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A social network analysis of interlocked directorates in electronic commerce firms

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Abstract

Using social network analysis, this research examines whether a pattern of interlocked directorates exists among the top 50 e-commerce firms and how this network differs from the network of other leading firms. Further, it looks at whether a firm's measure of centrality is associated with its visibility. The results suggest that the location of e-commerce firms in these networks is more important than simply the number of ties. The findings point to the role of e-commerce firms in establishing links between both firms and industries. These findings also suggest that e-commerce firms are most interesting to study when looked at in terms of a larger network of firms, and that it is in the ties between the e-commerce and the traditional and well-established firms where many potential research opportunities lie.

Keywords: Interlocked directorates; Electronic commerce; Social networks

1. Introduction

Electronic commerce (e-commerce) and the organizations that form the foundation of the 'digital economy' have moved to the forefront of organizational research over the past several years. Changes, including the proliferation of the Internet, show promise of transforming traditional organizational and industry structures. For quite some time it appeared as though the traditional economic rules did not apply to these e-commerce companies. While much of the hype surrounding these organizations has dissipated, there is still significant interest in the new economy. One important element of the new economy is the relationship between the organizations that are leaders in the area. This exploratory research utilizes social network analysis to investigate relationships between organizations as captured by interlocked directorates.

Interlocked directorates, defined as firms who share one or more board of director members, have been the focus of research since the turn of the last century [1]. This paper looks at how these relationships occur among organizations in the 'new economy'.

The aims of this research are multifold. First, we are interested in whether among the top 50 e-commerce firms a pattern of interlocked directorates exists and how this network differs from the network of other leading firms. Second, we examine how the characteristics of the network change when the members of the boards of directors of the top 50 'traditional' firms are added. Finally, we look at how

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position in the network is related to a firm's visibility measured as the number of times a firm is cited in the *Wall Street Journal*. This measure is particularly appropriate for e-commerce firms, which have often employed strategies focused on gaining name recognition rather than profitability. Additionally we examine how these measures and relationships change between a network of strictly top e-commerce firms and a network including top traditional firms.

While prior research on interlocked directorates has studied firms in traditional industries, this research looks at firms within the e-commerce industry. Furthermore, not only does this research look at the relationships among the top e-commerce firms, it also examines the links between these new economy firms and firms in traditional industries. From an academic perspective, this paper is significant as it furthers the research conducted on e-commerce in general and more specifically on interlocked directorates within the scope of e-commerce. A further contribution of this research lies in its potential significance for practitioners. This research may provide insights to e-commerce firms with respect to the importance of location within a network and how this location may influence the relationships that form among firms in the network.

2. Prior research on interlocked directorates

The first studies of interlocked directorates were conducted in Germany: in 1905, Otto Jeidels looked at the relationship between the German Big Banks and industry; in 1909, Hilferding associated the development of finance capital with the monopolization of industry which needs ever-increasing funds for investment; Riesser in 1910 and Hagemann in 1931 published research which examined the relationship between banks and industry [1]. Stearns and Mizruchi [2] found a relationship between firms whose board of directors are interlocked with those of financial institutions and the amounts and types of financing the firms achieved. Similarly, Levine [3] looked at the relationship between boards of major banks with the boards of major industrials. Although most research has provided evidence that financial institutions constitute a center point in corporate networks, in a recent study Davis and Mizruchi [4] found that the centrality of banks has substantially declined over the years. They found that executives of large firms joined banks' boards of directors at a decreasing rate from 1982 to 1994; they argued that, due to the decreasing returns available from lending to major firms, banks have opted to recruit fewer centrally located directors and move into other forms of business.

In the United States, study of interlocked directorates emanated from public debate, was stimulated by the anti-trust movement and was sponsored and carried out by the government [1]. Mainly, this research was of interest to economists and congressmen. In the 1950s, interest in interlocked directorates shifted to sociologists, mainly those interested in organizational issues (for example, Refs. [3,5.6]). Topics that have been examined include the type of firm that is interlocked, the direction of the interlock between two companies, whether there is a geographical basis for the interlocking of directorates, and which type of director carries the interlock. Also, Allen [5] suggested that interlocking corporate directorates is a strategy for reducing sources of uncertainty in the environments of the associated firms.

At the macro level, the American economy is characterized by inter-industry interlocked directorates [7]. Several theoretical orientations have been proposed to explain the interlocked nature of the American corporate system. The four sources of such theories are, namely, the management control theorists, the environmental control and reciprocity theorists, the financial control theorists, and the class hegemony theorists [8]. According to the management control theorists, the board of directors ''is appointed by management essentially at will, and is used for advice, criticism, prestige, and to a minor extent, for business contact'' (Ref. [8], p. 197). Environmental control and reciprocity theorists view interlocked directorates as mainly a means for management to facilitate cooperation to achieve mutual benefit, especially when scarce resources must be shared between several organizations. Financial control theorists view interlocked directorates as a way for financial institutions to control and manipulate investments; being interlocked with financial institutions helps to stabilize the environment of firms that are increasingly capital-intensive and for whom