
BOARDROOM NETWORK CENTRALITY

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CONCLUSIONS

PROJECT OVERVIEW

- Explore the idea that companies with more network connectivity benefit from increased flow of information
- Major Publicly Traded companies have a board of directors
 - Many of the Board Members are executives at other Fortune 500 companies
 - Many executives hold board member positions at multiple companies
- Goal was to see whether boards consist mostly of people within the same industry or whether they bring people from other industries
- Compared Tech, Oil/Gas, and Financial Services to see how open/closed off they were
- Second goal was to examine how well connected companies were and see if influence could be seen in external reporting and financial statements

DATA OVERVIEW

- Board to company relationship data from BoardEx
- 2022 chosen so that influence could be analyzed (takes a couple years for changes to reflect)
- Grouped industries and primarily analyzed the following industries:
 - Oil/Gas/Energy
 - Financial Services
 - Tech

STRONG VS WEAK TIES

- “Strong Tie”
 - Board member serves on multiple boards within the same sector
 - Board member on two technology companies
 - Less proliferation of new ideas since companies are similar
- “Weak Tie”
 - Board member serves on multiple boards across different sectors
 - Board member on a technology company and real estate company
 - Allows for knowledge to be spread across industries

WEAK TIES WITHIN SECTORS

Sector	Total Ties	% Weak Ties
Healthcare	2031	17.1%
Financial Services	1382	42.4%
Basic Materials	279	55.2%
Technology	882	55.8%
Energy	276	63.0%
Real Estate	253	63.2%
Industrials	787	73.6%
Consumer Cyclical	647	74.5%
Consumer Defensive	208	79.3%
Communication Services	233	79.4%
Utilities	192	79.7%

WEAK TIE BREAKDOWN BY INDUSTRY

board_sector	Energy	Financial Services	Technology
company_sector			
Basic Materials	28.160920	9.897611	5.487805
Communication Services	1.149425	2.901024	7.113821
Consumer Cyclical	11.494253	18.941980	18.292683
Consumer Defensive	5.747126	4.778157	6.504065
Energy	0.000000	3.583618	2.845528
Financial Services	13.793103	0.000000	23.170732
Healthcare	9.770115	11.774744	12.804878
Industrials	13.793103	16.894198	19.918699
Real Estate	1.724138	8.532423	2.439024
Technology	6.896552	16.552901	0.000000
Utilities	7.471264	6.143345	1.422764
Total	100.000000	100.000000	100.000000

MOST INFLUENTIAL SECTORS

Companies want directors from Financial Services and Industrials; don't want as many from Utilities and Real Estate

	Total Weak Ties	% of Total Weak Ties
company_sector		
Financial Services	501	14.408973
Industrials	493	14.178890
Consumer Cyclical	480	13.805004
Technology	454	13.057233
Basic Materials	449	12.913431
Healthcare	344	9.893586
Consumer Defensive	230	6.614898
Communication Services	143	4.112741
Energy	132	3.796376
Real Estate	129	3.710095
Utilities	122	3.508772

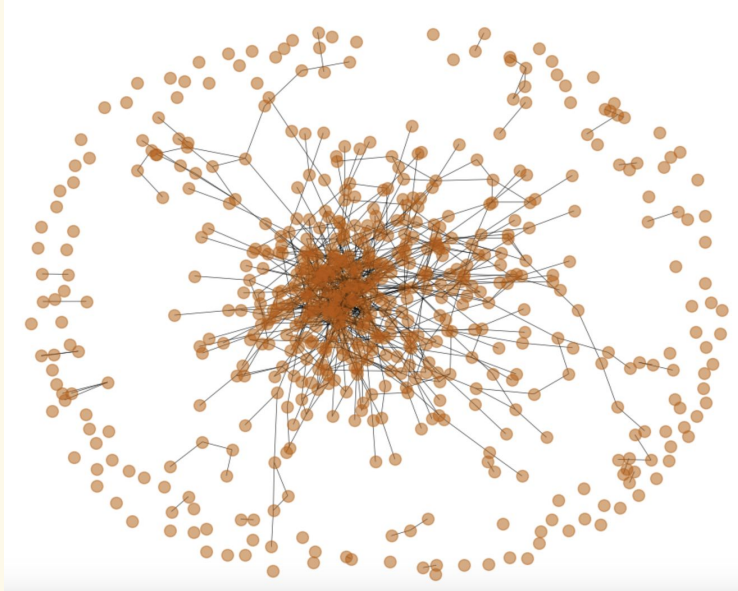
Examining Impact of Weak-Ties on Costco



Comparing Costco Earnings Calls

- Analyzed earnings call transcripts from Costco (2021 vs 2024)
- 2021 - Less mention of Technology Implementation; very high-level mention
- 2024 - Specific Examples Mentioned in Earnings Call
 - Membership Card Scanners @ Store Entrance
 - New Inventory Mgmt System that shows stock levels to members

