

Business Groups and Interlocking Directorates' Network in Turkey

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Introduction and Motivation

- Business group is a collection of firms (listed or not) coordinated by a formal structure or by informal alliances.
- Apart from Anglo-Saxon countries, business groups are really the big players around the world.
- Keiretsu in Japan, Chaebol in South Korea, Konzerne in Germany, familiar business groups in Italy (ie. Agnelli group)
- In Turkey they are really big. Top 20 business groups have more than %60 of the total market value in the stock exchange.

- Business groups are strange creatures that defy the logic of "the nature of the firm" (ie.Coase, Williamson)
- BGs have various flavors: Chilean business groups are very different than the Israeli ones
- Multidimensional space to locate a BG.
- Ownership and Control: Family, Families, Banks, State, Coops, Pension Funds
- Scope: How diversified are the BG firms in terms of economic sectors
- Depth: How are links among BG firms are maintained? Hierarchical or horizontal

- Conventional view on business groups emphasize the imperfect of missing markets.
- BGs substitute for missing or underdeveloped capital and managerial markets.
- BGs diversification is a way of portfolio diversification when insurance and risk markets are not developed.
- At the extreme, BGs are suspected for crony capitalism and abuse of minority shareholders

Research Question: How important are BG firms in terms of governance networks?

- Interlocking directorates are fundamental for governance networks
- Business group firms are generally family owned and controlled
- Ex ante, we expect sparseness as trust across families may be lacking
- However, there may exist brokers linking individual business groups

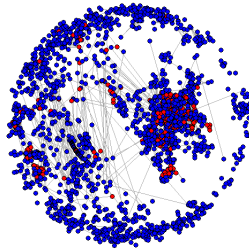
Method

- We use social network analysis
- We scrape data on board membership of 2476 firms registered in "Central Securities Depository of the Turkish Capital Markets" ("<https://e-sirket.mkk.com.tr/esir/>")
- We clean data and construct firm networks in which at least one common board member across two different firms make an edge.
- Then we locate the firms belonging to the biggest 20 main business groups and show their centrality both in the overall network and in the giant component.

Network Analysis: Visualization and Centrality

- Overall top 20 BG firms constitute 346 of the total, that is % 14.
- The biggest BG group ("KOÇ") has 45 firms
- In terms of equity, the top 20 BG firms make up to % 30 of the total
- Moreover, they dominated in terms of total number of edges as within business group firms have multiple common board members

Figure: Firm Network



- There are 817 components, this is a sign of sparseness.
- The largest connected component of the firm network is called the giant component.
- The ratio of the giant component to overall firm network size is 0.35 (867 firms in the giant component out of 2476 firms in total)
- In advanced countries such as US or Germany this ratio is more than 0.8 (Kogut 2012)
- The share of top 20 business group firms in the giant component rises to % 25

Figure: Firm Giant Component Network

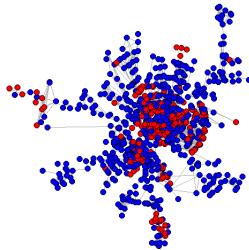


Table: Small World Statistics of the Giant Component

	Measure
Average Path Length	10.57
Clustering Coefficient	0.74
Diameter	36

Table: Central Firms Overall and in the Giant Component

	BG	Firm
Betweenness Centrality	Koç	Tofaş
Eigenvector Centrality	Dinçkök	Aksa Enerji
Betweenness Centrality	Koç	Tofaş
Eigenvector Centrality	Koç	Entek Enerji

Discussion and Conclusion

- Business groups firms are significant players in the corporate governance network in Turkey.
- The lack of trust among the business groups may lead to the comparative sparseness of the firm network and the lower size of the giant component to overall firm network ratio.
- However, business group firms are central in terms of cohesiveness of the giant component
- In future research, we plan to trace the dynamics of edge formation among the business group firms as well as the outsider firms, such as foreign firms.