulting network structures for a more complete assessment. To date, despite the increased use of network analysis in the international management research, such analysis has not been applied to the study of country attractiveness and the possible implication for FDI (Athanassiou, 1999).

A NETWORK ANALYTIC FRAMEWORK FOR ASSESSING THE EVOLUTION OF THE EU

The European Union, established in 1993 via the Maastricht treaty, has the stated goal of furthering economic integration between its member countrie(3) . As one of the most successful and important trade and economic integration areas in the world, the EU alone accounts for over a third of the worlds total trade. The importance of the EU as a regional trade network, and the number of countries involved, makes it a good case study for our analysis.

Because regional trade agreements evolve over time, it is important to make baseline and tracking analyses. For this analysis, the official lunch of the EU as an entity in 1993 is the reference date. We present a longitudinal network analysis of intra-regional trade data for there different years 1990, 1993, and 1997. Only three points in time are selected for reasons of parsimony. In addition, as the formal establishment of the EU in 1993 is our reference point, we believe that this timeline is appropriate to study the effects the EU has on individual countries positions and on the entire trade block. In the selection of network variables to be used, we use the following criteria. First, what positional attributes within a network make a given country more attractive than others for FDI? Second, what overall structural changes in the network may impact future FDI decisions within the network? In regards to the first question, we believe that a countrys structural equivalence and centrality offer the best descriptors of that countrys overall FDI attractiveness with respect to others in the same network. And in regards to the second question, we suggest that centralization, network density, and cohesiveness offer the most informative and parsimonious descriptors of a networks propensity to attract FDI. We proceed below by defining these network variables and offer more specific propositions as to how such variables can be used in formulating more informed FDI decisions in a regional trade network.

Structural equivalence. The first country level structural attribute that may have important implications for FDI decisions is whether any given country is structurally equivalent to another in the same network. Two countries are said to be structurally equivalent if they have qualitatively and quantitatively identical ties to and from all other countries within the network. This strict definition would require that any structurally equivalent countries must have the exact trade structure and value with all others in the trade block. Burt (1980) offers a more relaxed definition and suggests that two actors can

be approximately structurally equivalent if they have the same *pattern of ties* to and from other actors (countries).

We suggest that structural equivalence is a useful indicator for the differentiating role of group membership on market attractiveness. As discussed earlier, most firms engage in environmental scanning of economic, political, social, and other factors when evaluating country attractiveness. While we suggest that the network measures of countries that are members of intra-regional trade agreements be included as well, when such countries are structurally equivalent for a given relationship, their "network effects" are equivalent. When they are not structurally equivalent, then differences in individual country centrality and cohesiveness are likely, and network measures will be useful for differentiating country attractiveness. As such, the following proposition is offered:

> ***Proposition 1:*** *Countries within the EU trade network are not structurally equivalent, thus they differ in terms of market attractiveness.*

Country Centrality. In economic approaches to network analysis, degree centrality is synonymous with volume of exportation (e.g., Thompson 1965). Within network analysis, many definitions have been used to measure the concept of centrality (Alba 1973; Bonacich 1987; Freeman 1979, Irwin and Hughes 1992). Degree centrality represents the position of a given actor in a network as a function of the number of direct links it has with the other actors. As such, countries with proportionally large within-EU exports and imports will capture the most central positions in this regional trade network. A country that is more central in the network is expected to be more attractive as a potential hub for within-region trade due to the pre-existence of strong trade ties with all others in the same network. In terms of the flow of goods and/or capital within the trade agreement, exports are represented by the outdegree centrality, while imports are represented by the indegree centrality (i.e., imports and funds flowing into a country). Both are important to capture for any given country since outdegree may be associated with the ease of accessing other markets, while indegree may be associated with the ease of importing goods and services from other markets. Accordingly, we suggest the following proposition:

> ***Proposition 2:*** *Countries within the EU trade network exhibit different levels of degree centralities which affects their attractiveness for FDI.*