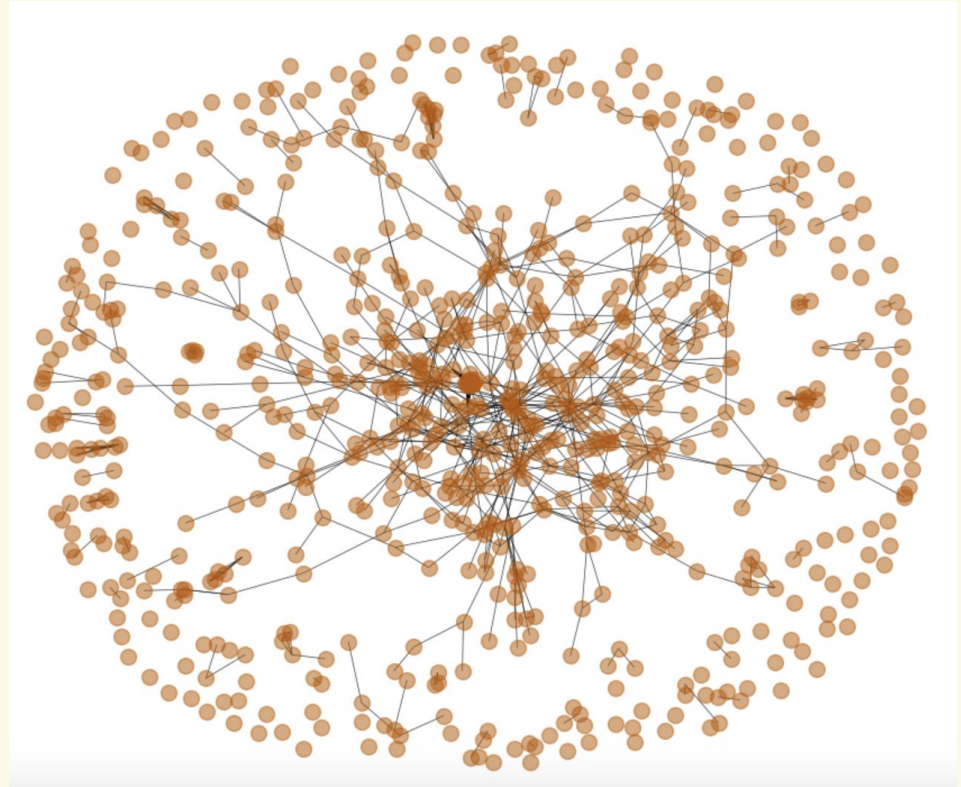
TECH SECTOR CONNECTIVITY



Board Name	Degree Centrality	Betweenness Centrality	Closeness Centrality
Zoom	0.0175	0.067	0.122
Microsoft	0.0155	0.069	0.117
Cisco Systems	0.0175	0.055	0.115
Intel	0.0195	0.052	0.115
Salesforce	0.0214	0.034	0.110

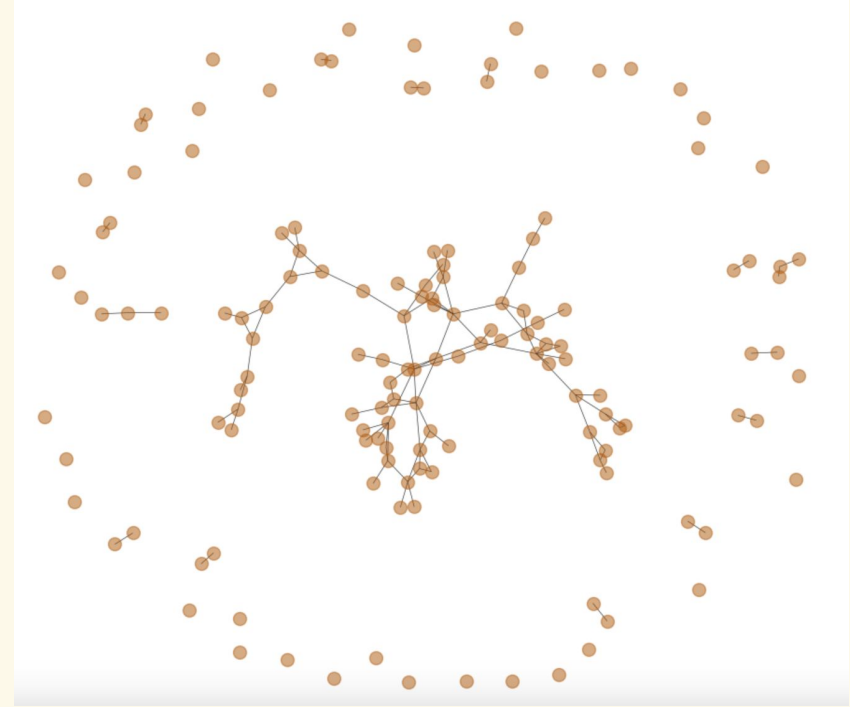
FINANCIAL SECTOR NETWORK CENTRALITY

Board Name	Centrality Score
JP Morgan Chase	0.226
Citigroup	0.186
Citizens Financial	0.183
Blackstone	0.178
Truist	0.176



OIL & GAS NETWORK CENTRALITY

Board Name	Centrality Score
Civitas Resources	0.312
Baytex Energy Corp	0.280
Berry Corp	0.271
Patterson Energy	0.268
Chord Energy	0.252



CONCLUSION & FUTURE WORK

- Anecdotally, there is tangible impact of board members serving on companies in different industries (weak-ties)
- Future work would be exploring additional earnings reports and statements
- See if there is any value to board member connectivity on stock prices (as an investment opportunity)
- Try removing small groups of highly connected companies and see how networks change

THANK YOU!

Questions??