The International Mergers & Acquisitions Web: A Network Approach

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This paper analizes the world web of mergers and acquisitions (M&As) using a complex network approach. We aggregate data of M&As to build a temporal sequence of binary and weighted-directed networks, for the 1995-2010 period and 224 countries. We study different geographical and temporal aspects of the M&As web, building sequences of filtered sub-networks which links belongs to specific intervals of distance or time. Then, we derive directed-network statistics to see how topological properties of the network change over space and time. The M&A web is a low density network characterized by a persistent giant component with many external nodes and with a few number of reciprocated links. Clustering patterns are very heterogeneos and dynamic. High-income economies are characterized by high connectivity being the main acquirers, implying that most countries might work as targets of a few acquirers. We find that distance strongly impacts the structure of the network: link-weights and node degrees are strongly non-linear. We show that the M&As web is assortative at short distances.

In the past two decades foreign direct investments (FDI) has become a major source of capital inflows for both developed and developing countries [1]. The flows of FDI may be classified in two main strategies: i) green field investments–when a parent company starts in a foreign country by constructing new operational facilities–, and ii) brown field investments–when a parent company purchases or leases a foreign existing production facilities to launch a new production activity– also known as mergers and acquisitions (M&As). Over the past 20 years, M&As have been preferred as the dominant mode of FDI, regardless of their higher volatility and sensitivity to financial conditions with respect to greenfield projects. In fact, M&As cover, on average, more than 80% of total national FDI [2].

In recent years an increasing body of literature has been studying international trade and financial flows between countries in the frame of complex-network perspective [3, 4]. Compared to traditional international-trade indicators, the topological web architecture may explain to a greater extent country growth and the development pattern. In this context, we introduce our study on Mergers and Acquisitions (M&As). With respect to the existing literature, our novelty consists in focusing on the complex system of interactions between countries in space and time.

Several empirical studies have tackled the question of M&As determinants trying to identify and evaluate the most relevant variables associated to global FDI activity. As a general conclusion, FDI are driven by quite diverse factors, ranging from differences in costs of production and trade to differences in institutional, social, cultural and financial characteristics of countries. As regards to the cost associated to geographical distance that might affect cross-border M&As, it has been stressed that information asymmetries increase with distance creating a barrier to cross-border movement of capitals. From a theoretical point of view there is no clear net effect on the geographical distance to cross-border M&As. Given that it is expected that trade costs rises with distance, the simplest premise is that the decision to set up affiliates in foreign countries is positively affected by distance. In contrast to this, empirically has been found that this relation is negative. This evidence suggests that there might exists other sort of costs related to the distance that must be considered, rather than the simplest outcome of considering trade costs only.

All these sources of heterogeneity have bound the theoretical contributions in the field, leading to the opportunity of action of other sources of analytical tools, such as the network analysis. This study represents a first step towards a deeper exploration of global M&As-activity from a network perspective. We study the architecture of M&As observed in a narrow time window (a few months) in order to capture the prevailing or evolving patterns of the structure of the M&As web. And finally, we perform a statistical analysis for binary and weighted networks to provide evidence on the topological properties in different cross-sections. Then, we use the distance between countries having M&As to study how the geography determines the structure of network.

World mergers and acquisition relationships are characterized for being very concentrated in a few countries and for being strongly target oriented. We found that the M&As web is a low density network characterized by a persistent giant component with a few number of reciprocated links and with many non strongly connected external nodes. The giant component is mainly composed by developed economies which have more reciprocal investment relationships. Thus high-income economies are characterized by high connectivity and clustering, these countries mainly merge to several high and middle income economies, implying that most countries might work as targets of a few acquirers.

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