Network Centralization. One of the most important effects of trade and economic agreements among a group of countries, is the increased homogeneity within the block. Centralization offers a good assessment of the homogeneity of the roles of countries within any given regional trade network. Centralization is an especially useful indicator when comparing different networks, or in our case, when tracking the structural changes in a network over time. Consequently, and in regards to the EU, we expect centralization to decrease over time as countries become more economically integrated and the disparities among the richer and the poorer members start to diminish. However, the dissimilarities between countries offer early entrants greater opportunities for return. This occurs because drastic changes in the trade structure and the positions of countries within

the network happen at the early stages of integration when differences between the countries are greatest. Thus, over time, centrality differences should diminish, thereby changing the relative attractiveness of member countries (previously peripheral countries will become more central and therefore more attractive, while previously central countries will be less so in comparison to others over time). As such, we suggest the following proposition:

> ***Proposition 3:*** *Centralization within the EU trade network is expected to decrease over time indicating a move toward greater homogeneity of the countries in the network In so doing, more countries within the network will become attractive over time.*

Network Density. Network density measures the ratio of existing ties to the maximum number of all ties possible in the network. For valued (non-dichotomous) relationships, network density is the average value of all links between actors (Wasserman and Faust 1994). Network density is also meaningful when studying the evolution of one network overtime. An increase in network density indicates that the member countries in the trading block are becoming more integrated and more dependent on each other for trade and investment.

For the EU, it is expected that density will increase at a higher rate following each major integration initiative. As additional discriminatory trade practices that favor member countries go into effect, intra-regional imports are likely to increase. Net intra-regional exports will increase accordingly. As the intra-regional investment and local production grow, however, out-of-region exports should increase at a faster rate as countries identify and target new markets for their growing exports, and endeavor to bring in foreign currencies (Renato 1997). Therefore, network density for the intra-regional export relationship (expressed in terms of proportion of total exports) should increase in the early stages then level-off and possibly decrease, thus exhibiting an inverted U pattern over an extended period of time. Foreign direct investment into the EU region by non-member countries is expected to increase rapidly in the first years of integration so that foreign firms can become "insiders" and benefit from the favorable within-region trade conditions (Almor and Hirsch, 1995). Intra-regional investments are expected to occur less rapidly, as firms located in the region begin to grow and to expand from their existing base of operations.

A networks density measure is an important indicator of EU countries attractiveness in that firms entry or investment in one country may be the first step toward a planned regional presence. That is, firms may consider entering one of the EU countries, expecting that their presence in the first country will be a beachhead for subsequent expansion. In this case, network density provides an attractiveness indicator of member countries suitability for regional investment and expansion. We therefore propose the following:

Proposition 4: *As group-level densities increase within the EU trade network, individual countries become more attractive locations for intra-regional expansion and investment.*

Cohesiveness. Cohesiveness describes the extent to which stronger ties exist between subgroups of actors within a larger network, and is a concept that is especially useful in analyzing the trade structure of a large number of countries. In the case of the EU, identifying cohesive subgroups is equivalent to identifying the countries within the group that have more extensive trade and investment ties between them than with the rest of the group. If performed over multiple points in time, this structural measure can provide insights into the upward and downward mobility of particular countries within the network. Various approaches to assessing cohesiveness exist. One approach suggests setting a threshold value and countries are then identified as belonging to a subgroup as long as the value of their ties exceed the threshold value. A cohesive subgroup within a network provides a fitting target market within a larger market due to the stronger integration between the members of the subgroup. While network density is a good indicator of overall expansion opportunities, cohesiveness provides additional guidance to a step-wise FDI approach that may be adopted in a larger trade and economic block. We therefore propose the following:

Proposition 5: *Countries within the EU trade network will have different degrees of subgroup cohesiveness which affects their attractiveness for FDI.*

METHODS

As stated earlier, our goal is to illustrate how network analysis can be employed in formulating superior FDI decisions in the case of a regional trade network. Since the EU continues to evolve and expand to include many more countries, the analysis we conduct is as much illustrative of our approach as it is prescriptive of the market attractiveness of nations within this region.

Trade figures for 1990, 1993, and 1997 were collected from the *Direction of Trade Statistics Yearbook* published annually by the International Monetary Fund. Three matrices representing the flow of goods among EU member countries were compiled. The raw trade figures were translated into percentages of total intraregional trade in order to obtain indicators of any given countrys relative importance, at any given time, with respect to all others in the network. This adjustment is appropriate since our interest is in the changes in both the countries position and trends observed over time rather than the individual values generated by the analysis. The matrices were then analyzed using the UCINET IV computer program (Borgatti, Everett and Freeman 1996) in order to obtain the various FDI relevant network indicators and descriptors introduced earlier.

In addition to demonstrating how network analysis can be used to describe a regional trade networks evolution, another one of our goals is to forecast the networks structure in the future. Using time series analysis on the 1990-1997 intra-regional trade data, we also report how the network is likely to evolve through 2015.(4) In so doing, we can identify countries whose current entry costs may be relatively low, yet afford good short, medium and/or long-term opportunities for intra-regional expansion as depicted by their increasing role in the regional trade network.

FINDINGS

Tables 1 and 2 summarize the results of the network analysis on the EUs trade data. The tables show that Germany, France, Italy, the Netherlands, the UK, and Belgium/Luxembourg have the highest in and out-degree centralities as of 1997. As expected, due to the size of their economies, these countries are the highest intraregional traders. Germany is the most central and prestigious country in the network. These countries represent, in fact, the core of the EU economic region. Of more interest to us, however, is the change over time of the countries positions in this structure. This can be seen through the centrality measure changes between 1990 and 1997, as well as the results of the forecast analysis on the network measures. We report here the results for 2005 and 2015 as indicators of short and long term changes in the aggregate trade network.

While Germany is the most central country in the network, its dominance is expected to decrease as other countries such as the UK, Spain, and Italy (in terms of exports) become more central. The analysis also shows that while Belgium/Luxembourg held somewhat of a central position in the trade network, their role is expected to diminish and become shadowed by that of other larger countries, such as the UK, Spain, and Italy that are expected to become more integrated. Of all countries in the network, the UK, Spain, Italy, Ireland, and Portugal show the highest positive change in their outdegree centrality measures. This indicates that these countries account for a considerable portion of intra-regional export growth. The results also show that Germany, France, Belgium/Luxembourg, and Denmark show a relatively decreasing importance in terms of intraregional exports.

Table 1. Summary of Actual and Forecasted Centrality Measures -- Aggregate Trade

Code	Country	Outdegree (exports)					Indegree (imports)				
		1990	1993	1997	2005	2015	1990	1993	1997	2005	2015
1	Belgium/Lux	0.11	0.12	0.11	0.09	0.07	0.11	0.11	0.10	0.09	0.08
2	Denmark	0.02	0.03	0.02	0.02	0.01	0.02	0.02	0.02	0.03	0.03

3	France	0.17	0.17	0.16	0.16	0.16	0.18	0.17	0.15	0.12	0.08
4	Germany	0.27	0.23	0.23	0.19	0.15	0.23	0.22	0.21	0.19	0.16
5	Greece	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
6	Ireland	0.02	0.03	0.03	0.04	0.06	0.02	0.02	0.02	0.02	0.02
7	Italy	0.11	0.11	0.11	0.12	0.13	0.13	0.11	0.11	0.09	0.07
8	Netherlands	0.12	0.12	0.12	0.12	0.12	0.10	0.10	0.11	0.11	0.11
9	Portugal	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.03	0.04	0.05
10	Spain	0.05	0.05	0.07	0.10	0.13	0.06	0.07	0.08	0.10	0.13
11	UK	0.12	0.11	0.13	0.14	0.16	0.12	0.14	0.15	0.18	0.22

In regards to imports, Germany, France, and Belgium/Luxembourg again display a relatively decreasing role within the imports network, while the UK, Spain, and Portugal are playing an increasing role. Among the smaller countries, both Portugal and Ireland showed a significant increase in their centrality measures, while Denmark and Greece displayed zero or a slightly negative change. In summary, the network analysis identifies Germany, France, the Netherlands, Belgium/ Luxembourg, Italy, and the UK as the most central countries in the EU. However, in the short term (2005), and long term (2015), our forecasted network measures identify Spain, Ireland, and the UK as the countries with the highest increases in centrality measures. On the other hand, Germany, France and Belgium are expected to become less central. Germany and France will, however, remain one of the most central countries in the network, and no significant changes were forecasted for the Netherlands and Greece.

Due to the limited nature of the analysis, it is premature at this stage to draw clear and final conclusions. However, it is possible to observe emergent trends. For example, the centrality results show a clear upward trend for some countries and a downward trend for others. Based solely on this aspect of the analysis, one should consider currently central countries that are expected to display the highest increase in degree centrality in the long and short term as primary candidates for investment as these country show higher propensity for both growth and integration. This would include the UK, Spain, and Ireland.

Table 2. Summary of Actual and Forecasted Group-Level Structural Measures -- Aggregate Trade*

	1990	**1993**	**1997**	**2005**	**2015**
Network Centralization	2.17	1.72	1.65	1.66	1.53

Cliques	1,3,4,8, 11 3,4,10	1,3,4,8,11 3,4,7,10	1,3,4,8,11 3,4,7,10	1,3,4,8,11 3,4,7,10	1,3,4,7,8,10,11
Structural Equivalence	2,5,6,9 1,8	2,5,6,9 1,8	2,5,6,9 1,8 7,11	2,5,6,9 1,7,8,11	2,5,6,9 1,7,8,11

* See Table 1 for country codes

The network centralization index, a measure of how heterogeneous the actor centralities are, exhibited a downward trend. This is in line with the expectations that trade networks lead to an overall increase in integration between member countries. Since centralization is an index of the variability in individual actors centralities, a downward trend indicates a move towards greater integration and homogeneity. That is, previously peripheral countries with low centrality indices become more integrated, thus reducing the disparities between centrality indices. However, this downward trend may not be a smooth one as more countries are invited to join the EU. Therefore, the move towards greater homogeneity manifested by a decrease in centralization, may be offset by the admittance of new members to the network who may start by occupying peripheral positions in the network. From Table 2, it is seen that, as far as the original twelve EU members are concerned, their network centrality will decrease over time. These findings support the previously stated conclusions that important players such as Germany and France become less dominant, while countries such as the UK, Spain, Italy are starting to occupy a more central role. At the same time, previously peripheral countries, such as Ireland and Portugal, are becoming more integrated in the overall EU trade network.

The trade data was then subjected to a clique routine in order to identify cohesive subgroups within the overall trade structure. Two main points are noteworthy from the results in Table 2. First, Germany and France formed the core of every clique in the EU for each of the years analyzed. These two countries, due to the disproportionate value of trade between them compared to all other dyadic ties, are forecasted to continue as the core of the EU trade network well into the future. A second observation from the clique analysis is the presence of mainly two highly cohesive subgroups: a Northern block made up of Germany, France, Belgium/Luxembourg, the Netherlands, and the UK, and a Southern block made up of Italy, and Spain along with Germany and France. Short and long-term forecast analysis shows a general trend towards expansion, then later, merger of separate cliques. Both the Northern and Southern blocks are expected to merge and form a large single cohesive group in the long run. The two different cliques identified above form two sub-economic areas that should be considered first in decisions regarding expansion of operations. This is because cohesive subgroups offer greater similarities than non-cohesive groups (countries among which relatively larger trade and investment ties exist). To consider different cliques is to partition the entire economic area on the

basis of the level of economic integration between its members. This additional partitioning criteria can be used to complement other country clustering techniques.

The results of the structural equivalence analysis further support the previous findings (see Table 2; note again that Burts (1980) relaxed definition of approximate structural equivalence is used here). Three different sets of structurally equivalent countries were identified for 1997 --(1) Denmark, Greece, Ireland, and Portugal, (2) Belgium/Luxembourg and the Netherlands, and (3) Italy and the UK. In addition, the forecast analysis results show a relatively stable configuration in that the only major forecasted change is an alignment in the roles of the two sets of structurally equivalent countries where Belgium/Luxembourg, the Netherlands, Italy and the U.K. become collectively structurally equivalent.

As proposed earlier, structural equivalence may be a more useful concept for consolidation decision making. Since countries that are structurally equivalent exhibit a similar pattern of ties with all others in the network, it may be advisable to consolidate operations by limiting the number of structurally equivalent countries in which firms have independent operations. Interestingly, while France and Germany represent good gateways to the EU, evident by their cohesiveness and their membership in every clique identified, they are not structurally equivalent, and thus need to be considered separately in terms of their gateway potential. In contrast, investing in Belgium/ Luxembourg appears to offer the same intra-regional trade access privileges as investing in the Netherlands.

The group-level structural variables and network descriptors are informative if interpreted in their totality. The EU group is constantly becoming more integrated and homogeneous (at least as far as the twelve original members are concerned). France and Germany are the most central players in this network. However, other countries such as Italy, Spain, and the U.K. are expected to close ranks. All five countries have extensive ties with all others in the block, and are strongly tied together. Denmark, Greece, Ireland, and Portugal are on the periphery, but are becoming more integrated with the core and with each other thus offering substantial opportunities for long-term FDI decisions.

MANAGERIAL IMPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Environmental scanning and forecasting are necessary first steps for many international business decisions such as foreign investment. It is thus important to develop sophisticated means for such purposes. When countries under consideration are members of intra-regional trade agreements, it is important to consider the structure of the trade network and each countrys actual and forecasted position in it. Network analysis provides a means for doing so. We reiterate that the structural network analysis is meant to complement, not replace, established approaches for evaluating country and FDI attractiveness.

We have demonstrated a way to use network analysis of trade and investment (flow of goods and capital) between countries in a trade block as a tool to aid managers in evaluating country attractiveness. A number of country and group-level structural variables were identified and propositions were made regarding the future structure of the EU network, and the position of individual countries in the structure. The results helped to illustrate the various positions of member countries, and to identify potential differences in each countrys attractiveness vis-à-vis market entry and FDI decisions.

Future studies on other trading blocks and on specific industries, as opposed to aggregate trade flows, will shed additional light on the value of our approach. Even within the EU, in the near future sufficient data will be available for forecasting the network structure of all member countries (the original twelve plus Austria, Finland, and Sweden). Over time, the relationship between country-level density in a network and return on investment in a particular industry can be investigated. The relative success of network structure vis-à-vis other FDI criteria (i.e., economic conditions, political risk assessment) in explaining operational success and failure will also enrich the FDI literature. In addition, the relationship between density across a number of networks and the overall success of a particular mode of market entry can be investigated to help guide channel decision-making. The ability to use historic data to create, or re-create the network structure of a regional trade block makes these kinds of studies possible.

The analysis demonstrated in this paper can also be applied within a specific industry by using firms and other organizations in that industry as the unit of analysis and assess the formal and informal network structures in place. That is, by identifying major players, cliques, and structurally equivalent players within an industry as well as the formal and social networks that link them, a new entrant may be able to better assess the competitive structure and formulate an appropriate entry strategy. Similar studies of firms within a specific industry can be carried out across national markets to help identify the locations where key players (customers) are located and where industry influence is most prevalent.

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3. The countries included in this analysis are Belgium, Luxembourg, Denmark, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, and the United Kingdom. Since Austria, Finland and Sweden were not officially admitted until 1994, these countries are not included in the analysis.

4. As mentioned earlier, our analysis includes the 12 original countries in the EU trade network. Because of other countries later entry, insufficient data is currently available for conducting a valid time series analysis on their intra-regional trade data. Over time, these and other late entrant countries can be included in order to provide a more complete assessment of the networks current and future evolution.